Comments and Responses

1.0 SUMMARY

Comment *020-007*

Many of the issues raised in the scoping process are not discussed or addressed.

WAC 197-11-408-1 requires that the scope of the EIS address identified probable significant adverse impacts and reasonable alternatives, including mitigation measures. As you are well aware, the WoodRiver Community Organization, with this requirement in mind, submitted an extensive set of issues to be discussed during the scooping process. Only a small portion of these issues actually made it into the DEIS. Rather than discuss those issues in this letter, we have listed every issue we raised but which was not addressed at the end of each chapter of our comments. As you will see, the number of these issues is shocking. Again, we reserve the right to raise this issue in any judicial or administrative proceeding we become involved in regarding this project.

Response

An extensive public scoping process occurred prior to preparation of the DEIS. The EIS reflects that scoping process and the requirements of SEPA with respect to level of detail and the issues analyzed.

Comment *012-012*

Summary lacking. SEPA 1998 [WAC 197-11-235, section (5)(b)] also requires an EIS summary that should highlight from an environmental perspective the main options that would be preserved or foreclosed by the proposed GMA action. It should reflect SEPA's substantive policies and focus on any significant irreversible or irretrievable commitments of natural resources that would be likely to harm long-term environmental productivity, taking into account cumulative impacts [emphasis added]. A summary of the principal environmental impacts may be presented in chart or matrix form, summarizing the relevant elements of the environment and impact assessment required by WAC 197-11-440(6)(b) through (e).

Response

The summary has been revised to better meet SEPA requirements. The citation applies SEPA documents which accompany proposed Growth Management Act (GMA) documents. The proposal is not a GMA action.

Comment *012-016*

The "Fact Sheet" of the DEIS fails to include a CUP on its list of required licenses as set forth in WAC 197-11-440 (2) (d). The language of the rule is very clear. It states that every EIS shall include a list of the permits "which the proposal is known to require." And under WAC 197-11-700 (Definitions) (1)(d) "Permit" means "License."

Comment *012-018*

Therefore, a "CUP" must be added to the list of "Required Licenses" on the Fact Sheet.

Response

The "CUP" is required for mining activities on the Lower Site under Alternative 2 and is included in the Fact Sheet list in the FEIS.

Comment *012-024*

Debate over this proposal has generated significant public comment; scores of editorials, articles and letters to the editor have been published in area newspapers (including the Seattle Post-lntelligencer, the Eastside Journal, and the Valley Record). The proponents and King County have held public meetings on the project for which summaries are available. Numerous, recurring "areas of controversy and uncertainty"

have thus been amply documented. The DEIS document fails to even allude to these issues in the context of this SEPA

Response Comments acknowledged. The FEIS acknowledges there are areas of controversy. An extensive public scoping, which is a public process, occurred prior to preparation of the DEIS. The FEIS reflects that scoping process and the requirements of SEPA with respect to level of detail and the issues analyzed.

Comment *003-001* This letter is to inform you of our intention to have the WSDOT, Northwest Region Office, serve as the primary contact for Cadman, Inc.'s proposed North Bend Gravel Operation. This will allow you to receive a single set of comments from WSDOT. Please send any additional information and requests for comments to Phil Fordyce, East King Area Administrator, PO Box 330310, Seattle, WA 98133-9710.

Comment *004-010* Please provide State Parks copies of any further environmental documents concerning this topic at the above letterhead address. If you have any questions concerning the above comments, please contact me at (360) 902-8632.

Comment *033-002* Please keep me informed.

Response Comments acknowledged.

Comment *012-001* The DEIS fails to meet style and size requirements spelled out in WAC 197-11-425, paragraph (4). The document exceeds the allowable maximum of 150 pages and does not explain technical jargon via footnotes or a glossary (as required in paragraph 2). Given the document's length and complexity, it should have included an index as suggested in paragraph 2.

Comment *012-002* Clearly the intent of this document is to overwhelm reviewing agencies and the general public with volume of figures and technical jargon. DEIS preparers used a team of experts for nearly a year to prepare the document; but the public has just 45 days to evaluate the document and prepare a technically sound response. For a DEIS of this length, the public comment period should be extended to six months or longer.

Comment *012-003* The preponderance of the DEIS is, in fact, highly descriptive. It provides considerable historical information and background conditions; it does much less to assess environmental impacts. Twenty-five to thirty percent of the text focuses on this type of supporting narration (for example, six of eight pages in the section on "Soils" and six of 18 pages in the "Plants and Animals" section).

Response Comments acknowledged. We have made some format changes in an attempt to make the FEIS a more reader-friendly document. Note that the EIS is prepared by King County and is an information tool which discusses the environmental impacts of the proposal and assists the decision-maker at King County, the public and the applicant. SEPA regulations call for a discussion of the affected environment. Regarding terminology, SEPA does not require a quantifiable risk analysis of impacts. Of necessity, subjective terms such as "most likely," "unlikely," etc. are used based on the professional experience of the experts who prepared each section. The comment period was extended to 60 days.

Comment *024A-116* This section of the DEIS is inadequate. Essentially it is a restatement of the description of the proposed project and the project alternatives with the addition of a simplified

matrix table outlining impacts and mitigations. Contrary to SEPA (WAC 197-11-440 (4)), the Summary does not provide the following:

- The purpose and need for the project
- A discussion of the major conclusions
- A discussion of the significant areas of controversy and uncertainty
- The issues to be resolved, including the environmental choices to be made among alternative courses of action and the effectiveness of mitigation measures

The simplified matrix table does not provide this required information.

Response The FEIS summary (Chapter 1) meets the SEPA requirements and includes the items listed in the comment. Environmental choices and mitigation measures are part of Table 1-2.

Comment *072-001* Alternative 4 is the only acceptable plan for mining under the DEIS. The lower site is NOT a legitimate gravel mine. It is instead a sham attempt to make the processing facility appeared to be legal (i.e. complying with zoning requirements). The only gravel being mined at that site is to be used for onsite berms. The upper and lower sites are, in fact, two separate locations- separated by several miles, and should be considered as separate sites for the purposes of permitting "onsite" processing facilities. Imported gravel, asphalt, and cement to a processing facility that is located in a sham gravel mine is nothing more than an attempt to evade zoning restrictions against this operation. This should not be permitted.

Response Comment noted. The proposed mining would occur on two portions of the project site which are connected by an easement. King County considers the two portions to be contiguous and therefore a single site for permitting purposes.

Comment *024A-119* We have provided the following brief summary for the DEIS authors to review for its accuracy (once they have redone the other analyses). We request that they comment on whether it is an accurate summary. Where they disagree, please provide the rationale and background for that disagreement. Even if they disagree with portions of our summary, do they disagree with its basic conclusions.

Comment *024A-120* The proposed project will result in gravel processing, asphalt production, and concrete production at the Lower Site for a period of 20-30 years. This lower site contains at least 226 residences within one mile as well as a proposed public school. Alternative 4 would not use the Lower Site and would effect only the environment around the Upper Site. This site contains 35 residences within one mile, of which only 6 full-time residents use the access roads that would be used by project traffic.

Comment *024A-121* The community affected by the proposed project is over 10 times larger than the one affected by Alternative 4. In addition, most of the residences affected by Alternative 4 are considerably more distant than residences near the Lower Site. Some of the differences in impact realized by Alternative 2 and Alternative 4 are outlined below.

Response The project is proposed for 25 years. Demographic information provided in Chapter 9, Land Use, of the FEIS shows the area within 1 mile of the western boundary of the Lower Site had a population of 58 in 22 households in 2000. The area within 3 miles of the western boundary of the Lower Site had a population of 4,302 in 1,492 households in 2000. The area within approximately 1 mile of the northern boundary of the Upper Site had a population of 7 in 3 households, while the area within approximately 3 miles

of the northern boundary of the Upper Site contained a population of 714 in 264 households in 2000.

Comment *024A-123*

Alternative 2 will increase small particulate air pollution in the area near the Lower Site by 44 percent while Alternative 4 will increase pollution by about one percent. The number of people affected by dust and other air pollution at the Lower Site is over 10 times the number of people that could be affected at the Upper Site.

Response

Comment noted. The amount of particulate matter generated under Alternative 2 would be greater than that generated under Alternatives 3 and 4.

Comment *024A-124*

Development of the Lower Site will alter views in the area. This change will be particularly manifest for the first 5-10 years until the berms are revegetated. Subsequent to revegetation, the effect will be moderate to substantial depending on the vantage point. The visual impacts resulting from development of the Upper Site would be no greater under Alternative 4 than they would be under the proposed project (Alternative 2).

Response

Mining and processing would be visible from some view points, particularly higher elevation recreation areas, for all action alternatives. Mining and processing also would be visible from the Lu residence accessory structure under Alternatives 2 and 3.

Comment *024A-125*

The proposed project will generate substantial amounts of heavy truck traffic on 468th Avenue SE and the freeway ramps. These eastbound ramps are expected to experience significant congestion within the lifespan of the proposed project, dropping to Level of Service F by 2025. This project-generated traffic will congest a roadway currently used by residents of at least 337 residences in the area (this is only an approximate number of the residents located in the vicinity of the Lower Site There is a much greater number of residents in the surrounding Middle Fork, Lake Dorothy Road, and Edgewick Road areas that use this exit daily. Not only will these residents experience increased roadway and intersection congestion, but there will be a corresponding increase in the chance for traffic accidents. Construction of a new school in the area will exacerbate potential traffic safety problems, especially regarding school buses and children walking or riding a bicycle to and from school. The street and exit used for Alternative 4 is currently used by 6 fulltime residents and 14 part-time residents. The traffic volumes are very low plus the ramps were designed to accommodate large trucks accessing the Homestead Mine.

Response

The proposal would add about 998 vehicle trips per day during the peak month, assuming 15 percent of annual production would occur during the peak month. The proposed elementary and middle schools, warehouse and offices would add approximately 2,833 average weekday daily trips by 2005. I-90 eastbound ramps at 468th Avenue SE are expected to reach Level of Service F during the PM peak hour in 2015 under the No Action alternative – that is, without the mining project. Additionally, the 2005 projected traffic volumes result in the intersection of 468th Avenue SE and SE North Bend Way operating at Level of Service F during the PM peak hour under the No Action Alternative. Impacts on bicycle and pedestrian travel would be expected near the Lower Site under Alternative 2 and on SE Homestead Valley Road under Alternatives 3 and 4. Traffic impacts are discussed in Chapter 14, Transportation, of the FEIS.

Comment *024A-126* Alternative 2 will result in a large industrial complex at a recreational gateway in the County. Not only will such a complex not be in character with a County-recognized gateway, it will delay for a generation the possibility of developing a gateway center at this important recreational entrance. And will likely have a cumulative negative impact on the type of development that will occur north of S. E. 146th Street. Alternative 4 will increase traffic along Homestead Valley Road thereby affecting recreationists accessing Olallie State Park and walking across that road to access the river. In addition, access across the road could be mitigated by requiring a pedestrian overpass. Under Alternative 4, the gateway at Exit 34 would not be adversely affected.

Response The Middle Fork of the Snoqualmie River Valley: River Corridor Public Use Concept Plan, funded by private and public participants, proposes development of a "Gateway Center" staging area at Exit 34 to provide public information and services as part of Phase II. Phase I identifies the existing forest road system on Grouse Ridge as an opportunity for development of hiking, biking, equestrian activities and a formal shooting range. Implementation of these activities on Grouse Ridge would be contingent on the Weyerhaeuser Company conveying the land to entities willing to manage the land for these purposes. The proposal would not directly affect the Middle Fork plan proposal outside of the project site. An industrial park/warehouse distribution center is proposed at SE 144th Street, north of the proposed project site.

Comment *024A-129* Alternative 2 will substantially change the character of a large community living near the Lower Site. Numerous residents will find the project substantially alters their experience of the area due to increased traffic congestion, noise, dust, and changes in views. Development of the Upper Site under Alternative 4 extends gravel mining in an area currently used for that purpose. While there will be some changes in views, increased air pollution, noise, and traffic, it will mainly affect 6 fulltime residents and 14 part-time residents.

Response Comment noted.

Comment *024A-130* To conclude, Alternative 4 allows the applicants to meet their basic objectives of developing aggregate sources for use in the county. Of the 300 acres to be mined for aggregate, 260 of these acres are on the Upper Site. Restricting aggregate extraction to the Upper Site will eliminate several significant impacts as well as a number all other impacts generated by the Lower Site which while they may not meet the DEIS criteria for significance will certainly affect the lives of people living in the area. Alternative 4 substantially meets the applicant's objectives, the needs of the larger population for aggregate, and the local community's needs to continue to live in a pleasant, unpolluted environment.

Comment *024A-131* Alternative 4 will eliminate all of the impacts from the asphalt and the concrete batch plants.

Comment *024A-132* Please note that we have restricted our conclusions to the areas we have addressed in this letter. It is quite likely that additional benefits of Alternative 4 as compared to Alternative 2 would be realized by references to and revisions of the sections on hydrology and water quality, biotic resources, and public services and transportation.

Response Under Alternative 4, mining and related activities would not occur at the Lower Site, so impacts would be limited to the Upper Site and in the vicinity of the Upper Site. The amount of significant unavoidable adverse impacts is less under Alternative 4 than under Alternatives 2 and 3.

Comment *127-040* It is supposed to discuss the significant areas of controversy and uncertainty, but there is none here. There is no discussion of areas of controversy areas and no preliminary of concern expressed by the public and public agencies during the pre-EIS stage.

Comment *127-041* Makers should know all the varied concerns of the public and the agencies, so that they can determine whether the EIS adequately addresses these concerns. In addition, the listing of concerns allows decision makers to see that this project has been extremely controversial since its inception.

Response Significant areas of controversy are included in the FEIS summary, Chapter 1. SEPA does not require all issues of public concern be addressed in the EIS. Comment letters are part of the record and are available to the decision-maker for review.

Comment *127-042* The WAC also requires that the summary section consider issues to be resolved, including the environmental choices to be made among alternative courses of action. The EIS does not provide a discussion of the range of impacts that will be experienced by the local community living near the lower site. It does not compare the impacts with the impacts that would result from the other alternative.

Response Environmental choices are covered in the FEIS summary table, Table 1-2. The main issue is King County's decision on a grading permit and is discussed in the Summary of the FEIS. WAC 197-11-448 states, "The EIS provides a basis upon which the responsible agency and officials can make the balancing judgment mandated by SEPA, because it provides information on the environmental costs and impacts."

Comment *127-043* In particular, the summary should clearly compare the impacts to the local community if Alternative Four were selected rather than the proposed project. The alternative analysis is generally considered to be the heart of the environmental review process.

Comment *127-044* If a project will have significant impacts, as the proposed project will here, then it should clearly explain the magnitude of these impacts and how they would be reduced by one or more of the alternatives.

Response Impacts of the proposal are compared with impacts of the alternatives in the DEIS and FEIS. The Summary of Impacts, Table 1-2, outlines impacts, mitigation measures and significant unavoidable adverse impacts for each alternative. Significant unavoidable adverse impacts of the proposal include those to soils and geology, plants and animals, land use, and aesthetics.

Comment *127-046* Finally, it should have described the effectiveness of mitigation measures. The EIS lists some mitigation measures in the matrix table, but there is no discussion of how effective these mitigations would appear to be or would be to reduce the significant impact.

Response The effectiveness of mitigation measures included in the FEIS summary table is measured by whether they reduce the impacts to below significant adverse. The proposal would result in significant unavoidable adverse impacts to soils and geology, plants and animals, land use, and aesthetics.

Comment *024A-118* This Summary is deficient in that first it summarizes the other DEIS analyses, many of which do not accurately describe the project-generated impacts (as noted in previous

comments). Second, the matrix table makes it appear that the impacts of Alternative 4 are similar in type and scope as for Alternative 2 (the proposal). This completely ignores the number of people affected by operations under Alternative 2 as compared to Alternative 4.

Response Comment noted. The table has been revised to better reflect the impacts of all alternatives.

Comment *045-050* Page 3.5-12, 4 para.: I am confused about whether "land used for mining..., and reclaimed" will be offered to donate to King County, or as on Page 3.5-19, "post-mining use of the Lower and Upper Sites would then be returned to timber production [not under King County ownership?]." It should be made more clear which option would happen under what circumstances.

Response Weyerhaeuser will offer property used for mining to DNR, which would hold the property in trust for King County. The property would be managed as a working forest.

1.1 PROPONENT'S OBJECTIVE FOR THE PROPOSAL

Comment *115-003* Chapter 1 p. 1: "The duration of the operation is expected to be approximately 25 years, but this will depend on the market demand for aggregate products in eastern King County." Sounds like the time frame could drag on indefinitely. I will be 67 years old in 25 years, and if this abhorrent project does materialize, I will be ready for the mine to be shut down in 25 years, and no longer.

Response According to Cadman, Inc., the project life will not extend past 25 years.

Comment *127-038* The DEIS itself. It simply doesn't fulfill the requirements as set forth by SEPA. Specifically in the WAC 197-11-440, it requires that the summary sections of the DEIS include the following: First, it has to -- this is in the summary section -- it has to describe the need to which the proposal is responding, and this is not included in the summary of the DEIS.

Response The Proposal's purpose and need to which it responds have been added to the summary in the FEIS.

1.2 DESCRIPTION OF THE ALTERNATIVES

Comment *097-001*

- Conduct a thorough scientific and engineering evaluation of all alternatives
- Long term effects of the alternatives on surrounding natural and physical resources
- Cumulative impacts of alternatives

Response Detailed design, including engineering design, and economic analysis are not required in an EIS under SEPA (WAC 197-11-055 and 197-11-448).

Comment *097-005* Did the study team conduct a through review and evaluation of previous studies in order to gain an understanding of which features of alternatives have potential to meet the goals, requirements and objectives of the project?

Response Previous studies were reviewed. See the References chapter in the FEIS.

Comment *121-001* This gravel mine project has too many negative impacts on the quality of life and the environment in this populated area. If the project had been conceived 25 years ago - before the development and population increases - it might have been acceptable. It's too late to even consider such a project in this area of expensive homes, school sites, pristine environment, clean air, and populated areas. This is not fair to the people who located here, purchased expensive homes, and appreciate the beautiful clean environment. Please find another place to mine gravel - a place that will not negatively impact so many people and that's away from already developed areas.

After attending a public meeting in North Bend to hear comments and feedback from local citizens concerning the DEIS for the proposed Cadman/Weyerhaeuser Gravel Mine, I am more convinced than ever that this project should not go forward. If this project had been started 25 years ago when there was very little population in the North Bend area it might have been acceptable. But the North Bend area is no longer an insignificant area with minimal population. There are now many upscale expensive homes as well as a purchased future school site adjacent to the proposed mine area. Many people have moved to the North Bend area in the past few years because they value the natural beauty, clean air, clean water, the quiet and the relaxed lifestyle. Because the area is so desirable, property values have soared. To realize that a large global company could come into an already established area and negatively impact it in so many ways is unthinkable. The concerns about noise, dust, water, traffic, aesthetics, and harm to the natural environment are all very valid, as is the concern over diminished property values.

This project is not fair to the people of North Bend. I realize the need for gravel mines, but this is not the right place or the right time for this project. There must be another feasible location to mine gravel that wouldn't have so many adverse effects on an already established, populated area.

Response Comment acknowledged. The proposal is in conformance with the King County Comprehensive Plan and zoning. The Plan designates the site as Forest Production District, where mining is permitted. The Plan Mineral Resources map identifies the project site as “Potential Surface Mineral Resource Sites.” The project site is zoned F (Forest), which allows mining and processing as a permitted use.

1.2.1 Alternative 1 - No Action

No comments were received on this section of the DEIS.

1.2.2 Alternative 2 - Proposal

Comment *073-337* "Construction of concrete and asphalt batch facilities at the Lower Site is planned in the later phases of the project." Sounds like the concrete and asphalt facilities would happen in Alternative 2 - Proposal in the same sense the "plan for both the Lower and Upper Sites" would happen.

Comment *073-338* "Construction of concrete and asphalt batch facilities at the Lower Site is planned in the later phases of the project." Ditto, but for Alternative 2, Lower Site Option.

Response The business decisions to build concrete and asphalt plants will be based primarily on market demand and regional construction trends.

1.2.3 Alternative 3 - Lower and Upper Sites (Exit 34 and Exit 38)

Comment *073-342* "Concrete and asphalt batch facilities would be located at the Lower Site (see Figure 2-19 and 2-20)."Sounds like the concrete and asphalt facilities would be situated on land in Alternative 3 - Lower And Upper Sites -- there are even pictures.

Comment *073-343* "During later phases of the project, Cadman, Inc. will construct buildings to house the mixing of concrete and/or asphalt." No doubt about it in Alternative 3 - Lower Site Option -- Cadman will construct.

Comment *073-344* "In the future, as market conditions allow, a concrete batch plant and/or an asphalt batch plant could be built on the Lower Site."

Here we go again for both versions of Alternative 3. The same commentary as just above under the third quote in the series for Alternative 2 applies.

Response The FEIS project description notes the concrete and asphalt plants may be built at a later date.

1.2.4 Alternative 4 - Upper Site Only (Exit 38)

Comment *127-045* Preliminary review that the Alternative Four would significantly reduce these impacts to the local community.

While the EIS identifies significant impacts for initial review of it, it appears that those impacts do not result in significant effects to the local community.

A comparison of the impacts between Alternative Four and those of the proposed alternative needs to be provided in context. The EIS should conclude whether Alternative Four reduces impact and the degree of impact reduction.

Response Impacts of the proposal are compared with impacts of the alternatives in the DEIS and FEIS.

1.3 IMPACTS AND MITIGATION MEASURES

Comment *012-015* This is another case where the DEIS authors attempted to meet the letter of the law by creating the lengthy matrix of Alternatives and Impacts ([DEIS Table S-1]) but violated the spirit of the law by ignoring "significant irreversible or irretrievable commitments of natural resources."

Response Comment noted.

Comment *012-134* [DEIS § Impact Summary Table; p. S-15] Alternative 2 reads 'temporary loss of wildlife habitat at the lower and upper sites, elk and deer foraging on residential landscaping may increase, increased competition for habitat from displaced habitat, increased noise levels from mining operations." Lacking a field study to determine the current behaviors, range, migration patterns, and number of elk and deer in the area, any such

assumptions are invalid and premature. In this case, "temporary loss of wildlife habitat" could prove to be permanent and final. Assessments need to made on the importance of the sites as habitat for what could well be a resident rather than a migrating herd of elk.

Response

In response to concerns regarding elk displacement and disturbance, additional research and habitat analysis was conducted. Additional field investigations by biologists surveyed existing vegetation specifically for elk habitat value. Washington Department of Fish and Wildlife biologists were contacted for additional information regarding the local herd. Refer to the Plants and Animals Technical Report for more details.

The herds currently found on the west slope of the Cascades in the Green, Cedar, and Snoqualmie watersheds probably include elements from both the Mount Rainier herd, released near Enumclaw in 1912, and the Yakima/Kittitas herds, released in Yakima County in 1913. Currently, resident herds are now found around Mount Rainier, near Enumclaw, in the upper Green River Watershed (Howard Hanson Reservoir), Cedar River Watershed (Chester Morse Reservoir), and the watersheds of the North, Middle, and South Forks of the Snoqualmie River. Patterns of habitat use vary both between and within the several herds. Some animals migrate seasonally between summer pastures in the subalpine zone on the mountains and winter in low elevation forests. Other individuals may reside throughout the year in low elevation forests that include both shelter habitat and foraging habitat.

Elk have historically been associated with undeveloped areas with few open roads and little human disturbance. More recently, some elk populations have become habituated to rural developments and now reside at the edge of developed or developing areas. For many years both the Cedar River Watershed and the upper Green River Watershed have been closed to public access because of their use for public water supplies. Forest harvests within both watersheds, and on adjacent public and private forest lands improved conditions for elk by creating new areas of forage habitat. Elk present on the site may include portions of a herd that reside year around on Grouse Ridge and adjoining lowlands and portions of a herd that winter in the lowlands and migrate to higher elevation for the summer.

WDFW (Spencer pers. comm. 2001) comments that the composition and movement of their local herd is not sufficiently well known to make any definitive statements regarding annual distribution and movement. Population counts during the 1970s estimated the population of Rocky Mountain elk in the nearby Cedar River Watershed at 300 individuals. Present populations of elk in the Cedar and Snoqualmie River Watersheds are unknown, but it is evident that the population continues to increase. Impacts will result in a temporary loss of habitat. Suitable adjacent habitat may be used as an alternative and the displacement of wildlife from the project site into nearby habitats may cause some stress in the affected populations.

Rocky Mountain elk using the Lower Site as winter range would be displaced to similar habitat in adjacent areas. If these animals attempt to occupy habitat closer to residential areas, foraging on residential landscaping may increase. The proposed conveyor system extending from the Lower Site to the Upper Site will be built low to the conveyor. Two forest management roads that currently cross the proposed alignment will be retained and underpasses for the roads will be constructed. These underpasses likely will be used by deer and elk.

Comment *012-004*

More importantly, the DEIS fundamentally skirts its essential mission: impact assessment. In too many cases, the wording in key areas of the document is "may be impacted" or "may be avoided." How can responsible agencies adequately assess impacts and mitigations when the DEIS avoids any real assessment of the degree of risk

involved? The almost hypothetical tone of much of the DEIS could be applied to risks even if no project were being proposed.

Response Comments acknowledged. We have made some format changes in an attempt to make the FEIS a more reader-friendly document. Note that the EIS is prepared by King County and is an information tool which discusses the environmental impacts of the proposal and assists the decision-maker at King County when reviewing a permit application. Regarding terminology, SEPA does not require a quantifiable risk analysis of impacts. Of necessity, subjective terms such as "most likely," "unlikely," etc. are used based on the professional experience of the experts who prepared each section.

Comment *073-320* (5) [Eligible Projects] An improvement to a scenic byway that will enhance access to an area for the purpose of recreation, including water-related recreation. A gravel mining, asphalt and concrete facility or the mitigations of berm building for a gravel mining asphalt and concrete facility do not offer improvements or enhancement to the area for the purposes of recreation.

WAC 197-11-768 Mitigation, SEPA Rules, Definitions -- (1) Avoiding the impact.(2) Minimizing impacts (3) Rectifying the impact (4) Reducing or eliminating the impact (5) Compensating for the impact (6) Monitoring the impact Mitigation is not Protection. Mitigation is not Enhancement.

Mitigation is an attempt to correct impacts. The TEA-21 Eligible Projects are not characterized by environmental impacts that require mitigation. The proposed project requires environmental assessment at State level. The gravel pit would be located on a National Scenic Byway corridor, a Federal-Aid Highway. Has the federal environmental review process been initiated under the National Environmental Policy Act for potential environmental impacts by the proposed project on a National Scenic Byway corridor. Were the Department of Transportation and federal agencies (where applicable) involved with the Memorandum of Understanding for any permits, licenses and administrative approval of the proposed gravel pit during the designation process?

Comment *073-321* Explain how a gravel mining operation and ALL mitigation efforts surrounding a gravel pit will enhance recreation purposes and access to recreation areas.

Comment *073-323* Explain how the proposed project is consistent with, and does not contravene, the National Scenic Byway TEA-21 plan for protection of scenic, recreational and natural resources on the proposed sites of the gravel pit, an area adjacent to a National Scenic Byway?

Comment *073-324* Please point out where it is stated in the State of Washington Surface Mining Regulations how a gravel mining operation will foster development of recreation and protect scenic resources.

Response Consistent with the MOU between Weyerhaeuser, the Mountains to Sound Greenway Trust, King County, DNR, and the Trust for Public Lands, the applicant proposes to mitigate mining activities and protect scenic values in the corridor. The National Scenic Byways Program does not place restrictions on land uses within designated corridors such as I-90.

Comment *024A-117* The Summary should be the chapter in which the DEIS informs the reader of the major impacts of the proposed project and how DEIS-generated mitigation measures eliminate or reduce those impacts to a less than significant level. As importantly, this is the part

of the DEIS where the authors should describe how project alternatives could or could not substantially reduce impacts.

Response The DEIS and FEIS Summary sections identify and provide a comparison of the impacts of the proposal and alternatives and mitigation measures.

Comment *024A-008* The Summary section of the DEIS does not meet SEPA requirements and is simply a matrix table that lists impacts and mitigations in a simplified form. It does not provide adequate information or conclusions regarding the overall impact of the project nor the comparison of these impacts to those that would be realized if the County approved one of the project alternatives. As such, it is inadequate per SEPA and needs to be revised.

Comment *127-039* It also has to cover the major conclusions of the EIS, and there is no discussion of the impacts of the process, only in a simplified natures table which outlines those potentially significant impacts.

Comment *127-047* In summary, this EIS is simply a matrix table of lists, impacts and mitigations in a simplified form. It does not provide adequate information or conclusions regarding the overall impact of the project, nor the comparison of these impacts to those that would be realized if the county approved one of the project alternatives.

Response The FEIS summary has been revised to provide a summary of the alternatives, discuss significant areas of controversy, and highlight major conclusions. The Summary of Impacts, Table 1-2, shows impacts, mitigation measures and significant unavoidable impacts for the alternatives.

2.0 PROPOSAL AND ALTERNATIVES

2.1 BACKGROUND OF THE PROPOSAL

Comment *073-346* Question: 14 Tons

The region is in the midst of a colossal construction boom; virtually every project requires gravel. The volume of gravel used statewide is eye-popping: 14 tons for each resident, each year. Where does your 14 tons come from?" Let's answer that question. Let's assume the writer of those statements checked the facts perhaps with Cadman or with other parties to the impetus behind what has come to be known as the proposed NBGO before using them in a widely-read editorial, and that 14 tons per person per year in Washington State (and in King County) is the figure for 1998. And let's assume that "gravel" is a generic, less technical term for newspaper purposes for aggregate. There are two assumptions that can be made about the future rate of growth of the 14-tons factor. Either it tracks population growth, which is a fundamental determinant in general growth rates, e.g., of construction and demand for materials for it. Or it is pretty much a fixed factor, e.g., whether you live on a lake or on the ocean, you will consume a relatively fixed number of glasses of water per day, on average, over time.

Both assumptions are treated below. The former is the dynamic rate case. The latter is the fixed rate case.

[Question: Business professionals of the aggregate business: which assumption do the market-planning numbers support, dynamic or fixed?]

Factors: Dynamic And Fixed Rate Case-Classes

Population in Washington State in 1998 was estimated at 5,685,300. Population is estimated to be 6,291,700 in 2005; 6,693,300 in 2010; 7,142,100 in 2015; 7,610,000 in 2020. Population is estimated to grow 1.46% per year between 1998 and 2005; 1.37% per year between 1998 and 2010; 1.35% per year between 1998 and 2015; 1.33% per year between 1998 and 2020. For the dynamic rate case, these population growth rates applied to the 14-tons-per-person factor of 1998 translate to 15.50 tons per person in 2005; 16.48 tons in 2010; 17.58 tons in 2015; 18.72 tons in 2020. For the fixed rate case, the 14-tons-per-person factor of 1998 applies equally to 2005, 2010, 2015 and 2020.

Population in King County in 1998 was estimated at 1,665,800. Population is estimated to be 1,763,600 in 2005; 1,840,100 in 2010; 1,929,900 in 2015; 2,030,600 in 2020. Population is estimated to grow 0.82% per year between 1998 and 2005; 0.83% per year between 1998 and 2010; 0.87% per year between 1998 and 2015; 0.90% per year between 1998 and 2020. For the dynamic rate case, these population growth rates applied to the 14-tons-per-person factor of 1998 translate to 14.82 tons per person in 2005; 15.46 tons in 2010; 16.22 tons in 2015; 17.05 tons in 2020. For the fixed rate case, the 14-tons-per-person factor of 1998 applies equally to 2005, 2010, 2015 and 2020.

All Alternatives, 2, 3 and 4, mine 2,100,000 tons of aggregate per year.

Sample Calculation.

For the applicable case-class (dynamic rate or fixed rate, Washington State or King County -- or, dynamic: WA, dynamic; KC, fixed: WA, fixed: KC):

1) Multiply the population of the geographical entity in the calculation-year by the number of tons of aggregate required per person per year in the geographical entity in the calculation-year;

2) Divide the number of tons of aggregate mined per year by the proposed NBGO by the result in 1);

3) Multiply the result in 2) by 100 to obtain the percentage of contribution of the proposed NBGO to aggregate needs in the geographical entity in the calculation-year.

For the dynamic: WA case-class, using 1998 data, the calculation is:

((2100000/(5685300*14))*100) = 2.6%

Calculations are made for 2005 (the earliest the proposed NBGO would mine 2,100,000 tons of aggregate per year), 2010, 2015 and 2020. No calculations are made for 2025 as the data in the source in footnote 500 does not forecast for that year.

Results: Dynamic Rate Case-Class: Washington State

2005: 2.2%
2010: 1.9%
2015: 1.7%
2020: 1.5%

Results: Dynamic Rate Case-Class: King County.

2005: 8.0%
2010: 7.4%
2015: 6.7%
2020: 6.1%

Results: Fixed Rate Case-Class: Washington State

2005: 2.4%
2010: 2.2%
2015: 2.1%
2020: 2.0%

Results: Fixed Rate Case-Class: King County

2005: 8.5%
2010: 8.2%
2015: 7.8%
2020: 7.4%

Discussion

There are 16 data points. They cover a 16-year period during which the proposed NBGO would mine aggregate. Data points could have been generated for the 16 individual years between 2005 and 2020, yielding 64 data points, but it can be shown that the 16 data points are sufficient and yield the same perspective.95.2%

Contribution in all four case-classes heads downward over the years. Population growth between 2020 and 2025 would continue this downward trend in 2025.

Contribution of the proposed NBGO to aggregate needs is:

Best case: 8.5% (2005: Fixed: KC)

Worst case: 1.5% (2020: dynamic: WA)

Average (dynamic: WA): 1.8%
Average (fixed: WA): 2.2%
Average (dynamic + fixed: WA): 2.0%

Average (dynamic: KC): 7.1%
Average (fixed: KC): 8.0%
Average (dynamic + fixed: KC): 7.5%

Average (dynamic: WA + KC): 4.4%
Average (fixed: WA + KC): 5.1%

Average (All 16 Cases): 4.8%

Subtracting contribution percentages from 100% gives the percentage probability that aggregate will NOT originate from the proposed NBGO.

Probability that the aggregate needs will not be addressed by the proposed NBGO is:
Best Case: 91.5% (2005: fixed: KC)

Worse Case: 98.5% (2020: dynamic: WA)

Average (dynamic: WA): 98.2%
Average (fixed: WA): 97.8%
Average (dynamic + fixed: WA): 98.0%

Average (dynamic: KC): 92.9%
Average (fixed: KC): 92%
Average (dynamic + fixed: KC): 92.5%

Average (dynamic: WA + KC): 95.6%
Average (fixed: WA+KC): 94.9%
Average (All 16 Cases): 95.2%

Answer: 14 Tons

By and large there is a 95% probability that our 14 tons, or anyone else's 14 tons, will not originate from the proposed NBGO. What if the proposed gravel pit, with or without asphalt and concrete manufacturing facilities, was built in some fashion and nobody, 95% relatively-speaking, came? Wouldn't that be the biggest Significant Unavoidable Adverse Impact of all? Is the proposed NBGO a business venture -- or a business experiment, in which there is a hypothesis about market demand, but it will take the proposed life of the project, and many laboratory trials involving visitors to the Upper Snoqualmie Valley, and residents of it, to show whether or not it is valid?

The size and scope of the proposed NBGO should be limited (Alternative 1 is a valid example) until it can be demonstrated substantively, decisively and unequivocally that the benefits of the proposed NBGO exceed the cost incurred to people and to the environment.

Response Comment noted. Washington DNR estimated 16 tons of gravel per person per year based on production of 59 million tons of sand, gravel and rock in 1995, plus production estimates from pits smaller than 3 acres and from pits needed to maintain commercial forest roads.

Comment *089-002* Gravel is a necessary resource to meet the demands of construction of roads, homes, schools, high-rise buildings, apartments, condos, and all business needs. Many of us in this industry have depleted other reserves and must be successful in obtaining new reserves.

Response Comment acknowledged.

Comment *012-020* The bottom line is that the DEIS lists the four Alternatives under each area of assessment but does not effectively compare the impacts and mitigations. For even casual readers it is clear that the DEIS is an attempt to justify Alternative 2. The DEIS authors make this quite clear on page 2-1 where they state that upon publication of the FEIS, the County will make a decision to approve, condition, or deny the application. The option of selecting one of the other Alternatives is not even considered.

Comment *024A-013* On p. 2-1 in the final paragraph under Background of the Proposal. The DEIS states that after the FEIS is published, the County will make a decision to approve, condition, or deny the application. It is quite interesting that the DEIS does not add the very important option of "approving a project alternative." If this option is not even mentioned, why does the DEIS even include the lengthy assessment of project alternatives. This option should be added in the revised DEIS.

Response King County must act on the proposed grading permit application. The County can approve, deny or approve the permit with conditions. Approval with certain conditions could effectively make the project similar to one of the alternatives.

Comment *024A-017* SEPA requires that the DEIS describe the location of the project "so that a lay person can understand it" (WAC 197-11-440 (5) (c) (ii). Figures 2-1 and 2-2 do not provide a thorough description of the project. We would request that these maps be revised to show the project's location within a regional context of residences and other business within one mile of both the Upper and Lower Sites. This information is needed for the decisionmaker and layperson to understand the relationship of these large industrial operations within the community context.

Response The aerial photograph in the Land Use chapter (Figure 9-1) of the FEIS shows the project location and surrounding region from approximately three-fourths of a mile or more from the project sites.

2.2 DESCRIPTION OF THE PROPOSAL

Comment *020-754* The FEIS should include specific data on elevations of all project improvements to determine whether project improvements are visible above the proposed berm.

Comment *127-087* Point No. Seven, provides the data on the elevations of all proposed improvements sections through the site should be provided to assess noise, visual and other impacts.

Response Comment acknowledged. The FEIS includes section views for key project elements which illustrate if project elements would show above proposed berms from specific locations. Elevation data for specific site features are included in Chapter 2 of the FEIS.

Comment *019-067* Describe the BMPs for the operation of the Grouse Ridge Project. This description shall include, but not be limited to; schedules of activities, prohibitions of practices, maintenance procedures, physical, structural and/or management practices designed to prevent or reduce the pollution of the surface water, direct discharge water or storm water and pollution of the waters of the State of Washington.

*This item was not fully addressed in the DEIS. Projected /estimated time frames for activities, preventative and maintenance practices and their frequency, and the physical locations of structures, parking areas, refueling stations etc. were not provided.

Comment *020-153* Describe the Best Management Practices for the operation of the Grouse Ridge Project. This description shall include, but not be limited to, schedules of activities, prohibitions of practices, maintenance procedures, physical, structural and/or management practices designed to prevent or reduce the pollution of the surface water, direct discharge water or stormwater and pollution of the waters of the State of Washington.

Response BMPs would be part of permit conditions if permits are issued by King County. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055). BMPs would be referenced in the Sand and Gravel General Permit and other applicable permit and design documents.

Comment *019-366* The DEIS did not and the FEIS should provide actual maps with details of the entire proposed project's operations to include:

a. Truck loading area, truck staging area, truck parking (overnight, etc.), office buildings, employee parking, refueling stations, fuel tanks (all types) and their locations, propane storage, maintenance areas, conveyor belt, maintenance road, truck washing, asphalt plant location, impervious surfaces, septic systems, asphalt plant and cement processing locations.

Response Site plans in the DEIS and FEES show the location of major facilities. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *127-080* Upon review of my notes of the initial documents that were sent out, I have got some major points that I would like to see discussed. This mine will be monumental. SEPA requires that an EIS describe the project that is being assessed in that EIS. This EIS does not meet this requirement. Namely, the following are required for this EIS to be consistent with SEPA requirements.

Response The FEIS includes a revised project description in Chapter 2.

Comment *013-006* In addition to the statement of these concerns, we request the following:

1. That the County require Cadman and Weyerhaeuser go back to their initial commitment of not cutting down the ridgeline and maintaining a 100 ft. setback.

2. That the County comply with a Complaint for Declaratory Judgment in the

Superior Court of Washington for King County as filed by the law firm of Sullivan and Thoreson in order to determine that settling ponds, water drainage swales and berms are defined as mining activities as stated in King County Code 16.82.060(C)(7)

Response Comments noted.

Comment *006-001* The City of Issaquah would like to provide you with comments on the Environmental Impact Statement (EIS) for the proposed North Bend Gravel Operations. In review of the document, it did not appear that there were any analysis of offsite operations relating to the North Bend Gravel Operation. The EIS does state that there will be offsite operations but no other information as to location, number of trips, or identification of impacts is provided.

Response Before processing begins at the site, material will be sold directly to customers or trucked to one of Cadman, Inc.'s operations in Redmond, Seattle or Black Diamond. Distribution will depend on market demand.

Comment *127-112* The main objection I have right now is that I don't think the Draft Environmental Impact Statement or the study is valid at this point because it deals with such a big project. We don't have a well-defined project. We don't have any definition of the hours of operation. We don't have any definition of the hours of operation, the type of equipment that is going to be involved. We don't have an idea of the location of the conveyor, how the conveyor is going to be operating. We don't have any idea of the specifics with regard to the lighting for the area. All those things will have a big impact on the noise, light pollution, the traffic in the area. And without that information, we don't have a valid Draft Environmental Impact Statement. I would like to see those things better defined. Thanks.

Comment *127-150* I think the other problem was there was not sufficient detail as to what the project was actually going to entail. I mean they talk about mitigation but there are no specifics about what we are trying to mitigate.

Response Comments noted. Additional information about the proposal has been added to Chapter 2, Proposal and Alternatives, in the FEIS. Additional analysis of impacts from lighting, the conveyor and noise are also included in the FEIS.

2.2.1 Introduction

Comment *115-005* 2.2.1: "The lower site processed at other locations." You need to list the locations where the sand and gravel are to be processed.

Response Offsite processing locations have not been determined and would be based on market demand. Unprocessed material would be sold directly to construction projects and may be sold to other producers for processing or trucked to one of Cadman, Inc.'s operations in Redmond, Seattle or Black Diamond.

2.2.2 Location

Comment *002-001H* Preservation of the buffer area to the west of the project area.

Comment *002-013* The DEIS makes reference to a 1000' forested buffer on the west side of the Lower Site. It is not clear whether or not this buffer is part of the project area. While the land

appears to be owned by either a neighboring landowner and/or Weyerhaeuser, it seems this forested buffer is behind the hotel and gas stations and may be zoned for rural residential. Maintaining this forested buffer of the Lower Site is important to provide protection from light, glare, noise, visual, and dust impacts. It may be important to include this buffer in the project to provide permanent protection from these impacts. If the buffer area is on land owned by an adjoining person, perhaps a conservation casement with the adjoining landowner would be appropriate to allow for the dedication and the protection of this zone as permanent forest land. The DEIS should address how this forested buffer will be established and maintained.

Response The area west of the Lower Site belongs to Weyerhaeuser Real Estate Company and King County and is not part of the Lower Site lease area. The applicant does not have control over the property.

2.2.3 Basis for Design

Comment *020-005* The relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. The memorandum of understanding, the real estate transactions involving this project and the DEIS together indicate that the proponents have already concluded that this is a "short-term" use of the environment (even though the active stage of the project itself could exceed 25-years) in support of long-term productivity. It is therefore no surprise that the DEIS contains no discussion whatsoever of this requirement.

Comment *024A-133* We are very concerned that the County was a party to the MOU that was negotiated regarding gifting and sale of Weyerhaeuser lands including and adjacent to the project parcels. We do not understand how the County could be a party to an agreement that requires a major environmental organization not to contest the proposed project and how this could be agreed to before an EIS had been prepared describing the impacts of the project. Needless to say, we are astounded that an organization that is purportedly an environmental group would ever sign such an agreement, but that is not an EIS matter.

Response Comments acknowledged.

Comment *020-215* The FEIS should address whether or not the Mountains to Sound Greenway Trust had the opportunity to place a bid for the land prior to its sale to King County before the scoping issues were addressed, or before the DEIS was prepared. If the DEIS inaccurately represents the ownership of the land then the FEIS should discuss whether or not the remainder of the document is accurate.

Comment *020-216* The FEIS should address the relevance of the fact that King County signed a Deed giving away its rights to protect the taxpayers of King County The Warranty Deed states "the Grantee (King County), for itself and its successors, agrees and covenants with Grantor (Weyerhaeuser) and its successors that it will not assert in any administrative or judicial proceeding (including any agency review of applications for land use permits) that otherwise permissible uses of the Grantor's adjoining lands should be prohibited, delayed, restricted or subject to special studies." [See Addendum C, Warranty Deed 9806261702 page 3].

Comment *020-217* The FEIS should address how King County can objectively evaluate and adjudicate the DEIS if it has given away its rights to assert in any administrative or judicial proceeding (including any agency review of applications for land use permits) that otherwise

permissible uses of the Grantor's adjoining lands should be prohibited, delayed, restricted or subject to special studies in this Warranty Deed. [See Addendum C, Warranty Deed 9806261702 page 3].

***Comment** 020-218*

The FEIS should address the relevance to the fact that King County assumed a 50-50 split with the Weyerhaeuser Company for any gravel operations that may be implemented on the lands that it purchased for $2,533,850.00 of taxpayers funds [See Addendum C, Warranty Deed 9806261702 page 8].

***Comment** 020-219*

The FEIS should address the relevance to the fact that King County sold these tracts of land to the State of Washington DNR for $10.00? [See Addendum D, Warranty Deed 1999 122 9000158 page 1].

***Comment** 020-220*

The FEIS should address how DNR will remain impartial in evaluating this Proposal if it is perceived to benefit financially from this land transaction. The FEIS should further explain how DNR will objectively inspect this Project, and how many DNR inspectors will be available to inspect this Project and how often will these inspections occur under each Alternative?

***Comment** 024A-036*

In Section 2.2.3 on p. 2-5, the DEIS briefly describes an MOU signed by the County, The Mountains to Sound Greenway Trust, The Trust for Public Lands, and the State. We have reviewed the documents in Chapter 6 and followed up with several phone calls to determine the status of these land negotiations. We found this review quite revealing. First, we would note that on page 2-5 of the DEIS under 2.2.3 Basis for Design (Background) it is stated that "The methodology for the proposed mining plan was based on a number of meetings between Weyerhaeuser and the Mountains to Sound Greenway Trust. A memorandum of understanding (MOU) was negotiated and signed by Weyerhaeuser, The Trust for Public Land, The Mountains to Sound Greenway Trust, King County, and Washington State DNR (DNR), by which Weyerhaeuser agreed to donate 255 acres to public ownership, and to sell another 1,380 acres for public ownership. Weyerhaeuser further agreed to offer for public ownership the remaining 645 acres, located south of the Middle Fork of the Snoqualmie River after gravel is excavated and the land revegetated. (See Chapter 6)" Although this is not per se an environmental issue as our firm was told by Gordon Thomson, since the information is provided in the DEIS as to the basis of design it seems that it should also be noted at the same time that most of the transfer of land has already taken place. There is an implication in the way that the background is presented that these transfers of land in the amount of 1635 acres are contingent upon approval of this project. Whereas it is only the 645 acres that comprise the Lower and Upper Sites which remain to be purchased or donated.

***Comment** 127-103*

Ladies and gentlemen, I hold in my hand here a deed. I will talk to the group. The deed is dated 6-26-98. King County has bought the land adjacent to the mine for two and a half million dollars. And it states that the grantee, which is King County, for itself and its successors agrees in covenant with the grantor, which is Weyerhaeuser, and its successors that it will not assert any administrative or judicial proceedings, including any agency review of the applications for land use permits, that otherwise permissible uses of the grantor's adjoining land should be prohibited, delayed, restricted or subjected to special studies.

Further on, it designates that there is a 50/50 split between King County and Weyerhaeuser or Cadman in the removal of rock from the land in King County.

My question to you, Mr. Thompson, Gordon Thompson, is: Does that sound like people are being represented in this community fairly, when King County has a deal

with Weyerhaeuser to simply abdicate their responsibilities to protect us and at the same time a 50/50 revenue sharing? Thank you.

Response Section II, Paragraph A of the MOU states: "Neither the approval of the Conceptual Mining Plan by MTS nor the participation by King County and DNR in the property transactions contemplated by this agreement, constitute approval of the Conceptual Mining Plan by King County or DNR, or in any way limits their discretion in permitting or regulating the future sand and gravel operation."

Comment *073-306* Was the Middle Fork/Grouse Ridge Project, Conceptual Mining Plan submitted to the Federal Highway Administration as part of the Corridor Management Plan for Interstate 90 National Scenic Byway designation?

Comment *073-307* The Memorandum of Understanding for the Middle Fork/Grouse Ridge Project was signed April 29, 1998, Interstate 90 was designated as a National Scenic Byway in June, 1998. Was the Secretary of Transportation informed of the Conceptual Mining Operation on acceptance of designation or during the designation process?

Comment *073-309* During the designation process as a National Scenic Byway the Secretary of Transportation remained an uninvited signatory on the Memorandum of Understanding for the Middle Fork/Grouse Ridge Project. Did the signatories of this Agreement have full power and authority to sign this Agreement when further governmental approval and consent are required for a project of a federally-funded Program?

Response The Federal Highway Administration (through WSDOT) reviewed the DEIS and, while they are concerned with scenic values in the I-90 corridor they do not have legal jurisdiction over private property along I-90.

Comment *014-002* The MOU also contemplated in §IIC that the proposed mining operation would be conducted in "discrete phases, and that the land excavated in each phase will be reclaimed consistent with the applicable permitting requirements." Further in §IIG, "following mining and approved reclamation of each segment of the Operating Mine Parcel, it (Weyerhaeuser) will make a written offer to donate the property pertaining to each such segment to (State) DNR in trust for King County," and, "offers to donate reclaimed segments of the Operating Mine Parcel shall occur as reclaimed segments become available." We note that the DEIS makes only brief reference to this significant fact in para 2.2.3 (p 2-5).

Response Additional details about the property donation are not necessary as part of the analysis of environmental impacts. The MOU is included in the DEIS and in Appendix A of the FEIS.

Comment *024A-037* Further, it seems that it should also be mentioned as background data that Mountains to Sound Greenway Trust has in the MOU agreed as follows: "In light of its involvement in developing the Conceptual Mining Plan, MTS agrees to actively support permitting and development efforts for the sand and gravel mine as contemplated by the Conceptual Mining Plan, including support during public comment periods and as an amicus in any litigation pertaining to the permitting of the sand and gravel mine as contemplated by the Conceptual Mining Plan." (Chapter 6, page 7 of the DEIS). There is also some question as to whether the county and the state are able to maintain an objective position in their assessment and determination of the environmental impacts of this project given the agreements to which they have been a party throughout the development of this project. This needs to be clarified.

Response Section II, Paragraph A of the MOU states: "Neither the approval of the Conceptual Mining Plan by MTS nor the participation by King County and DNR in the property transactions contemplated by this agreement, constitute approval of the Conceptual Mining Plan by King County or DNR, or in any way limits their discretion in permitting or regulating the future sand and gravel operation."

2.2.4 Mining Production

Comment *012-017* Second, the proposed "Passive Freshwater Storage Pond" described in Alternative 2 is unquestionably within 1/4 mile of "an established residence" (see Figure 2.4) and also is an integral part of the conceptual mining plan. It is absurd to presume that a 3.8 acre pond that would be excavated on the lower mining site is not an integral part of the proposed mine, despite the curious nomenclature. Therefore, a CUP is clearly necessary if a grading permit is to be issued for this pond.

Comment *048-003* Next is the Passive Freshwater Pond that is to provide water for the upper and lower site. This pond is part of the process and as part of the process it is part of the site. As part of the site, it falls within 1/4 mile of the Lu residence. Given the guidelines, a CUP should be required.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-719* The FEIS should provide plot plans identifying all locations for planned operations. This should include fuel storage and refueling stations, diesel storage and refueling stations, propane storage and refueling stations, maintenance areas, asphalt plant location, and processing location truck parking.

Response Primary facilities are shown on the site plans in Chapter 2 of the FEIS. More detailed designs would be developed for the grading permit and are not required to assess the significant impacts of the proposal. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *115-006* p. 2-5, 2.2.4: Mining Production. "The goals of the mining project." The order seems to be wrong here. Let's be realistic. Cadman's main goal is to make money. The sentence should more accurately read: "The goals of the mining project are to provide for the removal of gravel resources for Eastern King County and Cadman profits." We need to avoid biased environmental greenwashing here and maintain a more professional perspective.

Response Comment noted.

Comment *024A-024* How much aggregate will be taken from the Lower Site. Section 2.2.4.1 states that 40 acres will be mined but does not state how much aggregate will be removed. How long will it take to remove whatever amount is proposed for extraction? Similarly, in Section 2.2.4, the DEIS states that 40 to 60 million tons of aggregate will be removed from both sites. How much? There is a considerable difference between 40 million tons and 60 million tons. If Cadman takes 2.1 million tons per year, the project would

endure for about 19 years, while for 60 tons, it would take about 29 years. For people living under the influence of this project, this is a considerable difference.

Response Comment noted. Under the proposal, the applicant would mine from the Lower Site approximately 2,610,000 cubic yards of material, of which approximately 130,000 cubic yards is topsoil. Under the Alternative 2 Lower Site option, the application would mine 2,550,000 cubic yards, of which approximately 114,000 cubic yards is topsoil.

Comment *012-070* It appears that the water supply for the project contemplates a storage system [DEIS §2.2.4.1; p. 2-16]. Will the "passive fresh water pond" consume water? Is a reservoir and/or water right permit required? Reference to necessary water rights is made at [DEIS p. 3.4-48], however, the DEIS does not clearly describe the relationship, physical and legal, between reservoirs and water rights.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. Water from the well would be stored in the vault and used in processing and other operations. A ground water right would be required. Reservoir permits are not required for concrete storage vaults.

Comment *024A-022* Will the conveyor belt be enclosed or simply covered? How will it operate?

Comment *060-001* Referring to section 2.2.42 Page 2-18 Paragraph 3: The paragraph states gravel would be transported down to the lower site through a 36" to 42" conveyor. There is no evidence of any engineering and or plans that the applicant has filed explaining what this conveyor is or how it works. I feel the DEIS should address these issues.

Comment *115-010* Under, "conveyor if the plan is deemed unfeasible." Seems like the details of the design of this plan should be hashed out now, not later. This points to the incompleteness of the report.

Response The conveyor will be covered, not enclosed. Available details for the conveyor operation are described in Chapter 2 of the FEIS.

Comment *023-011* Hence, a 115 foot cut would apparently be initially required at the top of the ridge. In order to prevent erosion during the upper mine operations, our experience tells us that average manufactured side slopes should not exceed 3H: 1V (e.g. 3 foot of horizontal length for each 1 foot of vertical gain).

Response The conveyor would be at 1,535 feet elevation in the mine, but would climb up and over the ridge. A trench of five to eight feet deep is expected, with the crest of the cut in the ridge estimated at 60 feet wide. An option is to elevate the conveyor in order to minimize the cut. Chapter 3 of the FEIS includes a figure that shows a preliminary grading plan for the conveyor alignment.

Comment *023-031* Scenario Two-Maintenance Road Positioning as 'Switchback'- Due to safety issues mentioned above and for other practical concerns, our firm feels the more likely grading scenario will be to switchback (e.g. traverse the slopes in a zigzag fashion similar to logging roads in sloped conditions) and allow vehicular turnouts for passing and 'rest areas' including slopes less than the 20% average. Naturally, grading a road in this

fashion will impact a much wider area than what is illustrated in the DEIS and will therefore have greater visual impacts from all viewsheds.

Response Portions of the maintenance road would be switchbacked. Chapter 12 of the FEIS reviews the aesthetics impacts of the road.

Comment *061-001* Reference: 2.2.4.2 Page 2-18 Paragraph 2 --The paragraph states that extraction of gravel from the upper site would include a rubber-wheeled front end loader. What is this opposed to. Are there other type non-rubber-wheeled vehicles that may be used in the future? I feel it is important for the DEIS to address potential other type of vehicles that may be used at either site once a grading permit is granted.

As a former resident at the top rim of the gravel pit in Issaquah, I know first hand about the many types of equipment used to extract and move gravel.

I am suspicious of the term "rubber-wheeled" front end loader as it implies something else may be used in the future that will disrupt the surrounding environment.

Also there is no area of the document that prohibits CADMAN from applying for modifications to the permit in the future. If rubber-wheeled vehicles are said to be used in order to receive the permit, I want to make sure the DEIS addresses use of other than rubber-wheeled vehicles by CADMAN and/or potential other sub-contractors.

Please demand a more thorough examination of this issue.

Response Cadman, Inc., Inc. plans to use a rubber wheeled front end loader.

Comment *024A-030* Why do Figures 2-3 to 2-5 show an area designated "Site Zone Screenable from Westbound 1-90?' What does this mean? What will happen in this area?

Response The "site zone screenable from westbound I-90" refers to the area of the Lower Site currently not visible or not clearly visible due to existing vegetation and landforms. Proposed berms and mining that lowers the processing floor will likely improve and expand the screening potential beyond this zone.

Comment *145-009* The applicant has indicated in their proposal the plan to install a conveyor linking the two sites. If the applicant still wishes to mine the Lower Site, and assuming the conveyor is environmentally acceptable, we recommend the conveyor be reversed to haul the aggregate to the Upper Site.

Response This alternative may be technically possible, but would require extensive design work and is not part of the proposal.

To assess the potential environmental impacts associated with this alternative, it is assumed that the processing, asphalt and concrete plants would be located at the Upper Site. Following excavation at the Lower Site, the Lower Site would likely be used only to provide and store water for the project. The conveyor could be dismantled after excavation at the Lower Site is completed.

Operating the conveyor in reverse would reduce impacts at the Lower Site and in the surrounding area (e.g., Exit 34) when compared to Alternatives 2 and 3 for several areas of the environment including traffic, air quality, aesthetics, water, and plants and animals. Traffic would be reduced because all materials would be transported by truck

from the Upper Site rather than the Lower Site. In addition, fewer workers would be required at the Lower Site, which would further reduce vehicle traffic. Air quality impacts would also be reduced at the Lower Site because of the decrease in vehicular traffic, which would reduce emissions and dust. Dust generation would also decrease because processing would not occur at the Lower Site. The emissions at the Lower Site due to operations of the asphalt and concrete plants would be eliminated. Although emissions would be reduced under this scenario, emissions under Alternatives 2 and 3 were not predicted to result in exceedances of air quality standards. The absence of several structures and the surge pile at the Lower Site would decrease the visual impact under this scenario. Visual impacts related to the conveyor would be of a shorter duration. Potential impacts to water quality at the Lower Site would be reduced when compared to Alternatives 2 and 3 because of the decreased activity, which would result in less chemical and petroleum product storage and handling at the Lower Site. The duration of impacts to plants and animals would be reduced because the Lower Site could be reclaimed after a shorter period of time. Noise from some sources would be reduced under the reverse conveyor scenario, because there would be an overall decrease in activity (fewer trucks, no asphalt plant or concrete plant, no gravel processing) at the Lower Site. However, the motors required to operate the conveyor could generate significantly more noise when compared to Alternative 2.

The increased level of activity at the Upper Site would be similar to, but of longer duration than Alternative 4. Construction of the asphalt and concrete plants would be constructed, then there could be additional impacts at the Upper Site related to air quality, noise, aesthetics and public services and utilities. The increased activity would also increase potential for impacts to water quality at the Upper Site. Air quality impacts at the Upper Site would increase due to increased truck traffic. An increase in emissions and noise due to the asphalt and concrete plants would also be expected. Visual impacts at the Upper Site would also increase due to the presence of asphalt and concrete plants. The amount of energy required to transport the gravel from the Lower Site to the Upper Site and then down SE Grouse Ridge Road and onto I-90 would increase significantly when compared to Alternatives 2 and 3, where the gravel would be transported by truck directly from the Lower Site to Exit 34. The need for public services and utilities at the Upper Site would increase under this scenario due to the increased level of activity at the Upper Site.

When compared to Alternatives 2 and 3, there would be no significant changes to several areas of the environment including soils and geology, land use, recreation, historical cultural and archeological resources if the conveyor were operated in reverse.

Comment *073-339*

"In the future, as market conditions allow, a concrete batch plant and/or an asphalt batch plant could be built on the Lower Site.'

And then it is uncertain for both versions of Alternative 2. Paraphrasing, the concrete plant or the asphalt plant or both are optional. One implication of optional is -- unnecessary.

Response

The business decisions to build concrete and asphalt plants will be based primarily on market demand and regional construction trends.

2.2.5 General Operations Principles

Comment *045-004*

Page 2-18, 2.2.5, 3rd bullet: The general statement that "The underlying shallow and deep aquifers would be protected, with present water quality and quantity levels

maintained" is not supported by the rest of the document. Consistently, in describing potential problems like erosion, seepage, spills, discharge, runoff, breach, etc., phrases like "most likely, unlikely, not intended to, expected to be, and slight chance" are used throughout the document. But when describing the Applicant's conclusions of how these problems would be handled, the tone changes to "shall, would, and will." As the rest of my comments will attest, there is no way to be absolutely sure that the Project as proposed shall, would, or will achieve all the safeguards promised.

Response Comments acknowledged. Note that the EIS is prepared by King County and is an informational tool which discusses the environmental impacts of the proposal and therefore assists the decision-maker at King County, the public and the applicant. Regarding terminology, SEPA does not require a quantifiable risk analysis of impacts. Of necessity, subjective terms such as "most likely," "unlikely," etc. are used based on the professional experience of the experts who prepared each section.

Comment *139-003* Hours of Operation - 7 by 24 is UNACCEPTABLE. Too much noise, traffic and dust.

Response Comment noted. Cadman, Inc.'s proposed operating hours and King County regulations are discussed in Chapter 2 of the FEIS.

Comment *024A-026* On p. 2-18, the DEIS states that berms will be constructed and seeded. In subsequent discussions of the various phases, including Figures 2-3 to 2-13, there is conflicting information regarding these berms. Given that the DEIS later finds that noise, aesthetic, and other impacts are reduced to a less than significant level mainly due to these berms, it is critical that the location, schedule of construction, and landscaping techniques and schedule be clearly described in the project description.

Response Berms would be comprised of overburden, fines, some topsoil and imported material if needed. Information about seeding is in the Revised Draft Reclamation Plan. The phasing schedule in the FEIS shows when berms would be built and planted.

Comment *024A-140* Hours of Operation Page 2-18 "Operations for the Lower Site would be between 5 a.m. and 10 p.m. Monday through Saturday. Truck loading at the Lower Site would be 24-hours per day Monday through Saturday. "Whereas on page 3.12-12 it states "The site would operate between 5:30 a.m. and 10:30 p.m."

Comment *127-106* And for the gentleman that works for Cadman, and he said it is not 24 hours, on Chapter Two, pages 18 and 19, it will show you where it says 24 hours on your volume one.

Response The applicant proposes truck loading at the Lower Site 24 hours per day, Monday through Saturday. Other Lower Site operations are proposed for 5 a.m. to 10 p.m., Monday through Saturday. Upper Site hours would be 7 a.m. to 5 p.m. Monday through Friday, with maintenance only on Saturday from 7 a.m. to 3 p.m. King County regulations are discussed in Chapter 2 of the FEIS.

Comment *024A-021* The DEIS (p. 2-18) mentions that reclamation will use GroCo compost products. The project description should be revised to describe precisely what GroCo is (including its sources and chemical composition) as well as any other type of soil amendment proposed for use during reclamation. The description needs to describe where they will

be placed, the timing of the application, and all protections proposed to ensure that water sources are not polluted.

Comment *127-093* No. 13, describe whether each amendment will be added and the amount to be added. This project and its duration is monumental and will have many cumulative effects over the 25 years. It is unacceptable to state the elements of this project will be developed at a later date. Thank you for your time.

Response The applicant has agreed to use commercially available biosolids for reclamation. Specific timing and rates of application will be determined following environmental assessment to determine the conditions for application. Cadman, Inc.'s use of live topsoil management at another location has limited the use of soil enhancements. The same practice is planned for the North Bend Gravel Operation.

Comment *001-012* Cadman must apply for coverage under the Sand and Gravel NPDES and State Waste Discharge General Permit from the Department of Ecology.

Response Ecology's requirement for an NPDES permit is stated in DEIS Section 3.4.2.2. All permit requirements are listed in the Fact Sheet of the FEIS.

Comment *001-013* Page 2-19 Table 2-1 states under comments for the concrete plant and asphalt plant that there will be no discharge. Process water discharges from the concrete batch plant and asphalt plant will be prohibited. Cadman is committed to working with the Department of Ecology on a design for zero discharge from the wheel wash and gravel washing.

Based on the DEIS surface discharges will be prohibited.

Response Process water for plants will be reclaimed to the extent practical. Design of a zero discharge system may not be possible. However, Cadman will comply with the conditions of the NPDES and other applicable permits.

Comment *012-033* One critical requirement is that the EIS clearly list all the potential pollutants that could enter the groundwater. The amount of each potential pollutant generated should be calculated. The calculation should be bounding and conservative. The calculation should be peer reviewed for accuracy of analysis, assumptions, conclusions and completeness.

Comment *019-066* Identify all possible points of origin of pollution or contamination of surface water or storm water, which could possibly occur on the Grouse Ridge. Describe in detail the treatment plan for processing wastewater, which is the result of processing of raw materials.

*This was only partially addressed for a few of the impacts. It did not address the differences for each Alternative. For "Construction Impacts", the DEIS cites" an increase in runoff from the site can cause flooding of the downstream system, which may not have the capacity to accept an increase in flow. Likewise, a decrease in runoff from the site may deprive an environment that depends on this water source to survive" (Vol. II, Section 3.1.2 Alternative -2, sub sections 3.1.2.1 Runoff Volume and 3.1.2.3 Surface Water Quality) and "The greatest potential impact on surface water quality during construction is from sedimentation and erosion, which cause soil particles to become suspended in storm water that flows over the exposed soil surfaces. During construction this could occur as a result of excavation and grading activities and vehicular traffic entering and leaving the site." The other Alternatives are said to be

"similar" yet there clearly will be differences because of size to be mined, +/- of equipment required, topography, volume of truck traffic and different operations between the Alternatives. For "Operation Impacts", the DEIS cites "Process Water is to be collected and stored in a settling where it would be available for reuse in facility operations" (Vol. II, Sec. 3.2, subsection 3.2.2.1). The DEIS did not provide a full scope of the treatment of Process Water and what will be done with pollutants or contaminants. Additionally it did not fully disclose where and how this water would be utilized (dust control, truck wash or?).

Comment *019-070*

Describe the entire spectrum of contaminates, petrochemical, hydrocarbon, water soluble materials, sediments (inert or natural) which could possibly affect the water quality or storm water system contained on the Grouse Ridge Project.

*This item was partially and inadequately addressed under Volume II, Section 3.0, Environmental Impacts. The DEIS did not address the differences of such between each Alternative.

Comment *020-152*

For "Construction Impacts", the DEIS cites "an increase in runoff from the site can cause flooding of the downstream system, which may not have the capacity to accept an increase in flow. Likewise, a decrease in runoff from the site may deprive an environment that depends on this water source to survive" (Vol. II, Section 3.1.2 Alternative -2, sub sections 3.1.2.1 Runoff Volume and 3.1.2.3 Surface Water Quality) and "The greatest potential impact on surface water quality during construction is from sedimentation and erosion, which cause soil particles to become suspended in stormwater that flows over the exposed soil surfaces. During construction this could occur as a result of excavation and grading activities and vehicular traffic entering and leaving the site.". The other Alternatives are said to be "similar" yet there clearly will be differences because of size to be mined, +/- of equipment required, topography, volume of truck traffic and different operations between the Alternatives. For "Operation Impacts", the DEIS cites "Process Water is to be collected and stored in a settling where it would be available for reuse in facility operations" (Vol. II, Sec. 3.2, subsection 3.2.2.1). The DEIS did not provide a full scope of the treatment of Process Water and what will be done with pollutants or contaminants. Additionally it did not fully disclose where and how this water would be utilized (dust control, truck wash or?).

Response

Chemicals and hazardous materials proposed to be used on the site are listed in Table 2-5 of the DEIS. In the cases where large quantities would be stored onsite in a tank, the size of the tank is included. Process water would be treated onsite to remove suspended solids (e.g., silt and clay) prior to reuse as process water. Contaminants that could accumulate in truck wash water would be removed from the water using an oil-water separator or other appropriate equipment and disposed of offsite in accordance with applicable regulations. A detailed description of water treatment processes is not required to evaluate the potential environmental impacts associated with the recycling or treatment of water. Although there are differences between the alternatives, many of the impacts are similar because the nature of the operations for Alternatives 2, 3 and 4 are similar.

Comment *012-037*

There are many additional references to potential petroleum products and byproducts being present or produced at the site. For example, asphalt processing produces many chemical emissions but these are not fully cataloged nor quantified. Some of these compounds, such as benzene, toluene, and xylene can accumulate in water and soils and can be toxic at certain exposure levels over time. These compounds are not cataloged in the DEIS nor are monitoring and mitigation measures presented.

Response Asphalt materials are listed on the Materials Storage and Handling Features table (Table 2-5 of the FEIS). The specific compounds are considered petroleum products.

Comment *024A-135* We have been informed that the County may be supporting the project because it is a way for the County to dispose of biosolids that it might otherwise have a difficult time disposing. Please clarify this matter. Please clarify what the Biosolids Agreement is, what the County's commitment to it is and what its relationship is to the project.

Response The MOU and Conceptual Mining Plan propose the use of "legally approved King County biosolids products to reclaim and restore mined areas to productive forest cover." Biosolids are wastewater solids that are rich in nutrients and organic materials and have been treated to a level that allows beneficial recycling on land. They also have met the requirements of federal regulation 40 CFR Part 503 and the state biosolids rule Chapter 173-308 WAC. The levels of contaminants in King County biosolids are considered to pose relatively low risks when applied according to state and federal regulations (EPA 1993).

Comment *115-008* P2-18, 2.2.5: "The underlying shallow and deep aquifers would be protected, with present water quality maintained." This is highly unlikely. You need to detail for us how this would be done, if it could be done at all. We have no idea how this will happen.

Response This statement is one of the applicant's general operating principles. Potential water quality impact, and recommended mitigation measures are described in Section 3.4 of the DEIS.

2.2.6 Phasing

Comment *127-081* Number one, provide the timing of each phase as required by WPA-197-11-440, Section 2J. It is critical to know this timing to determine the duration of impacts resulting from each phase.

Response WAC 197-11-440 (2) (j) requires "The type and timing of any subsequent environmental review to which the lead agency or other agencies have made commitments, if any" to be included in the Fact Sheet. Chapter 2 of the FEIS includes a table showing the expected duration of each phase.

Comment *020-006* Any irreversible and irretrievable commitments of resources.

There is a minimal discussion in the DEIS of this requirement, however where resources are committed, little if any mitigation is proposed. For example, the DEIS proposes only a monitoring well as mitigation for the possibility that the excavation at the east end of the lower site could penetrate the aquifer in the area. Other examples will be pointed out in the comments themselves.

Response WAC 197-11-235 requires the summary of an integrated SEPA-GMA (Growth Management Act) document to highlight from an environmental perspective the main options that would be preserved or foreclosed by the proposed GMA action. It should focus on irreversible or irretrievable commitments of natural resources. However, this EIS is not a SEPA-GMA document. The proposal would result in the removal of about 2.1 million tons of sand and gravel.

Comment *014-001* We would like to point out that the map included in the DEIS as Exhibit B of the MOU is incorrect and does not accurately portray the final land ownership. We have attached a correct map for your records and suggest that this be used in the FEIS.

Response The correct map is now included in Appendix A of the FEIS.

Comment *127-091* Provide a description of all soil and biosolids to be used.

Response A revised description of the proposal is included in Chapter 2 of the FEIS.

Comment *085-002* At the same site tour on June 19, 2000, the same Cadman representative told the Sierra Club that if water fights are not granted for the Lower Site, then the gravel will have to be trucked to Cadman's Redmond, WA, site for processing. (This site is near the Target store north of SR202 and East Lake Sammamish Parkway.) This information is not disclosed in the DEIS. A full discussion of this possibility, with full impact analysis, should be required in the FEIS.

Response During initial phases, material would be sold directly to customers or trucked to one of Cadman's three facilities. The proposal does not include processing a significant amount of sand and gravel at Cadman's Redmond facility. This FEIS assumes a pit run only operation (if water rights are not granted) would entail selling the product directly from the mine site. If Cadman proposes a significant amount of processing at its offsite facilities or if a water right is not obtained for the project, then King County may require additional environmental analysis.

Comment *020-327* The FEIS should clearly identify the type of asphalt burner to be used and provide data that is consistent with manufacturers ratings for the same equipment.

Response The Noise Chapter of the FEIS lists the type of asphalt burner from which the noise measurements were collected. The applicant intends to use an asphalt plant similar to this plant If Cadman Inc. decides to build an asphalt plant, it plans to purchase state of the art equipment that meet operational and environmental needs. Design details would be provided in the application for a building permit.

Comment *073-255* "Cadman, Inc. intends to develop 2,100,000 tons/year of sand and gravel on the parcel. The duration of the operation is expected to be approximately 25 years."

At 2,100,000 tons annually, that is 52,500,000 tons of indeterminate volume removed from the parcel over the proposed project life. Please give dimensions and volumes of the two bowl-shaped areas where the proposed mines, would be.

Response The DEIS and FEIS include figures which show the approximate extent of the excavations. Cadman cannot accurately depict the final configuration of the mine at

this time. Final configuration is dependent on limitations to mining not yet determined. Mining limitations may be determined by environmental protections, market demand, and economic considerations. The type of material encountered during excavation also will affect final configuration.

Comment *024A-066* As noted previously, the Project Description seems to indicate that there is a northern berm plus a northern perimeter berm. If there are, in fact, two northern berms, the DEIS should address the impacts to biotic resources of this northern berm.

Response The northern perimeter berm at the north edge of the lease area would be the third berm at the Lower Site. It would be built if King County determines it is needed to reduce noise and shield views to the north. The berm would be built of overburden from the Upper Site. The size of this third berm has not been established. The FEIS addresses impacts, including cumulative impacts, to plants and animals at the proposed project area, but does not address locations such as the berm site specifically. Wildlife would be displaced from areas in active mining and in areas used for site facilities. Displaced wildlife usually moves to adjacent suitable habitat. If adjacent or nearby habitat are at carrying capacity for a particular species, additional wildlife may cause stress in the affected populations, resulting in a temporary decrease in productivity.

Comment *019-604* The DEIS did not and the FEIS should provide size specifications, impacts analysis or comparisons for the maintenance road, for the conveyor belt, and for the water pipe that will pump supply and waste water to and from the upper ridge.

Response A description of the conveyor belt, road and pipeline between the Upper and Lower sites is included in Chapter 2 of the FEIS. Design details are not required for an EIS. Impact analysis is included in the FEIS for the appropriate areas of the environment.

Comment *073-341* Are the concrete and asphalt plants even part of the proposed NBGO, given the uncertainty, their optional nature, the implication of a lack of necessity surrounding them? See Chart 13, especially for Alternative 2, for concrete and asphalt -- are concrete and asphalt crucial elements of the proposed NBGO?

Response The plants are part of the proposal, but the business decisions to build concrete and asphalt plants will be based primarily on market demand and regional construction trends. The impacts of the plants are analyzed in the EIS.

Comment *024A-032* What is the proposed size of the surge piles.

Response The surge piles would have a base diameter of 186 feet and a height of 70 feet.

Comment *023-022* Scenario One- Maintenance Road Positioning/Straight Line (as DEIS illustrates)- If the maintenance road were placed directly up the slopes as proposed, the road might average a 20% including, but there appear to be areas where slopes approach 30 to 40%. If areas of excessive slopes are encountered, they must be graded to achieve a maximum slope of 20%. To best guard against erosion, side slopes for grading should be no greater than 3:1, which is a 33% slope. Using this principal, it is difficult to understand how these side slopes could be manufactured where slopes exceed 33% (e.g., the filling and cutting would never ‘catch up’ to natural grade.

Response The maximum slope of the alignment is estimated to be 17%. The maintenance road would be switchbacked in spots. Please see the revised Description of the Proposal in Chapter 2 of the FEIS and the aesthetics impacts in Chapter 12.

Comment *127-083* Point No. Three, if this project will include a concrete facility, then provide that data regarding its location, equipment, elevation and operations. The project proposal describes a conveyor belt, water pipeline, and a maintenance road between the upper and lower site. Provide the location of these improvements. Provide the length and the width of these improvements.

Response The model for a concrete plant is a plant in Ellensburg. If Cadman, Inc., Inc. decides to build the concrete plant, it plans to purchase state of the art equipment that meets operational and environmental needs. Design details would be provided in the application for a building permit. Location of the concrete plant is shown in figures in Chapter 2 of the FEIS. The conveyor corridor width is planned at about 20 feet, with 6 feet for the conveyor and 10 feet for the maintenance road. The water pipeline would be located under or next to the conveyor. The width of the graded area required to accommodate the corridor is wider than 20 feet in some places. Chapter 3 of the FEIS includes a figure that shows a preliminary grading plan for the conveyor alignment.

Comment *127-082* Point No. Two, if this project will include an asphalt plant, then provide data regarding its location, equipment, elevations and operations.

Response The general model for the asphalt plant is an enclosed plant in Everett. Major facilities, including the asphalt plant, are shown on the site plans in the FEIS. More detailed designs would be developed for the grading permit and are not required to assess the significant impacts of the proposal. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *012-078* Cadman's own published figures estimate that truck washing will use 300 gals./min. If it takes 30 seconds to wash a truck multiplied by 450 trucks per day, truck washing alone will consume some 67,500 gals./day. What percentage of that is lost due to over spray, evaporation and droplets that simply adhere to the vehicles?

Response The applicant estimates truck washing would use 144,000 gallons per day, with six percent lost to evaporation. Truck wash water would be recycled.

Comment *012-079* [DEIS page 3.2-17] states "Cadman, Inc. has developed an effective high-pressure tire and undercarriage washing system." How has the "effectiveness" of this system been measured? What independent assessments have been done to validate this assertion?

Response The truck cleaning facility would be designed to minimize the tracking of soil, sand and gravel on public roads. The effectiveness of truck washing would be apparent on roads. King County would respond to complaints to enforce code requirements and permit conditions, if necessary.

Comment *062-001* A truck cleaning facility designed to prevent the tracking of debris onto public roadways indicates that this would be accomplished through a "high pressure truck washing system". Or a vibrating debris removal system may be used.

The DEIS needs to provide much more information about either of these "truck washing technologies".

A high pressure wash would affect the environment by using water that can potentially be polluted by grease and oil washed off of the trucks at the same time.

A vibration technology would imply a noise impact on the surrounding environment of unknown magnitude.

Please address these issues and cause the applicant to provide much more detailed information regarding the attempt to mitigate debris on the public roadways.

Response Truck washing facilities would be near the western boundary of the Lower Site, near the entrance road. The truck cleaning facility would be designed to minimize the tracking of soil, sand and gravel on public roads. Water would be treated so it can be reused. The truck cleaning is considered a minor noise source relative to other operations.

Comment *017-004* Hours of Operation.

Hours of operation of the upper site need to be clearly stated as being between 7 am and 5 pm Monday through Friday with maintenance only on Saturday between 7 am and 3 pm. Operations outside of these hours would effect the residents North of the upper site operation.

Response The hours noted in the comment are proposed by the applicant for the Upper Site. Mining and processing are proposed at the Lower Site from 5 a.m. to 10 p.m., Monday through Saturday. Truck loading is proposed for 24 hours per day, Monday through Saturday. The King County Grading Code 16.82 regulates gravel pit and mining operations. KCC 16.82.100(13) sets hours of operations from 7 a.m. to 7 p.m. unless otherwise authorized by the department director. King County DDES uses a number of criteria to evaluate a proposal to operate beyond those hours. The major criterion used in this evaluation is the ability of the operation to remain in compliance with the noise regulation in KCC 12.86-12.100.

Comment *127-085* Point No. Five, how will the conveyor belt operate? We would like a detailed description.

Response A description of the conveyor is included in Chapter 2 of the FEIS.

Comment *012-159* Where, exactly, on the site will the conveyor be placed? How close to nearby homes and businesses?

Response The conveyor location is shown on the site plan in Chapter 2 of the FEIS. Proposed site plans show the lower end of the conveyor would be approximately 1,600 feet from the nearest residence and 3,400 feet from the nearest business.

Comment *020-259* The FEIS should address the actual excavation width of the corridor that will accommodate the conveyor system, maintenance road, and water pipelines. Stating that, "the excavation width is yet to be determined for this corridor" is not appropriate. [DEIS 3.1-5].

Response A revised description of the conveyor system and the grading requirements is included in Chapter 2 of the FEIS. Chapter 3 of the FEIS includes a figure that shows a preliminary grading plan for the conveyor alignment.

Comment *071-002* Lack of asphalt and concrete plant specifics- such as exact site location, explanation of operations and complete inventory of equipment used, and lack of complete engineering study with accurate architectural modeling of the location and operation of the conveyor.

Comment *127-088* Point No. Eight, provide a complete list of all equipment that will be used for all phases of this project. There is no description in this EIS of the asphalt facility, the concrete facility, the conveyor belt and many other elements.

Response An equipment list is included in Chapter 6 of the DEIS. Chapter 2 of the FEIS provides a detailed description of the proposal. Location of major facilities is shown on the site plans. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *115-007* p. 2-5, 2.2.4.1: Cadman must make sure the pond is lined. Also, is a 5 foot buffer between the grade level and the underlying water table really sufficient?

Response The applicant has removed the freshwater storage pond, which was discussed in the DEIS, from the proposal. Water would be stored in an underground concrete vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. The DEIS and FEIS evaluate the potential impacts to the underlying water table resulting from a 5-foot buffer zone at the Lower Site.

Comment *020-723* The FEIS should discuss the frequency, duration or timing of any situations in which water would be taken from the "passive" pond and require mitigations sufficient to ensure that the surrounding groundwater and surface water is not impacted during peak water use periods.

Response Impacts of site water demand during project operations are discussed in the Water and Environmental Health chapters. The applicant has removed the freshwater storage pond, which was discussed in the DEIS, from the proposal. Water would be stored in an underground concrete vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. The vault would serve as a primary source of water and would be drawn from as needed. The FEIS recommends mitigation measures to minimize impacts to ground and surface water. Seasonal impacts may be expected. Water rights, if granted, may have a seasonal low-flow restriction.

Comment *012-021* SEPA [WAC 197-11-440 (5) (c) iii)] requires that the project description "Identify any phases of the proposal, their timing, and previous or future environmental analysis on this or related projects." The DEIS describes eleven phases but it does not provide the timing for each phase. It is impossible to assess the impacts and mitigations of each phase without good estimates of the duration of each. We also note that Phases 9 and 10 are essentially the same as Phase 8. What is the meaning of these three identical phases?

***Comment** 019-351* The DEIS did not and the FEIS should identify the time length for each Operation phase and each Construction phase for each Alternative. Included should be the number of trucks for each phase.

***Comment** 020-725* The FEIS should identify and address the time lengths for each "operational" phase for each alternative.

***Comment** 020-738* The minimum or maximum time allowances for each phase within each alternative are not given to provide adequate impact analysis. The impacts analysis does not contain estimated and/or projected cumulative impacts analysis for the entire scope of the project, i.e. 5 year, 10 year, 15 year, 20 year and 25 year segments.

***Comment** 024A-016* SEPA requires that the project description section of the DEIS "Identify any phases of the proposal, their timing, and previous or future environmental analysis on this or related projects (WAC 197-11 A.A.9 (5) (C) iii)). While the DEIS describes 11 phases, it does not provide the required timing for each phase. This is critical since the public deserves to know the length of time they will be exposed to various impacts, particularly from the earlier phases. It is also interesting to note that Phases 9 and 10 are essentially the same as Phase 8. Why are Phases 9 and 10 included? Are there other actions occurring in these phases that are not described in the DEIS?

***Comment** 024A-034* What happens in Phases 9 and 10 that are any different from Phase 8?

***Comment** 071-005* Specific timetable (as SEPA requires) for each phase of the project to determine duration of impacts.

Response A more detailed schedule of phases is presented in Chapter 2 in the FEIS. Activities would be similar in phases 8, 9 and 10. Mining would progress from west to east. The Gravel Sequencing figures illustrate the progression of mining. SEPA does not require projecting cumulative impacts for 5-year segments. The number of truck trips required is addressed in the Transportation Chapter of the FEIS.

***Comment** 026-031* Comment (5): Market Demand for aggregates in King County is only briefly discussed in the DEIS. Cadman would like the discussion to be broadened to include the following information. A 1995 study on demand for mineral resources in Washington State estimated that the consumption of sand and gravel is 16 tons per year for each man, woman and child in the state. This same study estimates that each domed stadium and every new airport runway, consumes the equivalent of a sand and gravel deposit of at least 100 acres. Aggregate needs are directly tied to population growth and Washington State is expected to double its population over the next 50 years. Continued population growth is rapidly depleting the permitted reserves throughout the State and compounding the impact population growth results in increased demand for sand, gravel and rock.

Response Market demand is noted in Chapter 2 of the FEIS.

***Comment** 026-032* King County will lead the State in growth and construction activity and the demand for aggregates will outstrip the supply of aggregates unless new sources of mineral resources are made available.

***Comment** 029-004* It is large enough to provide a supply of material for more than a generation. This supply is important to the health of the Puget Sound region's roads, bridges, public buildings, as well as housing. A gravel operation does not just exist to support new

growth. For example, approximately 80% of the gravel that goes into asphalt is used for the maintenance of existing roads, not new building projects.

Comment *034-002* Currently sand supplies for septic systems are running short. Many of the septic systems in King County use a specific sand for filtering the effluent before allowing it to enter into the ground. Because this sand is becoming difficult to locate and when it is located, it is expensive to purchase, the customer is paying a much higher price for the same system than a customer in adjoining counties. Therefore it is important that a new supply be made available.

Comment *108-002* Gravel resources are needed for construction projects of virtually every kind. Roads, schools, housing, hospitals, the list is endless. No one, of course wants a gravel mining operation in their back yard. Yet the fact remains that these resources are needed to continue not only the growth we are experiencing in the Pacific Northwest, but also the re-building or replacement of older structures and roads as time takes its toll. The design of this project is quite unique in the fact that most people would not even be aware of a mining operation at work.

Comment *109-001* I am writing in support of Cadman's proposed North Bend Gravel Operation. I believe that Cadman has proposed an environmentally sound project and have proven themselves to be an environmentally conscientious company. There is a great need for aggregate products in the greater Puget Sound area, and due to the proximity to our local building boom, the lower cost of trucking will allow for the cost of materials to be minimized. This will be a positive factor in our economy as the current rising costs of aggregate will affect the cost of highway projects, public projects, commercial structures and housing.

Comment *120-002* King County is growing at record paces. To handle the growth many homes, stores, schools, roads, bridges, business complexes, etc will need to be built. Each one of the above listed items will require affordable, high quality natural resources to facilitate theft construction. The people that will occupy the above listed items will do so because they are built with affordable, high quality materials. The North Bend gravel project when permitted will help contractors to continue to build affordably and with quality to meet the needs of their customers the taxpayer. The gravel industry is with out a doubt one of the most important components to growth. Every person who is for or against the gravel industry is using it to their betterment every single day of their lives. King County needs the North Bend Gravel Project as well as other permitted natural resources to help keep the cost of construction in King County affordable for those who live there now and for those who will move there in the future.

Response Comments noted.

Comment *023-032* Recommendation(s): The DEIS should include analysis based on accurate topographic mapping with 2 foot contour intervals. With this reformation, a realistic grading plan should be prepared for the maintenance road. This plan should illustrate turnouts for passing, evidence for how side slopes will be re-established and the limits of cuts and fills. Road profiles should be presented. After this preliminary engineering is completed, a new visual impact study should be conducted which clearly illustrates the impacts this grading scenario will deliver.

Response A preliminary grading plan is shown in Figure 3-2, Chapter 3 of the FEIS. Additional visual analysis has been conducted and is discussed in Chapter 12 of the FEIS. Engineering studies and detailed designs are not required for an EIS (WAS 197-11-055).

Comment *073-335*

Perspective On Market Demand.

"All these gravel pit projects are dependent on market demand."

DEIS On Market Demand.

"The duration of the operation is expected to be approximately 25 years, but this will depend on the market demand for aggregate products in eastern King County.'

"The duration of the operation is expected to be approximately 25 years. However, this would depend on the market demand for aggregate products in eastern King County."

"The market demand for aggregate products in eastern King County would determine the rate of excavation."

[Questions: What constitutes eastern King County in the context of this statement? What is the projected market demand (tons per month across each of the 12 months of a year in 2005, 2010, 2015, 2020 and 2025?) for aggregate products in eastern King County, versus western King County, versus extra-King County from the proposed NBGO? How do excavation rates (tons per month per mining phase) vary as a function of market demand (tons per month) ?]

Response

SEPA requires the analysis of environmental impacts (WAC 197-11-448). Information about market demand is not necessary and not required under SEPA to evaluate the environmental impacts of the proposal. Market demand varies based on economic factors, the number of large active projects which require large amounts of sand and gravel, and other reasons.

Comment *073-340*

But -- what is the most disconcerting about the train of portrayal in these last three quotes from the DEIS is their location. The first two are in Sections 1.0 and 2. 0 -- the macro/high-level stuff where you would expect the issue of "market conditions" in relation to the existence of the concrete and asphalt plants to be introduced The third quote is in Section 3.12: Transportation, some dozen Sections into the DEIS. While it may belong there in relation to project truck traffic in some sense, it certainly belongs in Sections 1.0 or 2.0, where the Proposal and Alternatives are described and the major issues confronting the proposed NBGO are introduced and summarized. This smells like the key determinant "market conditions", in relation to the existence of the concrete and asphalt plants, was hidden, stashed, secreted away among the words of Section 3.12. This is either a display of [you fill in the blank] - or one of the most arguably devious portrayals of information in the entire DEIS -- or both. It raises a bevy of questions. Does the lead agency of the DEIS see how this appears to an audience, and what it says about the way the SEPA/EIS process is being conducted?

Response

Portions of the project description spread among the sections in the DEIS have been moved to Chapter 2 in the FEIS.

Comment *073-336*

"Based on market demand/production and operational requirements prescribed by Cadman, Inc., King County evaluated a number of alternatives involving different degrees of usage of both the Lower and Upper Sites."

"The time to complete each mining phase would depend on market conditions, although it is anticipated that each phase would be completed in approximately 5 years."

[Question: Would lower than anticipated market demand delaying the completion of mining phases extend the life of the project beyond 25 years?]

Comment *127-077* I think it is a fraud you perpetrated on the people of the valley. I did a little research. Cadman (unintelligible). There is nobody to fix that. Do we know for sure that this will be 25 years? It seems to me they always ask for an extension on any mine.

Response The life of the project would not extend beyond 25 years, according to Cadman, Inc.

Comment *127-155* But most of all I want you to think of the future of North Bend itself. When we talk about the children, we talk about the schools, what is going to happen in 25 years? We here now. Sand and gravel is needed for construction. What is going to happen in 25 years? Is that whole ridge going to be gone? Where will we get gravel from then on? In 25 years are they going to clear that lot? Is there going to be leftover machinery? Will there be oil spills? I don't want to see this happen to North Bend.

Response By the end of the 25-year operation, all sites would be graded, fertilized and planted.

Comment *024A-027* In Section 2.2.6.1, the DEIS states that the two berms would be constructed. What is their elevation above existing grade? When will they be constructed (i.e., how many years after project initiation will it be before they are completed)? It states that the berms will be conditioned and planted with Douglas fir. What conditioning will occur and when will the trees be planted? The berms are then not mentioned again until Phase 4 (p. 2-23) where it states that overburden from the Upper Site would be used to shape the existing gravel mine and create "a new earthen berm along the northern property line. Is this the same berm or a different berm? If different, where will it be located as it is not shown on any of the Figures. Under Phase 5, it states this "northern berm" would be completed, soils conditioned and replanted with trees. Please provide an explicit description of the construction of all berms. Maps showing their precise location and elevation should be provided at a scale where the height and extent of the berms can be easily seen (we found the DEIS maps very difficult to interpret due to the fact that improvements are shown at such a small scale). The DEIS must explicitly state when each berm will be completed and when it will be planted (and with what).

Comment *024A-028* If there are, in fact, two northern berms, we would note that the second berm is not identified in any DEIS maps nor is it assessed in any of the impact discussions (e.g., removal of vegetation to construct, noise and visual impacts, etc.). If there is a second northern berm, the DEIS revision should describe and map it and assess the impacts of its construction. If there is only one northern berm, then precisely when will it be completed and revegetated.

Comment *024A-029* No dimensions for the berms are provided other than very small maps and sections. Reviewing the maps, it appears the north berm would be approximately 1,500 feet in length and the southern berm about 750 feet. The sections appear to show the top of the berm about 50 feet above existing grade. Assuming the berms are constructed with a 2:1 slope, it would take over 400,000 cubic yards of material to construct this amount of berm. On p. 2.20, the DEIS states that about 130,000 cubic yards of overburden material will be used to construct the berms, and that this is a sufficient amount. If that is the case, then the berms are obviously much less extensive than we have calculated. Please clarify this situation and provide precise details regarding berm size, elevation, and location.

Response Under Alternatives 2 and 3, both the north and south berms at the Lower Site operations area wold be about 750 feet long. The approximate 130,000 cubic yards of overburden

for the two berms is accurate. Under Alternative 2A, the north berm would be about 1,500 feet long and the south berm about 750 feet.

The existing grade at the south berm location at the Lower Site is 665 feet. Top of the south berm would be at approximately 700 feet elevation, while the top of the north berm would be approximately 740 feet elevation. Construction of these two berms would occur in Phase 1 during the first two years of the project. Earthern berms would be conditioned with soil amendments such as biosolids, if needed, and planted with Douglas fir seedlings during the fall or winter following berm construction. Fall or winter planting eliminates the need for watering. The third berm at the north property line, if needed, would be built at some time during Phases 4, and 5, during years four through nine of the project. The location of the third berm has not been determined. Timing of berm construction is shown in Table 2-1, "Phasing Activities," in Chapter 2 of the FEIS. Table 2-2 shows the estimated phasing schedule. The site plans for all alternatives have been enlarged in the FEIS for easier reading.

Comment *012-019*

[DEIS §2.2.6.3 and §2.2.6.4] refer to the construction of a conveyor system and an accompanying pipe system and maintenance road. [DEIS §2.2.6.7] mentions the possible construction of "a concrete and/or asphalt facility." However, no details are provided about the size, location, equipment, and operations associated with these facilities. Without such information, it is impossible to assess the potential environmental risks and mitigations.

Response

Comment noted. Additional information about the proposal has been added to the Project Description in the FEIS. The locations of the primary facilities are shown on figures in the DEIS and FEIS. The available information is sufficient to evaluate potential impacts. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *115-011*

p. 2-23, 2.2.6.5: Are temporary settling ponds going to be lined to prevent groundwater contamination?

Response

The settling ponds would be lined to capture fine-grained materials.

2.3 RECLAMATION

Comment *012-121*

The proposal is lacking reclamation permits required by Washington State law.

As stated in RCW 78.44.081, "After July 1, 1993, no miner or permit holder may engage in surface mining without having first obtained a reclamation permit from the department" [i.e., the Department of Ecology]. In addition, law requires that "A separate permit shall be required for each noncontiguous [emphasis added] surface mine." Only one such permit is referred to in the DEIS and given the conceptual mining plan, two reclamation permits will be required, one for the Lower Site and another for the Upper Site. A related section, RCW 78.44.091, requires the following approval process:

"An applicant shall provide a reclamation plan and copies acceptable to the department prior to obtaining a reclamation permit. The department shall have the sole authority to approve reclamation plans. Reclamation plans or modified reclamation plans submitted to the department after June 30, 1993, shall meet or exceed the minimum reclamation standards set forth in this chapter and by the department in rule. Each applicant shall

also supply copies of the proposed plans and final reclamation plan approved by the department to the county, dry, or town in which the mine will be located. The department shall solicit comment from local government prior to approving a reclamation plan."

Since local government comment is required it will be more expedient to include the reclamation plan in the EIS appendices.

Response It is acknowledged that a reclamation permit from the Washington State DNR would be required for the Proposal. A draft Conceptual Reclamation Plan was completed by the applicant on June 28, 1999 (revised May 2000). Reclamation permits are not required at the EIS stage. The applicant would have to obtain a reclamation permit from DNR prior to grading permit approval.

Comment *012-123* Given the scale and intensity of the activity proposed on the site, it is not unreasonable to conclude the site can never be effectively reclaimed.

Response The sites will be reclaimed in accordance with state law. A Draft Reclamation Plan is included in the FEIS.

Comment *002-001C* Inadequate details to determine compliance with the Surface Mine Reclamation Act, Chapter 78.44 RCW, concerning such mining reclamation practices as configuring slopes, placing and compacting backfill, determining locations of reclamation setbacks, sequencing phased mining segments of the intended reclamation plan, and providing adequate maps depicting final reclamation slopes and other information.

Comment *002-004* An improved mine reclamation plan. A major uncertainty has to do with the final slopes. The preliminary plan talks about mining all areas to a final 2h:1v slope. The plan then talks about reducing these slopes to 3h:1v or 4h:1v by using both on-site and offsite materials as they become available. The plan mentions the need for a backfill plan, and then goes on to say that no backfill is needed for reclamation. The plan mentions sinuous final slopes, but the mining sequences do not appear to be designed to achieve sinuous slopes during mining. It is not clear whether the edge of the reclamation setback is at the toe of the 2h:1v slope created by the final mine face, or the toe of the backfilling necessary to achieve slopes of 3h:1v or 4h:1v.

The final mine reclamation plan will need to be much more specific as to how the final slopes are created, where they will be 2:1, 3:1, or 4:1, where and how much backfill will be placed and what compaction levels will be used, and how the reclamation setbacks are accommodated. The reclamation maps will need to be much improved and be overlaid on the mine plan maps, with the reclamation segments and mining progress clearly evidenced. The document needs to include detailed mining/reclamation maps that clearly depict the final reclamation slopes including steepness, location of backfilling, sinuosity in planar view, top and toe of reclamation setbacks, distribution and type of reforestation, and the segmental mining/reclamation sequencing. A complete mining plan should be submitted as part of the reclamation plan.

The proposed reclamation plan seems to take a minimalist approach. The final contours are basically a flat floor with steep sides. An improved plan would include more sinuosity in the side slopes, more topography to the large floor area, and generally flatter final slopes.

Comment *002-017* Mine reclamation planning, mapping and sequencing details,

Comment *024A-035*

The Reclamation Plan included in Chapter 6 is essentially a statement that the applicant will reclaim the land. There is virtually no specific information regarding slope stabilization, long-term drainage and erosion control, revegetation, nor monitoring for success. The graphics consist of a few hand-drawn maps showing topography. It is interesting to note that the Reclamation Plan on p. 2 states that Upper Site overburden will be moved to the lower site for berm construction. Then, in the final paragraph under "Segmental Reclamation" it states that removed topsoil will "be available for immediate placement on reclamation slopes as managed live topsoil." it appears the topsoil will be doing double-duty. This Reclamation Plan needs a thorough revision to precisely describe and show in graphics how each section will be reclaimed and when. How can the County and public know the effects of long-term reclamation without a precise description of the proposal?

Comment *073-254*

What type of reclamation activities does the DEIS propose for this type of permanent topographical alteration?

Response

Reclamation will be accomplished in accordance with the approved DNR Reclamation Plan. Final drawings are usually prepared and submitted to DNR for approval after the local permitting process is complete and mitigations are determined. Cadman cannot accurately depict the final configuration of the mine at this time. Final configuration is dependent on limitations to mining not yet determined. Mining limitations may be determined by environmental protections, market demand, and economic considerations. The type of material encountered during reclamation also will affect final configuration.

Comment *002-001D*

Use of site topsoil in construction of screening berms, and related issue of reclaimed soil cover depth.

Comment *002-007*

The DEIS estimates that the existing topsoil is about 2 feet deep. While the topsoil is described as a gravelly loamy sand of the Klaus series, no specific description or thickness of soil horizons is provided (i.e., “A” or “B”). It is assumed that the 2 foot depth includes both “A” and “B” soil horizons, with the underlying sand and gravel constituting the “C” soil horizon. In any case, this topsoil material is also referred to as “overburden.” All the Lower Site “overburden” of ~2 foot depth is planned to be used to construct the two screening berms for the operations area on the Lower Site. Page 2-20 states that this material is estimated to be about 130,000 cubic yards, which “is equal to the volume needed to build the two proposed berms.” Subsequently on page 2-23, Phase 4 activities identify using the downslope conveyor to move topsoil material from the Upper Site to the Lower Site to be used “to create a new earthen berm along the northern property line.”

The plan to use the cleared topsoil from both the Lower and Upper Sites to construct screening berms is not consistent with the standard DNR surface mine reclamation permit restriction against using topsoil for screening berms, “because this would preclude its timely use for reclamation” (DNR Form SM-8A, pg. 3). The document needs to clarify that additional topsoil or organic materials would be imported as necessary to replace any topsoil “lost” in constructing the screening berms. Language in section 3.1.4.2 could be clarified to address this issue.

The mine reclamation conceptual plan is to apply only about 1.5 feet of “topsoil” to the finished mine surface, but also apply an agronomic rate of biosolids compost as needed. This might be adequate for future forestry growth on the two sites, but it may be advantageous to consult with King County, the University of Washington College of Forest Resources, or Washington State DNR staff familiar with expected site productivity might be a good idea to ensure that is adequate.

Response The use of topsoil for berms is strongly discouraged but not prohibited. Using topsoil and overburden from the first mining settlement or operations area for screening and berms is considered by Cadman, Inc. to be acceptable, because there is no completed area to reclaim. Topsoil and overburden must be stockpiled. If stockpiled topsoil and overburden are used for berms surrounding the operations area, they would then be available for reclamation of this area. The mining plan allows for this sequence for the operations area.

Comment *002-005* A detailed description of how backfilling will be accomplished, including the estimated volumes of imported fill materials, where the material will come from, what measures will be taken to assure the fill is environmentally safe, and how it will he compacted to achieve stability.

Response Backfill will not be required to accomplish reclamation goals. However, if backfill is available either from non-marketable on-site sources or offsite sources, the applicant will use backfill to enhance topography. The use of backfill requires a Backfill Plan as part of the binding Reclamation Permit. The Backfill Plan identifies how and where backfill will be placed. The Backfill Plan accompanies the Reclamation Permit Application, which is statutorily the last permit issued.

Comment *020-221* The FEIS should address if DNR expertise was utilized to develop and test cost-effective techniques and methods for rehabilitating the lands disturbed by surface mining and for protecting, managing, and improving forest and rangeland watersheds. [United States Department of Agriculture, Forest Service FS-20, page 24].

Response DNR employees provided information on mine reclamation for inclusion in the DEIS. DNR staff also commented on the DEIS.

Comment *002-006* An evaluation of the compatibility of the proposed reforestation and the subsequent use. The vegetation plan mentions planting with Douglas Fir for future commercial forestry use. Reforestation standards must meet or exceed Washington State forest practice standards. DNR may need more information on the proposed test plots prior to approving a final vegetation plan. Final mine topography should reflect future needs for long term commercial forestry, wildlife habitat, and public use.

Response The sites are within the King County Forest Production District and are zoned Forest. Reforestation is consistent with this designation. Reclamation of the site will meet or exceed state requirements administered by DNR and the land transfer agreements. The donated property is intended to be used as a working forest. Final mine configuration is dependent on limitations to mining not yet determined such as environmental protections, market demand and economic factors.

Comment *115-009* 2.2-22, 2.2.6.4: Phase 4 Activities: What is the point of spading existing trees and putting them in a temporary nursery? Is it really worth all that effort?

Response This measure, which is an effort to salvage plants that would otherwise be destroyed, is part of the applicant's reclamation plan.

2.4 DEVELOPMENT OF ALTERNATIVES

Comment *097-014* Were performance measures quantitative or qualitative indicators of how well or poorly an alternative meets a specific objective?

Comment *097-015* How were these performance measures developed?

Response The term "performance measures" is not used in the DEIS.

2.5 DESCRIPTION OF ALTERNATIVES

Comment *026-030* Cadman continues to find the labeling and description of the various alternatives and options confusing. A suggested re-naming of the alternatives as follows:

Alternative 1: No Action
Alternative 2: Proposal
Alternative 2A: Proposal with Limited Lower Site Mining
Alternative 3: Lower and Upper Site Exit Option (Exit 34 and 38)
Alternative 3A: Lower and Upper Site Exit Option, w/Limited Lower Site Mining
Alternative 4: Upper Site Mining and Exit Only (Exit 38)

Response The alternatives have been renamed in the FEIS.

Comment *020-720* The FEIS should address ground surface requirements for each of the above. Impervious surfaces, storm water runoff controls and drainage should be identified The DEIS should identify and address the time lengths for each “construction” phase for each alternative.

Response Drainage from new impervious surfaces and stormwater runoff control is addressed in the Water chapter of the FEIS. A more detailed schedule of phases is presented in the Proposal and Alternatives chapter in the FEIS. More detail would be provided as available in each stage of design.

Comment *020-002* A. Alternatives to the proposed action.

Alternatives 1-4 do not adequately discuss the range of alternatives available even as expanded with the optional alternatives 2 and 3. This is so because every one of the DEIS alternatives (even alternative 4) requires either construction or excavation on the lower site or along the proposed conveyor alignment. Alternatives involving no construction whatsoever on the lower site or along the conveyor alignment were dismissed early in the process because of environmental concerns before the environmental impacts of the DEIS alternatives were even considered. After reviewing the DEIS alternatives and the Hart-Crowser study dismissing the Exit 38 alternatives, it is the opinion of WRAGRA that the environmental impacts of the Exit 38 alternatives as disclosed in the Hart-Crowser report are far less than the environmental impacts of any of the DEIS alternatives. We therefore submit that the DEIS does not adequately discuss alternatives to the proposed action because it does not contain an Exit 38 alternative. We hereby reserve the right to object to this issue in any challenge to the adequacy of the FEIS that we may consider.

Response The environmental impacts of the Proposal and reasonable alternatives are evaluated in the EIS. Alternative 4 is considered to be an Exit 38 alternative. The Hart-Crowser

study evaluated an off-site alternative, the Homestead gravel mine. Analysis of off-site alternatives is not required under SEPA.

Comment *064-001*

The DEIS fails to evaluate offsite alternatives and is therefore inadequate according to the Decision of the Hearing Examiner of Snohomish County in response to the FEIS case of the Stillaquamish Citizens' Alliance and The Moutanineers, and Mt. Loop Neighborhood Groups vs. Associated Sand and Gravel Company, Inc.

Response

For private projects on a specific site, SEPA requires evaluation of no-action alternative and reasonable alternatives which meet the objective at a lower environmental cost on the same site (WAC 197-11-440). Analysis of off-site alternatives is not required under SEPA for private projects.

Comment *085-006*

By Cadman's own statements to the Sierra Club, it recognizes and acknowledges that another Alternative exists not disclosed in any way, shape or form in the DEIS. Accordingly, this information was omitted from review by King County Department of Development and Environmental Services, the cities listed in #5 and from the Washington Department of Transportation. A full review of this additional Alternative should be included.

Response

If water rights are not granted, the applicant intends to operate the site as a "pit run" only. Dry screening and vibratory wheel washing would be alternative methods for washing processes. Asphalt and concrete plants would not be built. If a water right is not granted, additional environmental analysis may be required. Further review may result in an addendum to this FEIS or a supplemental EIS.

Comment *036A-004*

Based upon the environmental review and broad public policy concerns, the Exit 38 alternative is not reasonable and should be rejected in favor of the proposed alternative.

Comment *036B-004*

The DEIS includes four alternatives ranging from "no action" to the fully mitigated proposal (alternative 2) to alternatives that have less overall activity (but greater impact on the environment). An alternative that could have been included in the DEIS to put the proposal into perspective would have been the full utilization - non-mitigated proposal. Such an alternative would have portrayed the approach historically taken by the construction aggregate industry and the proposal that would generate the greatest financial return. Reclamation would eventually take place, but in the meantime mining would be highly visible over a period of 50 or more years. That approach, however, was rejected - not by the DEIS writers, but by Weyerhaeuser and Cadman.

Instead, for two and a half years Weyerhaeuser Company and Cadman have been actively soliciting and listening to the public regarding the proposal at issue. This process included numerous meetings with the Mountains to Sound Greenway Trust, formal public meetings, one-on-one sessions with interested individuals and organized groups, and numerous tours.

Weyerhaeuser, in consultation with the Mountains to Sound Greenway Trust, spent considerable time and effort developing a conceptual mining plan that included the Greenway's vision for environmental protection, aesthetics, and minimizing impacts to neighbors. (It is important to note the neither King County or Washington DNR was involved in the process to develop the conceptual mining plan. Rather, pursuant to the Memorandum of Understanding their involvement was limited to certain real property transactions and they are specifically excluded from portions of the MOU relating to the conceptual mining plan.) At the urging of the Mountains to Sound Greenway Trust, the

overall project design was developed by a landscape architect rather than a mining engineer. The difference being that a mining engineer would have developed a plan that maximizes resource utilization at the lowest cost while the landscape architect's overall objective was to fit the project into the environment taking into consideration the views from surrounding areas (including highland trails), and protection of environmental resources including water.

This process has resulted in a proposal that incorporates substantial mitigation measures - far in excess of applicable legal requirements - that are not accounted for in the DEIS because the mitigation is inherent in the proposal. For example rather than mining into the side of the hill and working back, which is the traditional approach, Weyerhaeuser and Cadman agreed, at their cost, to mine within a bowl at the top of Grouse Ridge, thereby leaving the existing vegetated slopes on the South and West sides of Grouse Ridge in their present condition. Furthermore, the companies volunteered to maintain a naturally vegetated lip on the north side of the ridge so that the operation would not be visible from that direction, again at their cost. In addition, the project includes other voluntary mitigation measures, including reduction in the depth of mining at both locations and a lower site design that is driven by reduction in visibility. Subsequent to the release of the initial plan, Cadman has agreed to several additional modifications of the plan at the request of the community.

Comment *107-001* I prefer proposal 1 or 4.

Comment *127-053* But mostly, what really pisses me off, you guys, is the fact that we were promised an exhaustible research at every alternative, and this is one document with one alternative and not the others and that is not -- that is not what we were promised.

Response Comments noted. SEPA requires evaluation of reasonable alternatives which meet the objective at a lower environmental cost.

Comment *024A-040* When the DEIS is revised, it is recommended that a fifth alternative be added for analysis. This alternative would include Alternative 4 plus the ability of the applicant to remove aggregate from the Lower Site as proposed, (not to exceed the 5 years proposed for aggregate extraction on the Lower Site) but not allow the construction of processing facilities, an asphalt plant, or concrete plant at the Lower Site. Given that many of the significant impacts of the project involve processing aggregate, manufacturing asphalt and concrete, and shipping materials at the Lower Site, elimination of these activities at the Lower Site while still allowing the applicant to remove aggregate at this location and process it offsite (as is proposed) appears to be a viable alternative that better meets the needs of both the applicant and the local community. This alternative should be fully assessed.

Response Comment noted. Alternative 4, which limits activities to the Upper Site, allows for analysis of a range of alternatives.

Comment *064-002* The DEIS fails to provide details of the consultants' evaluation which summarily dismissed the use of the existing Homestead Gravel area as the primary access to the upper site from Exit #38 rather than SE Grouse Ridge Road. The total costs involved to make the Homestead Gravel slope environmentally stable, of protecting the South Fork of the Snoqualmie at that one location, of continuing the existing Homestead Gravel road a very short ways onto the upper site region, and of purchasing the elimination of a very unprofessional and unacceptable personality conflict between the operators, is undoubtedly far less than the costs for the proposed mitigation measures for any of Alternatives 2-4. This route and the costs involved must therefore be thoroughly

described and explored as Alternative 5 (with and without including mining at the Lower Site) or else it is quite clear that the best alternatives in terms of economics, environment and the community have not been considered by the EIS process as claimed.

Response The Homestead gravel mine site is not part of the proposal site. For private projects on a specific site, SEPA requires only the evaluation of a no-action and other reasonable alternatives on the same site (197-11-440).

Comment *113-003* Another option that I didn't hear mentioned was the use of Old Grouse Ridge Road which goes from S.E. Grouse Ridge Road over to 1-90. This road leaves S.E. Grouse Ridge Road about 1/4 mile east of the Fire Training Center and goes about 1/4 mile over to 1-90. This road is not currently in use and would require an on ramp onto 1-90, but it would save trucks exiting the upper site through the Fire Training Center several miles of travel. It would be unnecessary to go through Olallie State Park. It would also make upgrades and adverse impacts (page 8-17 Alternatives 3 and 4) unnecessary.

Response The Washington State Department of Transportation will not allow additional on-ramps between the east and west Exit 38 interchanges. Therefore, Old Grouse Ridge Road is not a feasible alternative.

Comment *012-028* Since the DEIS virtually ignores the principle of local context, it does not provide a fair, complete, unbiased comparison of the impacts with respect to each of the Alternatives. It is clear that Alternative 4 would significantly reduce impacts to the local community. A comparison of the impacts between Alternative 4 and those of the proponent's proposal (Alternative 2) needs to be provided in context. The EIS should determine whether Alternative 4 reduces impacts and the degree of impact and the degree impact reduction.

Response The FEIS compares the impacts of each of the alternatives in the vicinity of the Lower and Upper Sites (see Chapter 9 "Land Use"), and takes into account the number of residents in the vicinity.

Comment *019-372* The DEIS did not and the FEIS should provide the locations of storm water runoff controls and all drainage systems for each phase within each Alternative. Comparisons between each should be provided.

Response The conceptual design for stormwater runoff controls are described in the Proposal and Alternatives chapter of the FEIS. Engineering studies and detailed designs are not required for an EIS.

Comment *019-373* The DEIS did not and the FEIS should identify all uses of water that would be taken from the “passive” pond for each phase within each Alternative. Comparisons between each should be provided.

Response Water requirements for the project are described in the Proposal and Alternatives chapter of the FEIS. Concerns over water quality and water supply are addressed in the Water and Public Utilities chapters of the FEIS. Further analysis is not necessary until the design phase. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground concrete vault located beneath the

truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

2.5.1 Alternative 1 - No Action

***Comment** 026-001*

Comment (1): It is Cadman's understanding that the Weyerhaeuser Company intends to develop this property, either as part of this project or in some other way. The No Action Alternative, as it is presented in the draft, suggests it would be used for commercial forestry. Further, the DEIS No Action alternative does not discuss the impact of this property not being offered for donation to public ownership. If this property is not developed as a mineral resource, it will not become a public property, and there is an impact associated with that reality. It is our recommendation that the FEIS adds a sentence at end of the No Action Alternative to explain what this means to Weyerhaeuser's land donation commitment: "Donation by Weyerhaeuser of the entire mineral resource site to public ownership would not occur."

***Comment** 036A-003*

The "no action" alternative identified in the DEIS should not be understood to result in no activity; rather, given the property's location, interstate access, accessibility, and adjacent commercial development, it is very unlikely that no activity or development would occur.

***Comment** 036B-007*

The DEIS describes a "no action" alternative. The "no action" phrase, however, may wrongly convey the idea that if the proposal is not permitted, the site will remain in its current state. That is not the case, Notwithstanding the "no action" label, "no action" should not be understood to be an alternative to the proposal. In other words the choice and resulting impacts are not between the proposed sand and gravel operation on one hand and simply doing nothing with the property on the other hand. Given the property's location, interstate access, accessibility, and adjacent commercial development, it is very unlikely that no activity or development would occur.

Response

Comments noted. This information has been added to the FEIS.

***Comment** 127-122*

Interest particularly is I would like to see no mine, not particularly because I don't want it in my backyard, but I believe it is time for us to figure out ways to no longer use nonrenewable resources, and I think Weyerhaeuser has the capacity, the R and D, whatever it would take to come up with alternatives, and they could turn into the leading building materials manufacturer, everything else, and come up with an alternative to gravel. I know that sounds out there, but I am sure it is possible. There is a book called Natural Capitalism by Paul Hoffman and Andrea Levins of the Rocky Mountain Institute. It is a think-tank of environmental solutions. I recommend it as a whole new perspective on how to look at the environment and no longer even consider nonrenewable resources as something we just kind of take and run with.

Response

Comments noted.

***Comment** 086-002*

In looking at the alternatives for access to the site, Exit 34 is the best choice for many reasons. If Exit 38 were used, trucks would be crossing as many as 13 streams and the Snoqualmie River in two places, not to mention going through Olallie State Park and a section of DNR old growth forest. Why, when the entrance/exit for the lower site is 600 feet from Interstate 90 and already designed for truck traffic? If a person analyzed the project from a purely environmental perspective, Exit 38 has many more drawbacks.

Response Comment noted.

Comment *024A-038* The site plan for Alternative 2 Lower Site Option (Figure 2-17) shows the asphalt plant and concrete facility within the footprint that is designated for the processing facilities (which for some reason are not shown on this map). Is this accurate? If so, where is the processing plant. How can these facilities all exist in the same location?

Response The asphalt, concrete and processing facilities are shown on the site plans in Chapter 2 of the FEIS.

2.5.2 Alternative 2 – Proposal

General comments and responses on the proposal are included in Section 2.2.

2.5.3 Alternative 3 - Lower and Upper Sites (Exit 34 and Exit 38)

Comment *024A-142* Processing Plant under Alternative 3. Page 3 of the DEIS says that there is a processing plant on the Lower Site. Figure 2-21 shows no processing plant. And on page 2.31 under the description of Alternative 3-Lower and Upper Sites the DEIS states that "aggregate processing would occur on the southeastern section of the Upper Site.", however, under Alternative 3- Lower Site Option it states that "An operations/processing plant, encompassing 20.1 acres would be constructed on the excavated floor."

Response For Alternatives 2 and 2A, processing would occur on the Lower Site. For Alternatives 3 and 4, processing would occur on the Upper Site. The text and figures in the FEIS have been modified to present this information more clearly.

Comment *024A-039* Again, although the project description does not state that the mining and operations area is within one-quarter mile of a nearby residence under the discussion of Alternative 3 - Lower Site Option (p. 2-31), the DEIS states that under this alternative the "mining and operations area would remain at least one-quarter mile from the nearest established residence. It is implicit that the project as proposed will include operations within that one-quarter mile, but the description of the project clearly does not state this other than in the appendices. Note: It is stated explicitly in Appendix G page 32, Section 4.2.4, "As under Alternative 2, mining activities on the Lower Site would be within one-quarter mile of the Lu residence." As previously noted such proximity to a residence, let alone a residential property line, meets the criteria for requiring a CUP.

Response The FEIS more clearly states which alternatives include mining activities within one-quarter mile of the nearest residence and would require a Conditional Use Permit.

2.5.4 Alternative 4 - Upper Site Only (Exit 38)

Comment *024A-011* We trust that the County will review our analysis and instruct its consultants to revise the DEIS per the recommendations offered in this letter and other letters submitted as part of the DEIS review. We believe that an adequate DEIS will provide the information that will allow the County to approve Alternative 4 that best meets the objectives and needs of all parties. It should be remembered that SEPA requires agencies to "Identify, evaluate, and require or implement, where required by the act and these rules, reasonable alternatives that would mitigate adverse effects or proposed

actions on the environment," [WAC 197-11-0300(2) (g)]. The analysis of alternatives is not intended simply as an exercise; this analysis of alternative methods of realizing the project is considered the "heart" of the environmental review process. In the case of this proposed project, it is evident that to satisfy the requirements of SEPA, the County should reject the proposed project and either deny the project completely or approve Alternative 4.

Response Comment noted. An agency is required to consider environmental information in an EIS prior to making a decision. It may use its SEPA substantive authority to condition or deny a proposal, but is not required to do so.

Comment *024A-010* On the other hand, there is at least one project alternative that would eliminate these impacts or reduce them to a less than significant level. This alternative, namely Alternative 4, would meet the basic objectives of the applicant, meet the needs of the larger population (provision of aggregate), meet the needs of most of the people living in the area, and substantially reduce effects to natural resources and processes.

Comment *036B-008* The DEIS makes clear beyond reasonable debate that the Exit 38 alternative is not acceptable. First, unlike the proposed alternative (Exit 34), the Exit 38 alternative is plagued with serious and substantial adverse environmental impacts that can't be reasonably mitigated (e.g., impacts to public parks, impacts to streams, wetlands, and threatened and endangered species habitat). Second, as a matter of public policy, confining the truck traffic to Exit 34 is preferable to spreading the truck traffic to two exits. Third, as indicated in the DEIS, impacts to Exit 34 can be adequately mitigated.

Comment *057-002* Exit 34 is a must to access gravel trucks. The alternate choice of Exit 38 is not environmentally sound thinking. This would allow trucks to go through Ollalie, Iron Horse and Twin Falls parks these areas need to be protected. Exit 34 is a "natural" and has been used for trucking for many years it is close to 1-90 and would allow Cadman trucks to travel through an existing truck use area.

Comment *069-004* Exit 38 was never given the serious consideration needed.

Comment *071-001* The DEIS fails to make a clear, compelling case for a North Bend Gravel Operation. Alternative #1 (No action) is the only viable operation given the flaws in this document; however, the community has no been given any sign that the County is willing to exert any administrative authority to bar the expansion of mining. Given that this is a political, not scientific decision, Alternative # 4 is the lesser of remaining evils. The lower site fails to be a viable option due to the dubious zoning (processing is industrial not mining);

Comment *098-001* Again I wanted to let you know we have many concerns regarding the gravel operation that will be using Exit 34.

I, an several others would not fight the operation if you were to use Alt #4.

Comment *118-002* Exit 34 is a must to access gravel trucks. The alternate choice of Exit 38 is not environmentally sound thinking this would allow trucks to go through Ollalie, Iron Horse and Twin Falls parks these areas need to be protected. Exit 24 is a "natural" and has been used for trucking for many years it is close to 1-90 and would allow Cadman trucks to travel through an existing truck use area.

Comment *119-006* However, if the county does decide to approve this project in any form, then the fourth proposal from the DEIS, mining from Exit 38 only, should be selected. This would at

least eliminate our first two concerns. North Bend is an incredibly beautiful and special place. Please help us keep it that way.

***Comment** 127-037*

The second major observation I would like to make, and then conclude, is clearly from the point of view of traffic safety, security for the children, noise impact on our schools, the Alternative Four is certainly the preferred alternative. And I just emphatically state that that be the only choice. Thank you.

***Comment** 127-051*

Exit 38 alternative is certainly not looked at equally in this document, and this is not exhaustible. And I know that this is just a draft, but if we are starting here at the draft, where will we be at the EIS? I mean this is like negative on the scale of where we are supposed to start. And, you know, I don't know if something happened financially where studies couldn't be done thoroughly or couldn't be followed through.

Response

Comments noted.

***Comment** 011-015*

Alternative 4 may create less adverse environmental impacts not only for the schools, but for the broader community as well. Although Alternative 4 would generate some impacts associated with widening SE Grouse Ridge Road, it would create less impacts than the other alternatives on most elements of the environment analyzed in the DEIS. See DEIS, Section 3.1 (Soils and Geology) (pages 3.1-6 and 3.1-7); Section 3.2 (Air Quality) (pages 3.2-9 and 3.2-15); Section 3.6 (Energy) (page 3.6-9); Section 3.10 (Aesthetics, Light and Glare) (page 3.10-5 and 3.10-17); Section 3.11 (Utilities) (pages 3.11-9 to 3.11-10). Impacts are expected to be lower primarily because less land would be disturbed, gravel would be processed at existing concrete and asphalt batch plants off site and because the Upper Site would be farther removed from inhabited areas. The District urges the selection of this alternative, which appears to have the lowest overall environmental impacts.

Response

Comment noted.

***Comment** 011-016*

Development of the Lower Site via Exit 34 will create unacceptable adverse impacts on District schools. The Upper Site alternative via Exit 38 would create the least adverse impacts on the schools; therefore, if this Project must be built, that is the alternative that the District believes should be pursued. If the County selects one of the Exit 34/Lower Site alternatives, then the District would like Cadman to commit at the outset to mitigation measures that will protect the school and the health and safety of the students, including the additional mitigation measures discussed above. The District would like the FEIS to include the site specific analyses of impacts to the schools that are discussed above and to identify all additional mitigation measures necessary to protect the schools. The District would further like the County to enforce these mitigation commitments by making them conditions of Cadman's permits.

Response

The FEIS Land Use chapter includes additional analysis on the land use impacts to the planned schools.

2.6 ALTERNATIVES CONSIDERED BUT NOT ADVANCED

***Comment** 023-021*

KEY NOTE: The Homestead Valley mine alternative was dismissed due to the extensive grading and stormwater control impacts for a 30 foot wide access road and slopes which could not exceed 7%. Yet, the proposal suggests a 10 foot road width and 20% average slopes. Application of the same standards (used to dismiss the Homestead

Valley alternative) to the proposal would have enormous visual impacts. These standards have not been presented in the DEIS.

***Comment** 023-026*

Naturally, if the same design standards used to dismiss the Homestead Valley alternative (30 foot road width and 7% maximum slope) were applied to the proposal, the concerns mentioned above would be significantly amplified.

***Comment** 023-029*

Because the Homestead Valley alternative was dismissed for impacts associated with a 30 foot access road and maximum grades not to exceed 7%, these same standards should be used for the presented DEIS alternatives.

***Comment** 023-048*

We find it curious that some alternative access concepts were dismissed as being infeasible. Section 2.6, ALTERNATIVES CONSIDERED BUT NOT ADVANCED, presents some discussion relating to Alternative 4 and the use of this interchange for vertical mining of the Upper Mine area. It should also be noted that some of the Exit 38-West alternatives involve the use of lands that are not presently owned or controlled by Cadman, Inc. In response to requests to consider Exit 38 alternatives, Weyerhaeuser and Cadman, Inc. commissioned Hart Crowser to create conceptual development scenarios using Exit 38-West and to assess the environmental and operational implications of them (Hart Crowser, 1999). Hart Crowser considered numerous potential scenarios and created two development scenarios. Section 2.6.3 continues the discussion, "Jones & Jones designed two new access routes to the top of Grouse Ridge via the south slopes. These routes included traversing King County and DNR lands. Their evaluation of existing topography revealed that extensive cuts and fills would be required to satisfy requirements of sand and gravel haul trucks. Slope stabilization, the presence of wetlands, protection of the South Fork of the Snoqualmie River, and a Spotted Owl Nesting Habitat designation were the significant issues identified by Jones & Jones. Accordingly, these routes were not given further consideration. The DEIS summary of the associated technical reports includes statements that mitigation measures would be difficult, if not impossible. The report summary states that mitigation measures implemented to support expanded operations may fail, particularly those related to slope stabilization and stormwater management. However, different road gradient standards were applied to this alternative than are suggested for the DEIS proposal. The Homestead Valley alternative was analyzed based on a 30 foot access road width and slope not to exceed 7% (compared to a 10 foot access road and 20% slope allowances). The summary concludes with "'Each of these concerns may consist of a combination of operating constraints, geotechnical challenges, substantial permitting issues and environmental risks that far exceed those of the Cadman Proposal."

***Comment** 113-002*

The most glaring omission was the Homestead Mine Alternative, which was not advanced, at Exit 38. The operators of this mine have been removing gravel from the proposed upper site for many years without any problems until the DNR became a signatory of the MOU and started a campaign of harassment against the operators of this mine.

***Comment** 127-123*

I would just like to continue my thought that I was having up here before about the DNR and carrying out their end of the memorandum of understanding by trashing these other alternatives. And what I forgot to mention was, as soon as this project was proposed, people started talking about the Homestead Valley Mine as an alternative and as an alternative way to get the gravel, because they have been doing that for a lot of years and nobody knew they were there. And the DNR immediately went up and started fining them and shutting them down and harassing them, just trying to make it for sure that they weren't an alternative. And I think this kind of abuse of power is certainly unethical and probably borders on being illegal. That's it.

Just two more quick notes. Again I am not the scientist here, but I do a good deal of reading. I have done a lot of it in this last two and a half years. I want to clarify that I don't think the gravel mining folks are evil people or Weyerhaeuser people, but mining, like many industries, is inherently a dangerous, accident prone profession. Let me cite a couple of examples quickly.

Here is one from a little town just outside of Indianapolis. River Spill Caused By Gravel Firm, and the article goes on to talk about how the company accidentally dumped -- how many --several thousand cubic yards of dirt into the adjacent river. There could have been something else in the dirt.

Response The Homestead gravel mine site is not part of the Proposal Project site. For private projects on a specific site, SEPA requires only the evaluation of a no-action and other reasonable alternatives on the same site (WAC 197-11-440). The study recommending the Homestead valley alternative be dismissed was conducted under a private contract with the applicant. Development of the EIS is independent of this work, and uses an appropriate level of analysis for the Proposal.

2.6.1 Background

No comments were received on this section of the DEIS.

2.6.2 Exit 38/Homestead

Comment *011-004* The District recognizes that Alternative 4 might result in a lower economic return to Cadman by decreasing production and increasing hauling distances. However, its very inclusion in the DEIS implies that the County nonetheless considers Alternative 4 to be a "reasonable" alternative. Other Exit 38/Upper Site alternatives that were deemed unreasonable were already eliminated from further analysis in the scoping process for the Project. Although, the District recommends that the County re-evaluate other Upper Site alternatives, as some of the assumptions underlying Hart Crowser's March 25, 1999 Technical Assessment of the Exit 38/Homestead Valley Alternatives are called into question by the inclusion of alternate access routes to the Upper Site in the DEIS.1 See Dames & Moore's Technical Review of Hart Crowser's Technical Assessment of Exit 38/Homestead Valley Alternatives, June 14, 1999, page 8 (stating that the Homestead Valley Alternatives "could be re-evaluated in regard to recent developments of the proposed project alternatives which currently consider using Exit 38") (emphasis added). The District urges the County to reevaluate other Exit 38/Upper Site alternatives before pursuing development of the Lower Site.

Response The Homestead gravel mine site is not part of the proposal site. For private projects on a specific site, SEPA requires only the evaluation of a no-action and other reasonable alternatives on the same site (WAC 197-11-440).

2.6.3 Exit 38/DNR

No comments were received on this section of the DEIS.

3.0 EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS, CUMULATIVE IMPACTS

Comment *024A-002*

A failure to separate fully the two sites so that it is clear when the impacts relate solely and distinctly to one site or the other.

Response

The EIS analyzes impacts of the proposal, which is to conduct mining operations on both sites. The DEIS is supported fully by the technical appendices.

Comment *023-050*

Recommendation(s): Other alternatives should be equally reviewed before alternatives are dismissed. All alternatives should conduct preliminary engineering analysis based on accurate topographic mapping and the same design standards (e.g. 30 foot access road width, 7% maximum slope gradient).

Response

Detailed design, including engineering design, is not required in an EIS under SEPA. (WAC 197-11-055 and 197-11-448)

Comment *011-001*

The Snoqualmie Valley School District No. 410 (the "District") appreciates this opportunity to comment on the Draft Environmental Impact Statement ("DEIS") for Cadman, Inc.'s proposed North Bend Gravel Operation ("Gravel Operation" or the "Project"). The District is pleased that the DEIS acknowledges that its proposed elementary and middle schools will be located just 440 yards away from the Project's Lower Site. However, because of its close proximity to the new schools, the District feels that the Project should not be built. The District is concerned that development of the Lower Site, in particular, would result in unacceptable adverse impacts to the new schools and the 1,150 young children who will be attending them. If this Project must be built, the District requests the selection of Alternative 4 (Exit 38/Upper Site), which would limit Gravel Operations to the Upper Site, farther away from the schools.

Comment *017-003*

Valley Camp users will be effected by an increase in noise, fugitive dust and light from the upper site. To decrease this impact Valley Camp would like to see the entire North ridge left intact, no lowering: In addition growth enhancement through Silva culture should be used to nurture growth of coniferous trees near the top of the North Face of Grouse ridge to improve the buffer.

Response

Comment noted.

Comment *018-010*

We request that critical items regarding the impact of this project on our environment, our schools, our homes, and our children, that were submitted during the Scoping Period be acknowledged and responded to clearly, empirically, and thoughtfully in the revised DEIS.

Response

Comment acknowledged. The DEIS was prepared based on the published final scope of work. The FEIS provides additional analysis of issues addressed in the DEIS and responds to comments on the DEIS.

3.1 SOILS AND GEOLOGY

Comment *020-269* The FEIS should address how heavy equipment will be monitored to prevent their re-access to areas that have been reclaimed.

Response The DNR has exclusive authority to regulate mine reclamation and approve reclamation plans. At the conclusion of operations, Weyerhaeuser would offer to donate both sites in segments as reclamation is compete to King County as part of a larger agreement to donate and sell 2,000 acres of Weyerhaeuser-owned forest land on Grouse Ridge and in the Middle Fork Snoqualmie Valley for permanent public ownership. Ownership rights will thus regulate heavy equipment access after DNR approval of reclamation.

Comment *115-014* p. 3.1-1, 3.1: "Direct soils and geology..." Probably should change "could significantly" to "will significantly" and "could increase" to "will increase."

Response The primary purpose of an EIS is to provide an impartial discussion of significant environmental impacts, and reasonable alternatives and mitigation measures that avoid or minimize adverse environmental impacts. The EIS is not a detailed design and the use of "will" instead of "could" would imply a more detailed level of analysis than is required.

3.1.1 Existing Conditions

Comment *045-006* Differences in professional soil studies done for the Applicant's pit near Carnation are proof that no single study can provide absolute data or proof of what exists onsite, and how surface and groundwater would be affected. (Hart Crowser, hired by Applicant, December 1993; Earth Science Applications, Inc., February 1994; and King Conservation District, July 1993).

Response Comment noted.

3.1.1.1 Topography

Comment *023-053* Recommendation(s): Accurate topographic mapping should be the basis for preliminary engineering and the various DEIS alternatives. Similarly, accurate preliminary engineering for the proposed mining operations and facilities should be the basis for visual impact analysis. If a technical appendix uses access road criteria with 30 foot width and maximum 7% slope gradient to dismiss a potential alternative, then the same criteria should be applied to the proposal. If this procedure is not followed, the entire visual impact study would not be concise or clear and would not be supported by the necessary environmental analysis. The DEIS does not meet the definition for adequacy, based on this flawed approach.

Response The DEIS and FEIS used the best available topographic data. Engineering studies to provide more detailed topography are not required under SEPA (WAC 197-11-055). The study recommending the Homestead Valley alternative be dismissed was conducted under a private contract with the applicant. Development of the EIS was independent of this work, and uses an appropriate level of analysis for the proposed project.

Comment *023-015* Recommendation(s): As a minimum, accurate topographic mapping should be utilized to complete a preliminary grading plan for the conveyor assembly at the proposed finished elevation, including equipment access.

Comment *023-030* These concerns are heightened when considering the site's western exposure and erosion hazards from wind, rain and thawing. Because of these concerns, we feel that the DEIS should include accurate topographic mapping with 2 foot contour intervals. Once this information is obtained, a complete and detailed grading plan for this road scenario should be developed. Then, a new visual impact study should be completed based on this information from all vantage points affected by the proposal.

Response Figure 3-2 in the FEIS shows the topographic profile and estimated clearing limits for the conveyor corridor. Final mine design, including the grading plan and design of the conveyor belt alignment, would be reviewed and approved by King County. Slope control is technically and economically feasible and is, in fact, required under the state Surface Mining. King County Code (KCC) Section 16.82.100 gives several operational conditions and standards of performance that address concerns regarding slope stability, and Section 16.82.40 provides specific authority to require elimination of hazards, including slope hazards. Additional analysis on the visual impact of the conveyor is included in the Aesthetics, Light, and Glare chapter of the FEIS.

Comment *127-016* A complete engineering study of the terrain and its accommodation of a conveyor belt would have to be completed. This also would be necessary -- this same study would also be necessary for a pipe that is proposed to carry water from the passive freshwater pond to the upper site. Since this has not been done, nor do I see any intention of it being suggested, I would like to suggest that the presence of the conveyor line would constitute significant unavoidable mishaps on the aesthetics of the area.

Response Potential impacts due to geologic hazards and visual impacts of the conveyor are evaluated in the FEIS. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-264* The FEIS should address why the Proposal does not include conceptual plans showing detailed topography for the areas around the BPA towers.

Response BPA requires a 50-foot buffer be retained around the towers. Detailed design and engineering studies are not required for an EIS under SEPA.

3.1.1.2 Regional Geologic Setting

No comments were received on this section of the DEIS.

3.1.1.3 Potential Seismic Activity

Comment *020-010* The project is located in an “active seismic region of the Pacific Northwest”

Comment *020-236* The FEIS should address the seismic risks associated with construction on steep slopes.

Comment *020-282* Mass ground movements caused by earthquakes. The area of the proposed mining facilities, conveyor system, maintenance road, and water pipelines is in an active seismic region and classified as a Zone 3.

Comment *115-015* p. 3.1-2, 3.1.1.3: Potential Seismic Activity. You admit here that we are in an active seismic region. You need to seriously elaborate on your mitigation measures in the event of a catastrophic seismic occurrence. This part of the document is very weak, and not even remotely addressed.

Comment *115-017* p. 3.1-4, 3.1.1.6. Geologically Hazardous Areas, Seismic Hazards. You mention that this is in an area of high seismic risk. You mention the development of a disaster response plan, but mention nothing about whether or not facilities will be constructed with seismic hazards in mind. Your disaster plan leaves a lot to be desired. It is reactive. You need to craft a more proactive plan.

Comment *127-014* I find very little description of the pond and find it very disconcerting that no study has been requested to determine what impacts could result from the excavation of the hillside adjacent to the Buddhist residence. Considering that this area is a three on a seismic rating on a scale of one to four, four being the most severe potential for damage, I think omission of a recommendation for a thorough geological review is unconscionable.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault beneath the truck parking area. These changes to the proposal are discussed in the FEIS. During any detailed design stage, structures in the Pacific Northwest are governed by regulations and current engineering standards, which are designed to perform well with minimal damage from, ground shaking. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055). National maps of earthquake shaking hazards provide information essential to creating and updating the seismic design provisions of building codes used in the United States. Scientists frequently revise these maps to reflect new knowledge. Buildings, bridges, highways, and utilities built to meet modern seismic design provisions are better able to withstand earthquakes, not only saving lives but also enabling critical activities to continue with less disruption. No adverse seismic risks were identified that cannot be addressed at the detailed design stage.

3.1.1.4 Site Geology

Comment *020-270* The FEIS should address what organic rich topsoil is and explain its material contents.

Response In Washington, topsoil is defined in the reclamation law [RCW 78.44] as the "naturally occurring upper part of a soil profile, including the soil horizon that is rich in humus and capable of supporting vegetation together with other sediments within four vertical feet of the ground surface."

Comment *026-033* The North Bend Gravel Operation is an identified resource that will provide a needed resource to ensure that King County will continue to meet the challenges that ongoing population growth provide to a region.

Response A Washington DNR report of June 2000 identifies Grouse Ridge as the site of a significant deposit of approximately 60 million tons of gravel.

Comment *115-016* p. 3.1-3, 3.1.1.4: Geology, Upper Site. I would like more information here on the perched zones, and the result of destroying those perched zones (i.e., where will the water end up?)

Response Retention of significant volumes of stormwater or groundwater from perched zones is not anticipated due to the porous, permeable nature of site soils. Perched zones of groundwater will drain to the floor of the mine and infiltrate through the sand and gravel deposits.

3.1.1.5 Conveyor Belt Alignment

No comments were received on this section of the DEIS.

3.1.1.6 Geologically Hazardous Areas

Comment *020-231* Alterations to steep slopes or landslide hazard areas are restricted under King County's Sensitive Areas Ordinance. This should trigger a full Sensitive Area Review by King County and/or a Sensitive Area Special Study submitted by the proponent. This could extend to requirements for mitigation, monitoring, monitoring plans, and bonding measures to protect public lands and public welfare.

Response Alterations to steep slopes or landslide hazard areas are not restricted under King County's Sensitive Areas Ordinance for a mining project. An EIS document covering the sensitive areas affected, constitutes the requirements of a Sensitive Area Review.

Comment *020-232* The DEIS states that, "One of the most effective methods to protect the operation of the proposed mine and associated facilities from seismic hazards, is the development of an earthquake disaster response plan." [DEIS p 3.1 - 4] As if a "response plan" can stop seismic damage from occurring. This statement completely ignores the roles of site design, facility location and engineering in minimizing or avoiding damages. The FEIS must discuss the range of possible design and engineering solutions that will avoid, minimize or mitigate seismic damage versus a "response plan."

Response The role of site design, facility location and engineering design is to minimize earthquake damage. The facility would be sited and designed to minimize earthquake related environmental impacts as indicated on DEIS page 3.1-4. Facility structures and final slope configurations would be designed to current seismic standards.

Comment *020-234* The FEIS should address and identify unstable slope conditions, to include tension cracks, hummocky ground, displaced and distorted trees, springs and seeps, scarps, and toe bulge.

Response Due to public concerns raised from DEIS, the alignment was re-evaluated with a site visit made on February 2, 2000, by a URS engineer and engineering geologist. It was found that the trees along the alignment, aged between 10 to 30 years, showed no curvature or leaning that could be indicative of recent landslide movement. No landslide scars, hummocky ground, scarps or toe bulge was apparent. Logging roads up the ridge were cut into sandy gravels which, are consistent with the local geology for area and two subsurface exploration boreholes drilled by Cadman, Inc. close to the alignment in 1998. No adverse slope stability issues were identified that cannot be addressed at the detailed design stage.

Comment *020-251* The FEIS should address the adequacy and/or inadequacies of Cadman's earthquake disaster response plan.

Response Earthquake disaster response plans are not required by the regulating agencies. However, the facility would be sited and designed to minimize earthquake related environmental impacts as indicated on DEIS page 3.1-4. Facility structures and final slope configurations would be designed to current seismic standards.

Comment *020-283* Mass ground movements caused by earthquakes. The area of the proposed mining facilities, conveyor system, maintenance road, and water pipelines is in an active seismic region and classified as a Zone 3.

Response Due to public concerns raised from DEIS, the alignment was re-evaluated with a site visit made on February 2, 2000, by a URS engineer and engineering geologist. It was found that the trees along the alignment, aged between 10 to 30 years, showed no curvature or leaning that could be indicative of landslide movement. No landslide scars were apparent and logging roads up the ridge were cut into sandy gravels. These soils are consistent with the local geology for the area and two subsurface exploration boreholes drilled by Cadman, Inc. close to the alignment in 1998.

Comment *020-286* The DEIS states that "Cadman Inc. has a policy of issuing a disaster plan based on the philosophy that "in the event of a fire, windstorm or other natural disaster resulting in possible or threatened risk to life or company property, it is the Company's belief that the risk of injury to employees and loss to Company property can be reduced significantly with a well organized and well publicized emergency procedure plan and organization." [DEIS 3.1-4]. This is very reassuring but what is that plan? Also, does the Company share their concern for the adjacent DNR lands, the adjacent businesses, the adjacent residents, and the adjacent Middle and Elementary schools?

Response Disaster plans would be developed as needed during the permitting stage of the project.

3.1.1.7 Soil Metal Concentrations

Comment *020-254* The FEIS should address the current levels of soil metal concentrations, specifically arsenic.

Comment *020-255* The FEIS should address how monitoring for arsenic levels will be conducted on surface soils, processing facilities, and soils to be transferred for commercial usage.

Comment *020-256* The FEIS should address how monitoring for arsenic level will be conducted for settling ponds, and the greater underground aquifer system.

Comment *020-257* The FEIS should address how arsenic will be managed and corrected if monitoring systems indicates violations of federal standards.

Comment *020-295* The DEIS failed to address the development of arsenic and other heavy metals during the excavation process.

Response Arsenic has not been detected at high concentrations in onsite soils, nor will it be used onsite by Cadman for any processes. As addressed in the Soils and Geology Technical Report, " Metals, including arsenic, occur naturally in rocks and soil. The concentrations of detected metals in the soils at the Lower Site are comparable to the natural background concentrations of metals in surface soils found statewide and regionally. The recommended groundwater monitoring would include arsenic and other metals.

Comment *022D-010* Lack of sufficient soil borings for heavy metals analysis. The DEIS indicates that soil samples from only a single boring were analyzed to assess metals concentrations in the area soils. While additional soils data may not turn up any problems, relying on a single boring for analysis of metals content on a site of this size is not definitive. Additional soil borings and lab analyses are absolutely necessary to confidently assess the metals concentrations in area soils. This may be particularly important for this proposal because the proposed flocculent, Nalco 7888, has been shown to be ineffective in binding metals (NMFS 1994). Moreover, the Water and Environmental Health sections of the DEIS do not even consider impacts from potential metals contamination of surface or groundwater associated with the mining activity (the only discussion is with regards to the use of biosolids). Given the nature of the proposed activity, further analyses should be conducted to accurately determine metals concentrations in soils and any associated impacts.

Response The FEIS qualifies the metals data as single point. The discussion of existing metals data is in the Environmental Health chapter of the FEIS.

3.1.2 Environmental Impacts

Comment *020-102* The FEIS should address monitoring standards and frequency for arsenic in the groundwater as a direct or indirect result from the project.

Comment *020-288* The DEIS fails to address the potential for arsenic contamination of the soils. Grading and mining activities will force arsenic to the surface or into ground water, how will this be monitored, how will it be re-captured, how will it be prevented from contaminating the settling ponds or other water sources, and how wilt it be prevented from contaminating water run-off?

Comment *020-289* The DEIS fails to address the potential for arsenic contamination of the aquifer system. Grading and mining activities in thin soil separation areas from the aquifer systems will force arsenic downward with a resultant contamination of those water resources. How will this be monitored and how will it be prevented from happening?

Response Arsenic has not been detected in soil onsite in high concentrations, nor will it be used onsite by Cadman for any processes. A groundwater monitoring plan is recommended in the mitigation section of the DEIS and surface water monitoring would be required by the permits.

Comment *020-235* The FEIS should address the King County Steep Slopes Ordinance and whether the Proposal meets those standards, or whether the Proposal meets any required federal standards for steep slope construction.

Response Slope control is technically and economically feasible and is, in fact, required under the state Surface Mining. King County Code (KCC) Section 16.82.100 gives several

operational conditions and standards of performance that address concerns regarding slope stability, and Section 16.82.40 provides specific authority to require elimination of hazards, including slope hazards. This is part of the clearing and grading permit process. The King County Code Chapter 21A.24.310, allows alterations to steep slope hazard areas and buffers for approved mining and quarrying activities furthermore as per King County Code, Chapter 16.82.060, "no grading permit shall be issued until approved by federal, state, and local jurisdiction by laws or regulations." Therefore, the Applicant would be required to document compliance with all the applicable permits and regulations prior to initiating mining at the site. This includes but not limited to identification of and mitigation measures for onsite areas, which are subject to severe erosion, and offsite areas, which are especially vulnerable from erosion and/ or sedimentation.

Comment *020-847*

The FEIS should address the size and impacts of the maintenance road for the conveyor belt and the water supply pipe running up the west slope to supply the upper site for all alternatives. The FEIS should provide comparison for each alternative of the aforementioned.

The FEIS document incorporates discussion of the amount of grading and drainage and illustrates the limits in a revised Figure 3-2 of the Soils and Geology chapter.

Comment *020-012*

The conveyor belt/road/pipeline would require a substantial amount of grading and drainage is not addressed adequately.

Response

The maintenance road adjacent to the conveyor belt alignment would not be paved and would have the similar use as a ski lift access road such that it will be used for maintenance purposes only. Erosion would be controlled using King County's best management practices and will conform to the NPDES general permit for erosion. Drainage would be collected in a ditch and conveyed to existing (natural) onsite drainage services. Chapters 2 and 3 of the FEIS incorporate discussions of the amount of grading and drainage improvements required along the conveyor alignment. Figure 3-2 of the Soils and Geology chapter illustrates the clearing limits for the conveyor.

Comment *020-239*

The FEIS should address the increased potential for slides after the boreholes close to the proposed conveyor route indicated soils that are underlain by clay.

Response

As discussed in the Soils and Geology Technical Report, "Cadman, Inc. drilled two subsurface exploration boreholes in close proximity to this proposed route in 1998. Investigations in GR-98-2 revealed deposits of sands and gravels at least 45 feet thick on the lower half of the route, underlain by clay. GR-98-10 was drilled to a depth of 70 feet and shows the sand and gravel deposits to be at least 50 feet thick." The conveyor route alignment currently appears stable. The "clay" soils are too deep to affect the stability of the hillside along the conveyor belt alignment.

Comment *020-242*

The FEIS should address how adequate slope stability monitoring plans would be implemented for use during operation and reclamation activities.

Response

General drainage patterns are addressed in the FEIS. Stability of the excavated mine slopes do not pose an environmental hazard. Our site reconnaissance, subsurface explorations, and geologic interpretations indicate that the mine sites are currently stable. Mine excavation in the kame terrace and glacial outwash deposits at the upper and lower mine sites should not decrease the global stability of the surrounding areas. Excavated soils will not be side-cast on surrounding native slopes outside the open pit

mine. Since the glacial soils are highly erodible, surface water runoff and groundwater seeps will be carefully controlled and discharged to prevent erosion. Routine visual observation and maintenance of the surface water and erosion control systems will be implemented.

Local governments must approve mine siting and/or the subsequent use of the mine site (RCW 78.44.091) prior to DNR's approval of a reclamation permit. A high-quality reclamation plan is required for each mine, and periodic review and modification are necessary. This plan specifies the permit holder's methods for achieving reclamation goals, including the following:

Preservation of topsoil

- Slope restoration such that highwalls are rounded in plan and section
- Stable slopes
- Final topography that generally comprises sinuous contours, chutes and buttresses, spurs, and rolling mounds and hills, all of which blend with adjacent topography to a reasonable extent
- Effective revegetation with multi-species ground cover and trees

King County Code, Chapter 16.82.060, "no grading permit shall be issued until approved by federal, state, and local jurisdiction by laws or regulations." Therefore, the Applicant would be required to document compliance with all the applicable permits and regulations prior to initiating mining at the site. This includes but not limited to identification of and mitigation measures for on-site areas, which are subject to severe erosion, and offsite areas, which are especially vulnerable from erosion and/ or sedimentation. During any detailed design stage, regulations and current engineering standards govern slope stability issues. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

3.1.2.1 Construction Impacts

Comment *020-291*

The DEIS states that "conventional conveyor haulage systems have an optimum working grade of 28% - 30%. Preliminary, calculations indicate that in general the route is less than this limit and, as such, would not require extensive re-grading of the natural ground line." [DEIS 3.1-5]. This statement is in direct conflict with the enclosed Slope Issues Map (Hart Crowser -Figure 4), this map indicates the west slope to be 40% or more.

Comment *023-004*

Ridge Conveyor/Slopes- One page of the DEIS exemplifies our firm's concern for the adequacy and analysis methods used. Because the content of this page is repeated with the presentation and analysis for other alternatives, our firm's comment will only address Alternative 2, the Proposal. Page 3.1-5 suggests the "conveyor would use a 36- or 42-inch-wide belt and average about 4 or 5 feet above the grade" and "Conventional conveyor haulage systems have an optimum working grade of 16-17 degrees (28% to 30% grade). Preliminary calculations indicate that in general the route is less than this limit and, as such, would not require extensive regrading of the natural ground line." (emphasis added) This discussion continues with an apparent attempt to minimize the impacts of grading practices for the conveyor system, "construction of this conveyor system and access road could have a moderate slope stability impact on the ridge."

Comment *023-005*

There are several problems with these statements and the analysis used to support them. The DEIS author admits that preliminary calculations are used in the analysis. There is no slope analysis presented, so readers can only rely upon the available (very small scale) USGS maps and proposed conceptual elevations for the finished system. When doing this, it is apparent that slopes on the ridge and within the proposed straight line conveyor

route exceed 40 percent. The ramifications of this are huge when considering actual visual impacts and the proposal. Using the same criteria for an optimum working grade of 28-30%, there is no discussion or analysis for how the slopes would be accommodated in steeper areas. Clearly, one of two scenarios will occur as a result of slopes.

Comment *023-006*

Scenario One- Conveyor Positioning/Straight Line- If the conveyor were placed directly up the slope as proposed, the conveyor could not be elevated 4-5 feet above the grade as stated where slopes exceed 28-30%. In order for the conveyor to be placed at this suggested low profile elevation, the conveyor gradient would need to be substantially steeper than optimum, in order of magnitudes possibly exceeding 142-150%. The DEIS uses an 800 foot elevation gain in a 5,300 foot lineal conveyor, apparently to suggest an average slope of 15.1%. However, the DEIS does not explore areas where slopes increase and decrease. It is in these 'not so average areas' where the conveyor would probably require elevations significantly higher in order to maintain optimum gradients.

Comment *023-010*

Ridge Conveyor/Cuts and Manufactured Slopes- The logistics when comparing the proposed upper mine finished elevation with the conveyor route are troublesome. The DEIS suggests the upper mine will be excavated to a finished elevation of approximately 1,535 feet. This represents an approximate cut of 115 feet at the northwest elevation (1,650 minus 1,535 feet) and 65 feet at the southeast elevation. Our firm reviewed the DEIS photographs and accompanying visual impact discussions, including the 90-page Appendix J on aesthetics, but did not find any evidence of this cut. Because there is no discussion of these logistics, we can only assume that the conveyor assembly will be constructed in a fixed position and will need to be initially set at the northwest finished elevation of approximately 1,535 feet.

Comment *023-023*

The road might average a 20% incline, but there appear to be areas where slopes approach 30-40%. If areas of excessive slopes are encountered they must be graded to achieve a maximum slope of 20%. To best guard against erosion, side slopes for grading should be no greater than 3:1, which is a 33% slope. Using this principal, it is difficult to understand how these side slopes could be manufactured where slopes exceed 33%.

Response

Additional analysis has been prepared for the conveyor and maintenance road. Available topographic data shows a conveyor alignment that does not exceed 17 degrees. For most of the route the conveyor will be along the surface at grade. The west slope in general may have slopes to be 40% or more; however, the conveyor belt alignment will be situated on a cross section of only part the west slope. The alignment on this slope is shown on a new Figure 3-2 in the Soils and Geology chapter of the FEIS. A straight, rather than meandering alignment is proposed, because a change in conveyor direction creates the potential for spills. Preliminary information indicates that this part of the slope is generally equal or less than 30%, which is within the optimum working grade of a conventional conveyor haulage system (28%- 30%).

Final mine design, including the grading plan and design of the conveyor belt alignment, would be reviewed and approved by King County prior to commencement of mining. Slope control is technically and economically feasible and is, in fact, required under the state Surface Mining. King County Code (KCC) Section 16.82.100 gives several operational conditions and standards of performance that address concerns regarding slope stability, and Section 16.82.40 provides specific authority to require elimination of hazards, including slope hazards.

A view of the conveyor, including where it passes into the Upper Site has been added to the Aesthetics, Light and Glare chapter of the FEIS.

Comment *038-001* Passive Freshwater Storage Pond (Alternatives 2 and 3) - In the DEIS, there is little description of plans for the proposed pond. What impacts will result from the excavation of the hillside next to the Buddhist residence? Considering this area is a 3 on the seismic rating scale, there is potential for serious consequences and thorough geologic studies should be a necessity before proceeding - especially since the pond falls within the 1/4 mile boundary of this residence and no CUP has been required as of this time.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault beneath the truck parking area. These changes to the proposal are discussed in the FEIS.

Comment *019-348* As per the Washington State Department of Natural Resources, overburden may not be used as a noise screen when it may be necessary for segmental reclamation. Additionally it is inappropriate for overburden to be used as both a visual screen, and a noise barrier. The EIS should clearly delineate the exact nature of the use, or uses, of and, and all proposed materials to be used as noise screens, and to insure that they comply with Washington, and Federal Mining and Reclamation regulations.

Comment *020-468* As per the Washington State DNR, overburden may not be used as a noise screen when it may be necessary for segmental reclamation. Additionally, it is inappropriate for overburden to be used as both a visual screen and a noise barrier. The EIS should clearly delineate the exact nature of the use, or uses, of any and all proposed materials to be used as noise screens, and to insure that they comply with Washington and Federal Mining and Reclamation regulations.

Comment *020-757* The FEIS should reconcile why the Washington State Department of Natural Resources states, "it is inappropriate for overburden to be used as both a visual screen and a noise barrier."

Response Prior to mining a segment, all available topsoil and overburden should be stockpiled in separate, stable storage areas for later use in reclamation or immediately moved to reclaim adjacent depleted segments. Topsoil needed for reclamation cannot be sold, removed from the site or mixed with sterile soils. In Washington, topsoil should not be used to create screening berms required by local government because this may preclude its timely use for reclamation. As discussed in the Soils and Geology Technical Report, "Because soil is essential to successful reclamation, it would not be sold as a by-product of mining. Soil to be used during mine reclamation would be separately stockpiled. The stockpiles would be placed in adjacent areas that would not disturbance for the life of any particular mining subphase. Stockpiles would be positioned to assist in shielding the excavation from view and to help mitigate noise impacts, but would not become permanent features such that they could not be removed and used for sub-phase reclamation."

Comment *023-019* Our firm could not determine the width of this road from the DEIS, other than a general statement on page 3.1-5, "the excavation width is yet to be determined but it must be wide enough to accommodate the conveyor, water pipe and access road" We understand from public testimony that a 10 foot road width (see key note below) has been suggested. There are several problems with these concepts and we do not find suitable analysis to support them.

Comment *115-018* p. 3.1-5, 3.1.2.1 Alternative 2 - You need to determine your excavation width for your conveyor system corridor and include it in the DEIS.

Response The conveyor corridor is estimated at 20 feet, exclusive of grading. Under a worst-case scenario, grading limits average 70 feet in width which incorporate the conveyor corridor. Additional discussions on the conveyor system corridor have been included in the FEIS document and illustrated in Figure 3-2 of the Soils and Geology chapter.

Comment *012-066* The conveyor system alluded to in several sections of the DEIS (principally throughout 2.0 and in 3.1.2.1) is described as including a parallel pipe system to transport water between the Upper and Lower Sites. What is the source and destination of this water? What other particulates will accumulate in this water? What quantity of water is involved?

Response This would be process water used to wash aggregate. The water would contain suspended sediments and would be transported to the Upper Site settling pond.

Comment *012-160* [DEIS §3.1.2.1] The DEIS admits that:

Construction of this conveyor system and access road could have a moderate slope stability impact on the ridge. Road construction on steep slopes may increase the susceptibility for landslides since they can change natural drainage patterns and cause detrimental changes in overall soil drainage (page 3.1-5) but no mitigations are proposed.

Response Additional mitigations have been proposed in the FEIS which comply with King County's BMPs and conform to the NPDES general permit for erosion.

3.1.2.2 Operation Impacts

Comment *020-266* The FEIS should address in detail how continued erosion of the Lower Site and Upper Site will be prevented. Stating that "only low level erosional impacts" are expected is not a detailed analysis.

Response "Only low levels of erosional impacts" should be taken into full context with the following text from the Soils and Geology Technical Report. "Because surface soil on both proposed sites is composed of a coarse gravelly and sandy nature, soil stripping would be a relatively simple and clean process. Some of the fines within the soils would be lost to stormwater flow. However, due to the absence of significant surface water drainage associated with the site, and the porous nature of site soils, sediment-laden stormwater is not expected to be generated in significant volumes, to have a significant onsite travel distance and hence, create only low level erosional impacts. Open mining segments will be internally drained and contained as excavation progresses. In the detailed design stages, erosion will be addressed and controlled using King County's BMPs as described in the King County Surface Water Design Manual and will conform to the National Pollutant Discharge Elimination System (NPDES) general permit for erosion. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *115-019* p. 3.1-7 3.1.2.2 Alternative 2 - "Some of the fines within the soil would be lost to stormwater flow." This material has to end up somewhere, probably in our rivers and streams clogging up the gills of fish.

Response There will be no surface water discharge from the site. All stormwater runoff is captured on site in settling ponds, where fines are removed before stormwater is infiltrated to the groundwater table.

Comment *020-278* The combination of steep slopes and unstable soils causes slope stability problems and landslides, especially if groundwater is also present. While steep slopes can be sustained for a period of time, changing conditions can lead to stability such that slope failures of small or large magnitude can occur.

Comment *020-279* High precipitation and infiltration, leading to increased groundwater pressures and surface runoff.

Comment *020-280* Removal of material from the toe of the slope, leading to over-steeping.

Comment *020-281* Placement of dense inherently unstable materials on the face of the slope.

Comment *023-025* Cuts in these slope conditions would be difficult to protect from landslides and recurring erosion. Rookeries are often suggested as a solution to these problems, however, tree drip lines are impacted and often the vegetation will perish after walls are placed.

Comment *075-003* 2.51 Erosion Hazards Paragraph 3 -

--Hart Crowser (1996b) states that the slopes on the south and, consequently, the north are covered with unstable soils that are prone to erosion. The DNR Forest Practice Resource map also indicates that soil adjacent to the Snoqualmie River is highly erodible. This is to be expected given the restricted channel and high energy of the river.

Response Comments noted. The DEIS and FEIS evaluate potential slope stability and erosion impacts resulting from the Proposal.

Comment *073-247* Landslides

"Road construction on steep slopes may increase the susceptibility for landslides since they can change natural drainage patterns and cause detrimental changes in overall soil drainage."

"The areas surrounding the proposed project limits are considered geologically hazardous areas due to steep slopes, and areas where erosion and landslides have happened in the past. Steep slopes hound the Upper Site to the north and south."

Homes are to the north and Interstate 90 is to the south. Landslide prone area...plus clear cutting.., equals erosion.., equals potential disaster.

"It is anticipated that a Class III Forest Practices Permit would be required."

A Class III forest practice requires approval or disapproval by the department [DNR], under the Forest Practices Board regulated by local government entities. A Class IV Special, forest practice would have required the intervention of SEPA as stated in RCW 76. 09. 050.

WAC 222-16-050 Classes of Forest Practices(1)"Class IV - Special" -- Application to conduct forest practices involving the following circumstances requires an environmental checklist in compliance with the State Environmental Policy Act (SEPA), and SEPA

guidelines, [RCW 43.21C], as they have been determined to have potential for a substantial impact on the environment. It may be determined that additional information or a detailed environmental statement is required before these forest practices may be conducted.

(d) Construction of roads, landings, rock quarries, gravel pits, borrow pits, and spoil disposal areas on slide prone areas as defined in WAC 222-24-020(6) and field verified by the department, in a watershed administrative unit that has not undergone a watershed analysis under chapter 222-22 WAC, when such slide prone areas occur on an uninterrupted slope above water typed pursuant to WAC 222-16-030, Type A or Type B Wetland, or capital improvement of the state or its political subdivisions where there is potential for a substantial debris flow or mass failure to cause significant impact to public resources.

Why was a Class IV- Special application not applied for or investigated for the construction of roads and a gravel pit on a slide prone area that has the potential to be hazardous to the public and a significant view impact?

Response The DEIS and FEIS evaluate potential landslide hazards. Forest practices permits are not required at the EIS stage. Ultimately the applicant would have to obtain a forest practices permit prior to grading permit approval.

Comment *020-013* The impacts of the conveyor belt/road/pipeline are not considered significant even though this facility will cross a sensitive area.

Response As discussed in the DEIS Section 3.1.2.1, "Construction of this conveyor system and access road could have a moderate slope stability impact on the ridge. Road construction on steep slopes may increase the susceptibility for landslides since they can change natural drainage patterns and cause detrimental changes in overall soil drainage." However, no risks were identified that cannot be addressed at the detailed design stage. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-233* The FEIS should address the actual degree of slope where the conveyor system, maintenance road, and water pipelines will be placed and not rely on a "preliminary calculation" as to the actual slope angle. [DEIS 3.1-5].

Response Figure 3-2 in the FEIS shows the alignment and topographic profile of the conveyor. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-238* The FEIS should address the extensive silt zones found near the northwest margins of the Upper Site and their relation to a potential landslide of the steep slope region after construction of the conveyor system, maintenance road, and water pipelines.

Response As discussed in DEIS Soils and Geology Technical Report, "Cadman, Inc. drilled two subsurface exploration boreholes in close proximity to this proposed route in 1998. Investigations in GR-98-2 revealed deposits of sands and gravels at least 45 feet thick on the lower half of the route, underlain by clay. GR-98-10 was drilled to a depth of 70 feet and shows the sand and gravel deposits to be at least 50 feet thick." No adverse slope stability risks were identified that cannot be addressed at the detailed design stage. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-246* The FEIS should address vibration effects on steep slopes under various phases of construction and operation.

Response The use of a vibrating plate to wash truck wheels will have no impact on steep slopes in the project area.

Comment *020-285* Does the slope above the new mining facilities constructed below the western slope of Grouse Ridge meet the appropriate engineering standards? Typically, engineered slopes are designed with a static factor of safety on the order of 1.3 to 1.5 and a dynamic factor of safety against seismic-induced failure on the order of 1.1. [Hart Crowser, page 16].

Response The engineered slope above the new mining facilities will be limited to the conveyor belt corridor, which incorporates the maintenance road. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055). Final mine design, including the grading plan and design of the conveyor belt alignment, would be reviewed and approved by King County prior to commencement of mining. Slope control is technically and economically feasible and is, in fact, required under the state Surface Mining. King County Code (KCC) Section 16.82.100 gives several operational conditions and standards of performance that address concerns regarding slope stability, and Section 16.82.40 provides specific authority to require elimination of hazards, including slope hazards.

Comment *020-296* The DEIS failed to adequately address slope stability for conveyor system, maintenance road, and water pipelines.

Response Due to public concerns raised from DEIS, the alignment was re-evaluated with a site visit made on February 2, 2000, by a URS engineer and engineering geologist. It was found that the trees along the alignment, aged between 10 to 30 years, showed no curvature or leaning that could be indicative of landslide movement. No landslide scars were apparent and logging roads up the ridge were cut into sandy gravels. These soils are consistent with the local geology for the area and two subsurface exploration boreholes drilled by Cadman, Inc. close to the alignment in 1998.

Comment *023-016* The grading plan should clearly illustrate side slopes capable of erosion control. If the slopes will be planted to minimize visual impacts, a preliminary planting plan and irrigation plan should be prepared. In any case, all viewsheds should clearly illustrate the impacts of this excavation and all construction disturbance.

Response Engineering studies and detailed designs, such as grading plans, are not required for an EIS (WAC 197-11-055). Available information was utilized to develop, present and evaluate the proposal for the EIS. An assessment of the visual impacts is presented in the Aesthetics, Light, and Glare chapter of the FEIS.

Comment *045-005* General comment: The gradation of the soils and gravel in the pit and forested expansion area should be determined through a sieve analysis for the American Association of State Highway Officials (AASHO). This involves testing compaction after gravel is delivered and rolled, to determine the maximum and ultimate dry density. The gravel should be tested to see if it, or portions of it, would pass, through a silt fence into surface water offsite or into silt ponding onsite during storm runoff or daily erosion during operation. The Barneston grade of gravel is common among pits in the entire Snoqualmie Valley (King Conservation District, July 29, 1993). It should be determined if it is present at the North Bend site, because it causes a pit to be subject to higher and/or faster erosion than

most other grades. Data collection and testing must be done to determine whether any size buffer or other proposed protection measures would guarantee no stream, groundwater, or watershed degradation would occur during the active 25-year operation.

Response Comment noted. Erosion will be controlled using King County's BMPs and will conform to the NPDES general permit for erosion. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *023-033* The DEIS does not adequately describe methods for controlling stormwater runoff. Alternative 2-Proposal (Page 3.1-5) states "The conveyor maintenance road would be paved to minimize dust and erosion ." Storm water detention is planned to occur within a newly developed lake- "A passive fresh water pond on the Lower Site would be used to store pumped groundwater and stormwater." Previous comments have noted our concern for the maintenance road alignment which illustrates a 1+ mile length and average slopes of 20%. The vision this provides is stormwater running straight down a paved 20% road prism. There are no descriptions of how this runoff speed will be reduced. Surely there must be storm detention ponds along this stormwater course to control the velocity of this flow since even piping would be scoured at such slopes. If stormwater detention basins are to be constructed on these slopes, they would have additional visual impacts as slopes would require stabilization around the basins.

Response A discussion of the design efforts to manage stormwater runoff are included in Chapter 2 of the FEIS. The maintenance road would not be paved and stormwater runoff would be collected in a drainage ditch and routed to existing onsite (natural) drainage features. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault beneath the truck parking area. These changes to the proposal are discussed in the FEIS.

Comment *020-229* Geological hazardous areas are lands susceptible to landslides, erosion, or seismic movement due to underlying soils and geology. The areas surrounding the proposed project limits are considered geologically hazardous areas due to steep slopes, and areas where erosion and landslides have happened in the past. [DEIS 3.1-3].

Steep slopes are defined in King County's Sensitive Areas Ordinance as any slope greater than 40%. Steep slopes represent a hazard with permitting implications for proposed developments or alterations. The shaded portions on Addendum A represent steep slopes of 40% or greater. As mapped, most of the slope on the west side of Grouse Ridge exceeds 40%. This is the area of the proposed conveyor system, maintenance road, and water pipelines. [See Addendum A - Figure 4] [Hart Crowser, page l 3].

The DNR Forest Practice Resource map and King County Erosion Hazard Areas map indicate that a significant portion of the area and adjacent properties are covered with unstable soils that are prone to erosion. [See Addendum B -Figure 8] [Hart Crowser, page 13].

The DEIS states that "Construction of this conveyor system and access road could have a moderate slope stability impact on the ridge. Road construction on steep slopes may increase the susceptibility for landslides since they can change natural drainage patterns and cause detrimental changes in overall soil drainage." [DEIS 3.1-5]. [See Addenda A and B]

Response Comments noted. Surface water runoff from along the conveyor alignment and maintenance road will be controlled by collection in drainage ditches and culverts and placement of erosion protection including rip rap, jute matting (and other erosion

protection products) and energy dissipating structures if necessary. In the detailed design stages, erosion would be addressed and controlled using King County's BMPs as described in the King County Surface Water Design Manual and will conform to the NPDES general permit for erosion.

Comment *020-240* The FEIS should address what seismic activity will do to saturated soils sitting atop an impermeable clay foundation.

Response As discussed in the Soils and Geology Technical Report, "available studies of seismic hazards have designated soils within the proposed project boundaries as having a low susceptibility to liquefaction. Liquefaction takes place when loosely packed, water-logged sediments lose their strength in response to strong ground shaking. Land use planning strategies and engineering measures can be used to reduce the health and safety risk due to seismic hazards in hillside areas where landslides and rock fall are possible. Structures built in accordance with Uniform Building Code and current engineering standards are designed to perform well with minimal damage from ground shaking." During any detailed design stage, structures in the Pacific Northwest are governed by regulations and current engineering standards, which are designed to perform well with minimal damage from, ground shaking. No adverse seismic risks were identified that cannot be addressed at the detailed design stage. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-261* The FEIS states that during reclamation that "The access road asphalt would be broken up and removed for recycling, or dispersed in place ..." The FEIS should identify the probable significant adverse environmental impacts associated with the proposal to disperse asphalt on DNR land during reclamation.

Response There are no known environmental impacts from dispersal of recycled access road asphaltic concrete (AC). Recycled AC is not considered a contaminated material. The broken AC could be mixed with the native soils and placed as an engineered fill on the site. The maximum size and quantity of broken AC in the asphalt/soil mixture would be placed and compacted above the regional groundwater table and at locations that would not cause slope instabilities or fill subsidence.

Comment *020-276* The FEIS should address the potential impacts of seismic activity on the aquifer or water table once the Lower Site has been excavated.

Response No adverse seismic risks were identified that cannot be addressed at the detailed design stage. Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055).

Comment *020-293* The DEIS failed to adequately address the mining effect on the surrounding slopes to the point of affecting the overall stability and cause landslide failures around the ridge and toward Interstate 90.

Comment *075-004* 2.5.2 Landslide and Steep Slopes Hazard Areas - Paragraph 2

Landslide hazard in the project area lies principally on the Southern flank of Grouse Ridge. Landslide flow paths can directly impact the South Fork of the Snoqualmie River. These events are documented in the South Fork Watershed Analysis. In 1984 above

Twin Falls 2,367 tons per year was deposited in the river as a result of soil creep and landslides.

The above quotations indicate there is potential for severe problems for the South Fork and also danger to lives and property along the South Fork below Twin Falls which have not been properly addressed in the DEIS. We need to consider how people and property may be affected as well as wildlife.

Response Based on our current observations and preliminary site explorations, mine excavation in the kame terrace and glacial outwash deposits at the upper and lower mine sites should not decrease the global stability of the surrounding areas. Excavated soils would not be side-cast on surrounding native slopes outside the open pit mine. The removal of soil from the Upper Mine at the crest of Grouse Ridge would reduce the weight of soil that could potentially destabilize the slopes between I-90 and the ridge and therefore improve the global stability. Since the glacial soils are highly erodible, surface water runoff and groundwater seeps will be carefully controlled and discharged to prevent erosion. Collection and infiltration of the stormwater and perched groundwater within the Upper Mine could impact the stability of the existing highwall mine at Homestead Mining. The Upper Mine stormwater and groundwater infiltration system would be designed to reduce groundwater flows toward the Homestead Mine which has a documented history of instability (Hart-Crowser, 1999).

Comment *024A-018* What is the location of the conveyor belt and access road? The location shown in the DEIS is a conceptual straight line (see Figure 2-1). Given the steep slopes traversed by this "line" it is obvious that an access road will need to meander down this slope. The DEIS needs to show a realistic route for the road and conveyor. This information is needed to then assess visual, erosion, and noise impacts. The DEIS cannot be complete without a realistic route described for these major project elements.

Response The location of the conveyor and access road, together with their grading limits, are shown on Figure 3-2 in the FEIS. A straight, rather than meandering, conveyor alignment is proposed, because a change in conveyor direction creates the potential for spills. The visual and noise assessments in the FEIS evaluate potential impacts related to the conveyor.

Comment *020-267* The FEIS should address that if advanced soil stockpiling for reclamation is initiated how much such stockpiling will occur, what are the contents of the stockpiling, what are the potential metal contaminants of the stockpiling, what are the potential leaching effects of the stockpiling, and what are the potential toxic materials which may leach into the aquifer system from these stockpiles.

Response Under the Proposal topsoil from the Lower and Upper Sites would be stockpiled in berms and used for reclamation. No contaminants or leachate are expected from the berms, because they will be comprised of native onsite materials (topsoil and non-marketable materials such as clay) and toxic processes will not be used.

Comment *020-268* The FEIS should address how the monitoring of stockpiled materials will occur and how corrective measures will be implemented when indicated.

Response Sand and gravel would be sent via conveyor and stored in a surge pile at the Lower Site for processing. King County Surface Water Design Manual standards would apply to monitoring and management of runoff from these piles.

Comment *020-263* The FEIS should address the consequences if the tower or towers in the footprint of the Upper Site were to be compromised by erosion or seismic activity and collapse.

Response The mine excavations in the vicinity of the Bonneville Power Administration (BPA) tower would be designed to prevent erosion or ground instabilities due to earthquakes that could cause tower foundation failures.

3.1.3 Cumulative Impacts

No comments were received on this section of the DEIS.

3.1.4 Mitigation Measures

Comment *020-284* County and state development standards have established minimum buffers, clearances, and setbacks for erosion hazards and landslide areas. Buffers, setbacks, or clearances would have to be factored into any construction design or mitigation strategy.

Response Comment Noted. According to King County Code (KCC) Section 16.82.060 "No grading permit shall be issued until approved by federal, state and local agencies having jurisdiction by laws or regulations "also stated in King County Code (KCC) Section 16.82.100." The tops and toes of cut and fill slopes shall be set back from property boundaries as far as necessary for safety of the adjacent properties and to prevent damage resulting from water runoff or erosion of the slopes."

3.1.4.1 Alternative 1 – No Action

No comments were received on this section of the DEIS.

3.1.4.2 Alternatives 2, 3 and 4

Comment *023-012* This average slope should also include periodic benching to catch falling material and to impede erosion caused by wind, precipitation and freezing/thawing.

Response Final mine design, including the grading plan and design of the conveyor belt alignment, would be reviewed and approved by King County. Slope control is technically and economically feasible and is, in fact, required under the state Surface Mining. King County Code (KCC) Section 16.82.100 gives several operational conditions and standards of performance that address concerns regarding slope stability, and Section 16.82.40 provides specific authority to require elimination of hazards, including slope hazards.

Comment *073-250* Has a preventative plan been established to assure no landslides?

Response Stability of the excavated mine slopes do not pose an environmental hazard. Our site reconnaissance, subsurface explorations, and geologic interpretations indicate that the mine sites are currently stable. Mine excavation in the kame terrace and glacial outwash deposits at the upper and lower mine sites should not decrease the global stability of the surrounding areas. Excavated soils will not be side-cast on surrounding native slopes outside the open pit mine. Since the glacial soils are highly erodible, surface water runoff and groundwater seeps would be controlled and discharged to prevent erosion. Routine

visual observation and maintenance of the surface water and erosion control systems would be implemented.

Comment *073-251* What reclamation activities are proposed in the event of a landslide causing visual impact?

Response No reclamation activities are proposed in the event of a landslide causing a visual impact. Existing federal laws and regulations address issues that will engineer the slopes to prevent an increase in slope instability caused by the proposed activities.

Comment *020-262* The FEIS should address the BPA tower or towers that will be in the actual footprint of the Upper Site and how they will be managed and monitored for safety.

Response The mine excavations in the vicinity of the Bonneville Power Administration (BPA) tower would be designed to prevent erosion or ground instabilities due to earthquakes that could cause tower foundation failures. A tower management plan would be arranged with BPA and could include routine visual inspection, periodic vertical and horizontal measurements of foundation locations and notification of BPA and permitting agencies prior to excavation within a specified distance of the tower foundations.

Comment *020-241* The FEIS should address the methods, amount and type of revegetation and reclamation required to reduce the risk of slope failures and landslides.

Response The Surface Mine Reclamation Act is a reclamation law that requires a permit for each mine that: (1) results in more than 3 acres of disturbed ground, or (2) has a high-wall that is both higher than 30 feet and steeper than 45 degrees (Chapter 78.44 Revised Code of Washington [RCW], Chapter 332-18 Washington Administrative Code [WAC]). The original Mine Reclamation Act passed in 1971 was amended in 1993 to assure that every mine in the state is thoroughly reclaimed. The Department of Natural Resources (DNR) is responsible for ensuring that reclamation follows completion of surface and underground mining. The DNR has exclusive authority to regulate mine reclamation and approve reclamation plans. Mine operations, which are all mine-related activities except reclamation, are specifically to be regulated by local governments or state and federal agencies exclusive of DNR. Local governments must formally approve mine siting and/or the subsequent use of the mine site (RCW 78.44.091) prior to receiving a reclamation permit. This approval process generally makes local jurisdictions the lead agency according to State Environmental Policy Act (SEPA) rules. A high-quality reclamation plan is required for each mine, and periodic review and modifications are necessary. These plans specify the permit holder's methods for achieving the following reclamation goals:

- Segmental or progressive reclamation
- Preservation of the topsoil
- Slope restoration such that highwalls are rounded in plan and section for all mines; stable slopes
- Final topography that generally comprises sinuous contours, chutes and buttresses, spurs, and rolling mounds and hills, all of which blend with adjacent topography to a reasonable extent
- Effective revegetation with multi-species ground cover and trees

---

Comment *020-292* The DEIS in discussing the isolation of the BPA tower in the Upper Site footprint states that "if this horizontal buffer is maintained, there will be no impact" to the stability of the tower. Quantitative data on the stability of this isolated tower during a seismic activity is certainly justified considering the immense consequences if this tower fails.

Response The mine excavations in the vicinity of the Bonneville Power Administration (BPA) tower would be designed to prevent erosion or ground instabilities due to earthquakes that could cause tower foundation failures. A tower management plan would be arranged with BPA and could include routine visual inspection, periodic vertical and horizontal measurements of foundation locations and notification of BPA and permitting agencies prior to excavation within a specified distance of the tower foundations.

Comment *020-011* A seismic emergency plan is suggested but is not proposed as mitigation.

Response Earthquake disaster response plans are not required by the regulating agencies. The facility would be sited and designed to minimize earthquake related environmental impacts as indicated in page 3.1-4 of the DEIS. Facility structures and final slope configurations would be designed to current seismic standards.

Comment *020-294* The DEIS failed to adequately address if the proposed excavation would cause the slopes to fail in the event of earthquakes and cause landslide failures around the ridge, toward Interstate 90, and around the BPA towers.

Response As discussed in the Soils and Geology Technical Report, "Seismic hazard areas can be defined as areas subject to severe risk of earthquake damage as a result of seismically induced settlement or soil liquefaction. Loose, water-saturated soils tend to experience the most severe ground shaking during an earthquake. When shaken by an earthquake, such soils lose their ability to support a load; some soils will actually flow like a fluid (liquefaction). Loss of soil strength can result in failure of the ground surface (settlement, surface cracking, and landslides) and damage to structures. However, available studies of seismic hazards have designated soils within the proposed project boundaries as having a low susceptibility to liquefaction. Liquefaction takes place when loosely packed, water-logged sediments lose their strength in response to strong ground shaking. Land use planning strategies and engineering measures can be used to reduce the health and safety risk due to seismic hazards in hillside areas where landslides and rock fall are possible. Structures built in accordance with Uniform Building Code and current engineering standards are designed to perform well with minimal damage from ground shaking." As discussed in the Water and Environmental Health section, "shallow perched layers exist beneath the Upper Site… These discontinuous layers would be excavated, and the water would drain into the excavation, and infiltrate and migrate downward to the more underlying perched zones that appear more laterally continuous." Therefore drainage of water from the hillside, would essentially contribute to its natural stability and not, as otherwise perceived be detrimental to slope failure in the event of earthquakes.

Comment *012-161* [DEIS §3.1.1.6] recognizes that the mining would occur in a geologically hazardous area. However, the only impacts listed are those affecting the operator's facilities (e.g., "earthquake-induced landslides of cut slopes, movement of the conveyor system, and damage to asphalt and concrete facilities"). The document fails to address potential impacts on adjacent and near-by residences, businesses, and highways. What is the potential impact on the Snoqualmie River and connecting streams? During the proposed twenty-five year operational period of the mine, there is a very high likelihood of an earthquake of magnitude 7.0 or greater. The DEIS only discusses measures for

protecting the "proposed mine and associated facilities from seismic hazards" (p. 3.1-4). And it suggests that a "disaster response plan" is an effective measure of protection. By definition a "disaster response plan" is an after-the-fact action and is irrelevant in the context of mitigation.

The question remains: how, exactly, does the alteration of the topography and geology due to mining change the probable impacts of quakes of this magnitude? And what are the proposed mitigations?

Response The alteration of the topography and geology due to mining would possibly reduce the impact of quakes since the effect of mining will drain perched layers of water from the ridge. Mining operations and facilities will likely face slope stability issues due to the disturbance and de-vegetation of slopes within the mine. Mine safety is regulated by the U.S. Department of Labor Mine Safety and Health Administration (MSHA). The Mine Act of 1977 provides that MSHA inspectors shall inspect each surface mine at least two times a year (seasonal or intermittent operations are inspected less frequently) to determine whether an imminent danger exists and whether there is compliance with health and safety standards or with any citation, order, or decision issued under the Mine Act. During fiscal year 1996, MSHA conducted 20,225 regular mandatory inspections at the Nation's 13,831 surface and underground mines. MSHA performs other important mandatory activities under the Mine Act. These include, but are not limited to:

- Investigating mine accidents, complaints of retaliatory discrimination filed by miners, hazardous condition complaints, knowing or willful (criminal) violations committed by agents of mine operators, and petitions for modification of mandatory safety standards
- Developing improved mandatory safety and health standards
- Assessing and collecting civil monetary penalties for violations of mine safety and health standards
- Reviewing for approval mine operators' mining plans and education and training programs

---

Comment *020-252* The FEIS should address the adequacy and/or inadequacies of Cadman's other natural disaster response plans.

Response An EIS analyzes the environmental impacts of a proposal and its alternatives and outlines mitigation measures which reduce those impacts. Disaster response plans, if required, may be reviewed and approved by permitting agencies.

Comment *020-265* The FEIS should address whether other state or federal agency reviews or permits are required to isolate the BPA towers.

Response BPA does not allow isolation of its towers. It requires a 16-foot wide access road for tower maintenance.

Comment *020-230* Implementation of Alternative 2 or 3 identifies two issues: (1) how to stabilize current slopes to allow use or expansion of existing working areas and (2) how to assess individual and cumulative impacts on slope stability, and develop the appropriate mitigation for new construction/expansion activities, since part of the conveyor system, maintenance road, and water pipelines are located on steep (>40%) slopes with unstable soils. [Hart Crowser page 57].

Response Surface water runoff from along the conveyor alignment and maintenance road would be controlled by collection in drainage ditches and culverts and placement of erosion protection including rip rap, jute matting (and other erosion protection products) and energy dissipating structures if necessary. In the detailed design stages, erosion would be addressed and controlled using King County's BMPs as described in the King County Surface Water Design Manual and will conform to the NPDES general permit for erosion.

Comment *020-743* The DEIS needs to provide mitigations for these impacts. However, it does not address BPA towers in the Upper Site proximity to mining and potential hazards.

Response The mine excavations in the vicinity of the Bonneville Power Administration (BPA) tower will be designed to prevent erosion or ground instabilities due to earthquakes that could cause tower foundation failures. A tower management plan would be arranged with BPA and could include routine visual inspection, periodic vertical and horizontal measurements of foundation locations and notification of BPA and permitting agencies prior to excavation within a specified distance of the tower foundations.

3.1.5 Significant Unavoidable Adverse Impacts

Comment *012-007* Making assumptions based on conversations with the Proponent's employees rather than on certifiable facts (see [DEIS §3.1.5.1; p. 3.1-8] commented on here in Section 3.4 below, "Assumptions not Based on Fact")

Comment *012-022* There are too many cases where key conclusions or assumptions are based on unsubstantiated statements. For example, DEIS authors [DEIS §3.1.5.1; p. 3.1-8] affirm that it is unlikely there will be a significant impact to the drainage basin because "the natural sand and gravel resource of the area will be reduced by 25%." This conclusion is drawn based on a personal conversation with Mr. Rod Shearer of Cadman, Inc. How did Mr. Shearer arrive at his estimate? Based on what data and calculations? He is hardly an impartial expert.

Response Comment noted and corrected. The description of natural sand and gravel resources has been revised to reference a recent DNR study (open file report No. 00-05) dated June 27, 2000.

Comment *115-020* p. 3.1-8, 3.1.5.1 Significant Unavoidable Adverse Impacts. The alteration of the natural topography into two huge pits and the depletion of gravel resources seem significant enough to warrant a little more attention than a passing paragraph in the DEIS. Also, monitoring has never prevented any unidentified adverse impacts, it usually tells you that the damage has already been done.

Response Comment noted.

3.2 AIR QUALITY

Comment *019-688*

The DEIS cites for Fugitive Dust, Exhaust Emission and Disposal of Woody Debris that "Alternatives 2 and 3 - Lower Site Option. The Lower Site option will have identical impacts to those of Alternatives 2 and 3." This is inaccurate as the size is different of the lower site between these two Alternatives.

Response

The construction impacts would be very similar. The text of the FEIS has been revised.

Comment *019-689*

The DEIS uses conflicting data sources for measuring meteorological impacts in the Air Quality Section and the Noise Section. Precipitation, wind, temperature should be a consistent baseline to provide accurate data.

Response

The DEIS used worst-case assumptions about wind speed for the air quality and noise sections. Worst-case meteorological conditions are different for air quality and noise because the nature of the associated impacts are different. A standardized set of assumptions perhaps would understate potential impacts for either air quality or noise issues.

Comment *064-005*

What measures and monitoring system will be used to ensure safe air quality at all times? For example, a Burn Ban does not require woodburning used as a sole source of heat to be curtailed. What measures will be taken to lower particulate matter emissions from the project when a Burn Ban is not sufficient?

Response

The mitigation measures recommended in the EIS would apply during burn bans and during non-burn ban periods. An additional set of mitigation measures is not recommended to be imposed solely for burn ban periods.

Comment *073-288*

How much smoke would be produced from 100 tons of woody debris in a concentrated area at a concentrated time during burn season? How many cords of wood does 100 tons of woody debris translate into? If the average household burns between 1 to 2 cords of wood over the course of one year, how many households would it take in a concentrated area at a concentrated time to burn 100 tons of wood? The proposed project sites will cover approximately 300 acres. A home on each acre. How long would it take 300 households to burn 100 tons of wood?

Response

The EIS quantifies the amount of pollutants from the burning of woody debris, which is the essential information about the disposal of woody debris. However, 100 tons of woody debris equates to approximately 100 cords of firewood or 50-100 households if they burn 1-2 cords/year. Thus, 300 households could burn 300-600 tons of wood per year.

Comment *073-286*

Smoke And Steam

"If the proponent decides to burn the woody debris a number of regulations from the DNR will apply. First, the proponent must determine the tonnage of material to be burned. If more than 100 tons of debris is to be burned at one time the proponent must submit a Smoke Management Plan to the local Forestry Office in order to obtain a

Burning Permit. Smoke Management Plans stipulate the meteorological conditions which must occur before burning can start and establish a "no burn" season."

The assumption of the DEIS should be the proponent will burn up to 100 tons of debris, will the FEIS address this aesthetic, environmental and health impact?

Response To assess the impact of burning of 100 tons of material at once would require determining the particulate concentrations. The approved EPA air quality models are not suitable for this type of analysis. In addition, it is unknown whether the proponent will burn any amount of woody debris- let alone 100 tons at one time. DNR assumes that the burning of up to 100 tons can be done so as to avoid health impacts on nearby human populations.

Comment *019-638* The DEIS failed to address the mitigation alternatives if air borne contaminates violate EPA standards.

Response The air quality analysis does not predict that standards would be exceeded. Therefore, mitigation is not proposed.

3.2.1 Existing Conditions

No comments were received on this section of the DEIS.

3.2.1.1 Methodology

Comment *020-470* The current study provides no base line data for current ambient concentrations of pollutants. Nor does it accurately indicate the increase percentages for each individual pollutant.

Response There is no baseline data for the project area air quality. As a result, worst-case baseline particulate matter data from another monitoring site (Lake Forest Park) was used and the percentage increases were based on that information.

Comment *012-090* [DEIS §3.2.1.1] describes the use of Environmental Protection Agency ("EPA") document, Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, commonly referred to as AP-42. The techniques described in AP-42 have changed considerably between the Fourth and Filth Editions. Are these analyses based on the updated version, including especially Section 11.19.2, entitled "Crushed Stone Processing"?

Response The 5th edition, the most recent, of EPA's AP42 was used in the analysis.

Comment *012-091* Just as there has been a revision of AP-42, presently there are revised methodologies available for modeling air emissions to determine potential impacts on ambient air quality. One of those revised methods is the September 1995 EPA "Industrial Source Complex Short Term model, Version 3," known as ISC-3. Use of ISC-3 is now the state-of-the-art method of modeling the dispersion of emissions from multiple sources, including crushers, screens, trucks, loaders, etc., within an area where mining is occurring. This model bases its predictions on input data of emission rates, topography, site configuration and meteorology and is capable of estimating particle

concentrations resulting from mining and quarrying operations. The concentrations are estimated by computations at a series of points around the mine (i.e., receptors), to determine where the worst-case conditions occur. The computed worst-case conditions are then compared to established standards, e.g., the National Ambient Air Quality Standards ("NAAQS"), to determine if the levels are acceptable. It is not clear whether the methodologies employed conform to these state-of-the-art approaches.

Response Although it is true that the FDM is being replaced by ISC-3, all recent major mining projects in this region (Cadman's High Rock project, Lonestar's Murray Island project) have been modeled with the FDM model used in this analysis.

Comment *012-093* Calculations of the amount of particulate matter were based on "average annual tonnage of material expected to be extracted and processed" [DEIS, p. 3.2-1]. Using estimated averages is insufficient to calculate dust and particulate matter impacts during peak seasons or peak years. The analysis needs to account for extended worst-case scenarios during which acceptable levels could be exceeded.

Response Although the calculation of annual emission quantities is based upon annual average production, the determination of 24-hour concentrations of PM_{10} is based upon a day during the peak production month (as discussed in the Transportation chapter). This is the approach used in the DEIS and FEIS.

Comment *115-021* p.3.2-2, 3.2.1.1 Methodology - Relying on current rainfall data to solve your fugitive dust problem could be a problem if global warming causes the number of days with precipitation to be reduced.

Response Comment acknowledged.

Comment *019-619* The DEIS claims to include a "climatic factor adjustment" to account for variations in rainfall between weather monitoring sites. Just what the "adjustment" is, however, is unclear. The only reference to a "factor" is a claim that Snoqualmie Falls is "slightly drier" than the mining site [DEIS pg. 3.2 - 2]. The numerical data supporting this conclusion appears to indicate otherwise. This data appears to show that that for every 10-feet of elevation gain, there are 6 additional days of rain. Thus, the difference between the Snoqualmie Falls site (elev. 440 feet) and the Upper site (elev. 1600 - feet) could be much more dramatic than "slightly drier".

Comment *020-474* The DEIS claims to include a "climatic factor adjustment" to account for variations in rainfall between weather monitoring sites. Just what the "adjustment" is, however, is unclear. The only reference to a "factor" is a claim that Snoqualmie Falls is "slightly drier" than the mining site [DEIS pg. 3.2 - 2]. The numerical data supporting this conclusion appears to indicate otherwise. This data appears to show that that for every 10-feet of elevation gain, there are 6 additional days of rain. Thus, the difference between the Snoqualmie Falls site (elev. 440 feet) and the Upper site (elev. 1600 - feet) could be much more dramatic than "slightly drier".

Response The climatic adjustment factor accounts for the relationship between the number of days with rainfall and the amount of windblown dust. The FEIS Air Quality Technical Report will contain an appendix with the formulas used in the fugitive dust analysis.

Comment *012-101* [DEIS §3.2.1.1; p. 3.2-7] notes that

From 1991 to 1997 most of Snohomish County and all of King and Pierce Counties were designated as "non-attainment" for ozone because ozone levels exceeded 0.12 ppm. In 1997 they were re-designated as being in attainment but subject to "Maintenance Area" requirements. Also in 1997 a more protective 8-hour standard replaced the previous 1-hour standard (remanded by Federal Court in 1998).

But ozone is not discussed any further in the context of impacts, alternatives or mitigations. DEIS authors also refer to the revised 1997 EPA ozone standards and 8-hour monitoring period (EPA OAQPS [1997]) but avoid noting that using the new standards King County would exceed approved levels.

Response Ozone is a regional pollution issue, caused by multiple sources located far from where the highest levels are found. Ozone was not discussed in the emissions or impacts sections because there is no methodology available to determine a single project's contribution to a regional phenomenon.

3.2.1.2 Agency Coordination and Involvement

No comments were received on this section of the DEIS.

3.2.1.3 Overview of Environmental Conditions

Comment *115-022* p. 3.2-2, 3.2.1.3 Winds around here are strong and unpredictable.

Response Comment acknowledged.

3.2.1.4 Regional Climate and Meteorology

Comment *012-092* It is apparent that the DEIS authors were unable to obtain local meteorological information upon which they could base extremely important determinations for air quality and noise. According to the [DEIS §3.2.1.2], authors sought information from a "wide range of sources of data, including federal, state and local government agencies: Cadman, Inc., equipment manufacturers; published studies of similar projects, and local residents." One can only wonder why Cadman would be consulted for meteorological information, and also how the consultants might conclude "North Bend has the same general climatic conditions that control weather in Seattle..."

If the consultants had made inquiries in the office virtually next door to Cadman's office in Ken's Trucktown, they would have encountered "The Weather Center" and could have obtained a wealth of pertinent information. Chief Meteorologist Tom Dunklee is the manager and provided considerable local data at no cost. It presents a considerably different portrait of the North Bend climate than does the DEIS. We learn, for example, that prevailing winds are easterly rather than southerly or south-westerly, and this difference makes huge impacts on predicted noise and air quality factors.

Now that it is known that reputable weather information on the upper valley exists, the findings based upon more distant and less precise sources should be replaced with the superior local information. Any assumptions based on meteorological data are suspect. These data need to be gathered from the more locally relevant sources.

***Comment** 019-015*

ii. The DEIS estimates that 81 inches of rain will fall at the Upper and Lower sites [DEIS Vol. I., page 3.4-1] by predicting rainfall in inches and the Air Quality chapter estimates precipitation by counting the number of days in which rain falls at Snoqualmie Falls [DEIS Vol. I, page 3.2-1 and 3.2-2]. The FEIS should require use of a consistent method of analysis.

***Comment** 020-014*

The meteorological assumptions are unclear and questionable and are not the best available data.

***Comment** 020-137*

The chapter implies that the closest available weather information is from a NOAA precipitation data station at Cedar Lake [DEIS, 3.4-1]. In another chapter, however, the DEIS claims that "the closest source of long-term precipitation data is from Puget Power's Snoqualmie Falls Generating Plant [DEIS 3.2-1]. In addition, the DEIS says nothing about "the Weather Center", operated by Mr. Thomas Dunklee, which coincidentally is located down the hall from Cadman's office suite at Ken's Truck Town. Further, the DEIS ignores the fact that Mr. Eric Molstad, a North Bend Meteorologist, operates a weather station in North Bend and publishes weather statistics on the World Wide Web. The only conclusion that can be drawn, is that the drafters of the DEIS do not know where the closest and most accurate weather data is located.

To add to the confusion, the section on Water and Environmental Health of the DEIS estimates precipitation by predicting rainfall in inches, estimating that 81 inches of rain will fall at the Upper and Lower sites [DEIS 3. 4-1]. At the same time, the Air Quality chapter estimates precipitation by counting the number of clays in which rain falls at Snoqualmie Falls [DEIS 3.2-1 and 3.2-2]. The FEIS should use only one method and then discuss the difference and/or connection between the measurements.

Although weather data is available from the Cedar Lake station from 1931 to the present, [DEIS 3.4-1] the DEIS appears to only consider weather data from 1995 to the present in estimating precipitation at the sites. [DEIS, Table 3. 4 - I page 3. 4-2], while admitting at the same time that precipitation over the measurement period is "slightly less" than the 5-year average. The FEIS should consider the larger body of data.

***Comment** 115-023*

p. 3.2-3 Regional Climate - Climate in North can differ dramatically from Snoqualmie, especially when moisture hits the mountain slopes. It's a lot different than lower in the valley. Try to get data closer to the existing site.

Response

Two types of meteorological information are used in the air quality analysis. Rainfall data (in terms of days with rain per year) is used in the EPA formulas to calculate fugitive dust emission quantities. In order to present a safe, "conservative" analysis, we must use reliable rainfall data gathered over many years so that short-term cyclical variations don't skew the results. It is also important that the data does not over-state the amount of precipitation expected on-site—because more rainfall means more days of damp soil conditions and thus less fugitive dust. The Snoqualmie Falls site meets both of these requirements. The "Weather Center's" data meets the second requirement but not the first. Data from Cedar River (as used in the Water and Environmental Health chapter) meets the first condition but not the second. The second type of meteorological data used is wind speed and direction information. This is used in the modeling of how fugitive dust and other pollutants disperse from their sources. The most conservative approach is to assume wind directions and speeds that will cause the highest pollutant concentrations at the nearest sensitive locations. Strong winds from the south or SE would blow pollutants directly towards the nearest residences and, even though winds from these directions are less common than east winds, this wind direction does represent the "worst case" situation.

Comment *024B-015* This section should emphasize the fact that the project site and nearby receptors are located in a river valley that experiences strong surface-based inversions, which trap air pollutants. Mountainous valleys can experience localized buildups & particulate matter during extended periods of stagnation. Do the locations where ambient air quality data was collected experience these localized influences?

Response The FEIS discusses inversions in the project area.

3.2.1.5 Local Ambient Air Quality: Description of Pollutants and Regulations

Comment *012-094* The DEIS uses the Puget Sound Clean Air Agency (PSCAA) South Hill monitoring station in Puyallup as the basis to calculate estimates for particulate matter levels in North Bend. The comparison stresses the similarity of residential density. In fact, with the exception of wood burning, residential activities contribute proportionally little to particulate matter emissions. The major sources of PM10 and $PM_{2.5}$ emissions are auto exhaust, truck exhaust --especially from diesel engines-- and other industrial processes. The proposed mine would add high volume of truck traffic to an already very high volume at the adjacent truck stop and gas stations, and from the nearby 1-90 traffic. The particulate matter analysis essentially ignores these sources.

Response The EIS did not ignore trucks as a source of particulate emissions. In residential areas, the use of wood for fuel is a major source of particulate emissions, far larger than diesel trucks. The EIS examines the impacts of the project's trucks upon an intersection that is currently heavily used by trucks and it found no concentrations exceeding or even approaching the National Ambient Air Quality Standards.

Comment *012-095* And the South Hill--North Bend comparison makes no sense in terms of geography. Puyallup sits in a large plain nearer the coast with prevailing winds that disperse PM rather quickly. It's an area that rarely experiences temperature inversions. The enclosed nature of the upper Snoqualmie Valley is not a similar setting at all. If a more comparable setting cannot be found then long-term sampling around the proposed site needs to be done.

Response There is no monitoring site that is identical to the North Bend area. The site used (Lake Forest Park) is considered worst-case due to the high PM_{10} levels.

Comment *012-096* Similarly, the DEIS affirmation that "$PM_{2.5}$ levels in North Bend would be lower" (p. 3.2-4) than at monitoring sites in Kent, Seattle and Tacoma is pure conjecture. The topography, weather and traffic patterns are wholly dissimilar.

Response $PM_{2.5}$ is primarily from fuel combustion or wood-burning. The high concentrations of diesel trucks and industry in the Kent, Seattle and Tacoma areas lead one to a reasonable assumption that $PM_{2.5}$ levels there are higher than elsewhere.

Comment *012-097* The DEIS analysis fails to take into account the not infrequent occurrences of thermal inversions in the valley. Air pollutants can be trapped with the result that localized buildups of particulate matter can occur to the degree that they exceed acceptable standards. It does not appear that the modeling done here reflects the unique topography of the area. The study should summarize the frequency of such inversions in the area and determine maximum potential particulate matter buildup. What are the

levels of volatile organic compounds (VOCs) and nitrogen oxides (NOx) during such periods?

Response Inversions are discussed in FEIS. For the pollution sources found at a mining project, inversions would tend to increase the concentrations of pollutants from trucks, heavy equipment, and batch plants but would almost eliminate fugitive dust travel offsite.

Comment *012-098* A number of key assumptions in the modeling and comparisons in this section are pure speculation or wholly irrelevant.

Studies by Ecology have shown that the burning of wood in stoves and fireplaces can account for more than 80% of the PM 10 concentrations in areas and periods of heavy woodstove use.

What is the relationship of this assertion to the North Bend area? Perhaps these sources can account for 80% of PM10 concentrations but the question is: do they in the project area? Is there a known count or reasonable estimation of the number of wood burning stoves and fireplaces in use in the area and a valid estimate of the volume of particulate matter they produce? If so, it is not cited here.

Response Historically North Bend has been an area of heavy wood use. Probably less wood is used now than formerly. The Washington State Department of Ecology study cited in the DEIS would apply to areas within the North Bend area that do use wood as an important heat source.

Comment *012-099* Although the PSCAA maintains that carbon monoxide is not considered a significant air quality problem in the Puget Sound, the agency also remarks that:

Carbon monoxide concentrations rapidly diminish only a short distance from busy traffic intersections. For this reason, air monitoring of carbon monoxide is generally done at the microscale level, depicting air quality at a maximum of 100 meters from the site.

The major contributors to CO are car and truck exhaust. Given the volume of trucks and other diesel equipment at the Lower Site area and the huge volume of truck traffic at the adjacent truck stop, CO could reach unhealthy levels for extended periods of time. The DEIS should consider the number of people potentially impacted by CO buildup, accurately assess under what conditions excessive CO levels might occur at or near the proposed operation and indicate measures to monitor the air in these areas.

Response It would be speculative to attempt to determine the number of people potentially affected by CO levels. CO is unlikely to be a pollutant of concern for this project because most of the mine's traffic will be diesel trucks which emit much less CO than passenger cars.

Comment *012-100* Byproducts of the asphalt processing plant are not described in adequate detail. Since emissions from asphalt processing include carcinogenic compounds, a thorough understanding of them is warranted. These emissions usually include NOx, CO, SOx, TOG, ROG, TSP, PM10, arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, manganese, mercury, nickel, zinc, benzene, formaldehyde, toluene, Xylenes, and vadous polycyclic aromatic hydrocarbons (PAHs). What quantities of each of these will be produced? How will they be monitored? The Clean Air Act

Amendments of 1990 list toluene as a hazardous air pollutant; thus it merits separate analysis in the DEIS.

Response Although all emissions from asphalt processing were not discussed, all of the pollutants of most concern (either because they are criteria pollutants or they are air toxics) were discussed, modeled, and their impacts were assessed. The Air Quality Technical Report analyzes the most significant toxic air contaminants of the proposed asphalt batch plant.

Comment *012-111* Pre-adolescent children, the elderly, and people with pre-existing respiratory diseases are the most susceptible to health problems from particulate matter. Due to the proximity of schools and elder-care facilities to the project site, it is necessary to evaluate the effects of particulate matter on children and the elderly, rather than using standards for healthy adults. This must be done to reflect the actual context of the environment in which the project is proposed.

Response The DEIS compares the project impacts to the NAAQS which are intended to protect human health, including children and the elderly. Extremely sensitive populations such as those with respiratory disease may be impacted by levels of pollutants lower than the NAAQS, but an assessment of this project's emissions on that population is beyond our scope of work. The new $PM_{2.5}$ standards were intended to address this issue, but have not yet been adopted.

Comment *012-112* [DEIS §3.2.1.5, p. 3.2-4] states:

Coarse particles larger than 10 micrometers in diameter make up most of the fugitive emissions from sand and gravel mines and represent a nuisance rather than a health threat and cites as a source "personal communication, G. Pade, PSCAA, 1999."
Mr. Pade may or may not be an authority on the health impacts of particulates. Since this view would reduce the burden of particulate matter control such conclusions need to be based on objective standards and measurements. The DEIS should, however, base such judgments on established, peer-reviewed standards.

Response The reference has been revised to cite the relevant scientific paper (Schwartz, Norris, Larson, et al) on this issue.

Comment *115-024* p.3.2-3, 3.2.1.5 It is unfortunate that an area rich in natural beauty and clean air has to be subjected to a lot more crap going into the air.

Comment *115-025* p. 3.2-4 Particulate matter - The reason that the project site is located outside of any PM 10 maintenance areas is because we are in a beautiful rural area with fresh air. Maybe you install one if you are intending on compromising our air quality. This goes for ozone, carbon monoxide and the other gases as well. Perhaps we will need monitoring stations for all of these.

Response Comments acknowledged.

Comment *064-003* Provide a complete description of the current air quality in residential areas surrounding the project.

Comment *064-004* Relate specific particulate matter studies to the actual daily and cumulative emission estimation of 450 trucks and an asphalt plant to the specific context of the North Bend area and the extensive use of wood for fuel in the area.

Response The DEIS and FEIS present as complete a description as available data allow.

3.2.2 Environmental Impacts

Comment *014-009* Use of Exit 38 would require each gravel truck to drive an extra 25 miles roundtrip, including a climb up the steep Fire Training Center road. This added mileage and climb would require the consumption of hundreds of thousands of gallons of additional diesel fuel over the life of the mine while contributing additional exhaust pollution to the atmosphere. Exit 34 is an established truck stop, fully capable of supporting gravel haul demands. Thus, the potential use of Exit 38, and the consumption of additional fuel this option would require, is a wasteful use of resources when a closer, useable access point is readily available at Exit 34.

Comment *024A-041* Basically, he has informed us that the DEIS preparers used outdated models and questionable assumptions in their modeling. He states further that it is virtually impossible to control fugitive dust from an operation of this size and type, and that the project would have PM_{10} quantities that would be a significant source of emissions. Finally, he noted that the use of maximum allowable pollution standards to determine impact significance was unacceptable, if the project adds substantial pollutants to the air, that pollution will significantly affect people living in the area, regardless of whether Federal air quality standards are not exceeded. The Federal standards are based on levels where health is directly affected. This does not mean that people will not be impacted substantially by the amount of pollutants generated by the project.

Comment *024A-042* As is shown on Table 3.2.-2 of the DEIS, the proposed project will increase by 44 percent the amount of small particulates in the air. As noted in our other comments, this substantial increase should be compared to the increased pollution caused by Alternative 4. Table 3.2- 2 shows that Alternative 4 will increase pollution by one percent as compared to a 44 percent increase for the proposed project. This should be clearly noted in the DEIS along with the number of receptors that would be affected at both sites.

Comment *136-003* Odor pollution

Response Comments noted.

Comment *016-006* Given the significant addition to air emissions that will be made by the batch plant and the truck traffic serving the mine, it is inconceivable that no dispersion modeling was done for the DEIS. In addition, given the heavy volumes of truck traffic already present at Exit 34, air quality monitors should be placed there to determine baselines. Diesel exhaust was recently cited by the State of California as a very dangerous and carcinogenic emission. The high levels of truck traffic proposed by this project will put residents as well as day laborers at some risk.

Response Dispersion modeling was performed for fugitive sources and the asphalt batch plant in the DEIS.

Comment *024B-019* Do off site emissions count (i.e., emissions from trucks and employee/visitors trips to and from the site including reintrained dust from highway travel)?

Response Offsite impacts are not included in the emissions inventory. There is no way to segregate the project's offsite emissions (especially fugitive dust) from the emissions of general vehicle traffic.

Comment *024B-020* It appears EPA no longer no longer supports use of the FDM model for regulatory purposes, so why was FDM used instead of ISCST3? Describe the emission sources used for the dispersion modeling. Describe the "8 hypothetical days of meteorology" and how they were developed. EPA recommends a wind speed of 1 meter per second for a worst-case screening analysis- Why was 2 meters per second used?

Response FDM is approved by Region 10 EPA for modeling fugitive dust sources such as this project. Although it is true that the FDM is being replaced by ISC-3, all recent major mining projects in this region (Cadman's High Rock project, Lonestar's Murray Island project) have been modeled with the FDM model used in this analysis. The Air Quality Technical Report Appendix lists the emission sources and the screening meteorology used. For fugitive dust sources the use of 1 meter/second is an insufficient velocity to cause dust to become airborne.

Comment *054-011* Nitrogen Dioxide - "brownish, poisonous gas that reacts with water vapor to form NITRIC ACID", again, causes respiratory diseases. 900 Dump trucks in a small area which receives a lot of rainfall. That is a lot of Acid Rain for the North Bend area.

Response Comment acknowledged.

Comment *024B-021* Discuss substantial differences in results for alternatives 2 and 3 (lower site).

Response The DEIS and FEIS describe the substantial the differences between the impacts of Alternatives 2 and 3.

Comment *024B-022* 24-hour and annual activity levels used to predict emissions. Are 24-hour predicted impacts based on annual projections (e.g., tonnage estimates)? That is, would the facility operate at a more-intense level on dry summer days, than on rainy or snowy days so that typical average conditions would not describe worst-case 24-hour impacts, Since the area receives about 81 inches of precipitation spread out over an average of 175 days, one would expect the facility to be very busy on dry summer days and not so active on days with substantial rain or snow. We would like to see a maximum 24-hour facility scenario, since during periods of high demand for materials (including asphalt) occurring over dry, periods, we believe that facility would be very active.

Response The air quality analysis in the DEIS and FEIS include a maximum production scenario based upon peak monthly production.

Comment *024B-023* Why was SCREEN 2 used when EPA replaced this model with SCREEN3 in 1995? What were the "worst-case" meteorological assumptions used in the SCREEN2 model? Discuss any differences in these assumptions compared to assumptions used in other models.

Response Screen 3 was used in the air quality analysis.

Comment *024B-024* What were the assumptions used for truck traffic modeling. Did this analysis only include project traffic only or all traffic? For comparison to NAAQS, local traffic impacts (project plus other traffic on the roads) should be added to appropriate background levels to predict total concentrations.

Response Although only project traffic volumes were modeled, the results include a worst-case CO background level of 3 PPM to account for non-project traffic. The FEIS Air Quality Technical Report Appendix details the assumptions used in the modeling of truck emissions.

Comment *037-002* Air pollution from dust and chemical exhaust.

Comment *039-002* The dust is tremendous at these facilities - air pollution? No Impact?

Comment *105-004* not to mention dust…

Response Please see the Air Quality chapter in the FEIS for a discussion of dust.

Comment *020-485* The FEIS should contain an economic analysis of the impact to homeowners and businesses from the long-term adverse impact to air quality.

Response Analyzing the economic impact of reduced air quality (if it were to occur) is difficult and prone to subjective interpretations. This type of analysis is not required in an EIS.

Comment *019-622* The FEIS should include, any empirical data from the Cadman Black Diamond project as it is referred to as an example of Cadman's ability to mitigate particulate disbursement.

Response There is no empirical data available from Cadman's Black Diamond operation. PSCAA records several complaints about dust tracked out onto the public road at the mine's entrance.

Comment *019-618* Additionally, the degradation of air quality due to truck exhaust emissions is not adequately addressed, even though "truck traffic generated by the project and its alternatives is substantial" [DEIS pg. 3.2 14], and in spite of the fact that acid rain (which damages vegetation and freshwater marine ecosystems) is formed by the combustion of diesel engines [DEIS pg. 3.2 - 7]. The DEIS should discuss the relative impacts of each alternative on the creation and distribution of acid rain as well as the impacts of the acid rain on the surrounding environment(s).

Comment *019-629* The FEIS should discuss for each alternative the impacts of the acid rain generated on the surrounding environment(s).

Response Analyzing the impacts of acid rain on the project area is not within the scope of this EIS.

Comment *019-625* The FEIS should address all sources of known or "potential" air quality impacts, to include diesel fuel, propane, recycling treatment chemicals, by-products, etc.

Comment *020-479* The FEIS should address all sources of known or "potential" air quality impacts, to include diesel fuel, propane, recycling treatment chemicals, by-products, etc.

Response The DEIS and the FEIS address all the significant sources of air pollutants.

Comment *020-480* The FEIS should show the airborne by-products of the asphalt plant.

Response The DEIS and FEIS address all the significant air pollutants from asphalt plants.

Comment *019-627* The FEIS should include an analysis of odors produced by the asphalt plant and their projected range.

Comment *020-481* The FEIS should include an analysis of odors produced by the asphalt plant and their projected range.

Response The DEIS and FEIS address the odor issues of asphalt plants.

Comment *019-628* The FEIS should include an analysis of the truck CO pollution at both Exits 32 and 31, as both are very likely to be impacted.

Comment *020-482* The FEIS should include an analysis of the truck CO pollution at both Exits 32 and 31, as both are very likely to be impacted.

Response CO pollution was analyzed in the DEIS and FEIS.

Comment *019-632* The FEIS should contain a worst-case analysis of the air quality during inversions, burn bans and pass closures.

Comment *020-486* The FEIS should contain a worst-case analysis of the air quality during inversions, burn bans and pass closures.

Response A revised discussion of air pollution impacts during inversions is included in the FEIS.

Comment *019-634* The FEIS should indicate the air quality difference between Alternative 4 and Alternatives 2 and 3 to include the number of residences and businesses impacted by each.

Response The DEIS does not state that any residences will be affected by these alternatives, thus it is not possible to count the number of impacted residences.

Comment *019-685* Baseline information along with the differences between each Alternative is not adequately addressed. Usage of language to describe impacts, such as "slight increases", "slightly less", "impacts are minimal" and "unlikely" do not provide the basis for an informed decision as to the true nature of these impacts. Comparisons should be made utilizing data to demonstrate actual and/or estimated decreases/

increases, minimum and maximum levels and percentage of change for each item and each Alternative.

Response As described in the DEIS, there is no baseline data for any pollutant in the North Bend area. The DEIS and FEIS analysis makes every effort to quantify increases in concentrations due to the project. Cumulative impacts are described and worst-case scenarios were modeled.

Comment *019-690* The DEIS failed to address the fugitive dust impact on groundwater, springs, streams, rivers, surface runoff, storm water runoff and plant/animal life.

Response Fugitive dust, in the amounts predicted for this project, will have no effect upon groundwater, springs, streams, rivers, surface runoff, storm water and plant/animal life.

Comment *020-491* The DEIS failed to address the minimum expected levels and maximum expected levels of particulates for proper analysis.

Response The DEIS performed a worst-case analysis of the projects potential air quality impacts as per SEPA requirements.

Comment *020-903* The FEIS should address why the impact of noise, dust and truck traffic would be "temporary" during the construction phase, yet, as claimed by the DEIS, would not be an impact during operation.

Response The construction phase is a short-term event lasting perhaps a few months. Any dust emissions due to construction would necessarily be short-term or “temporary” and would not exceed the NAAQS or represent an air quality impact.

Comment *064-006* Pre-adolescent children, the elderly, and people with pre-existing respiratory diseases are the most susceptible to health problems from particulate matter (1). Due to the proximity of schools to the project site, it is necessary to evaluate the effects and levels of particulate matter in terms of a child's developing body, rather than adult standards of acceptable levels. This must be done to reflect the actual context of the environment in which the project is proposed.

(1) FOCUS: Major Air Pollutants--Particulate Matter. Washington Department of Ecology, Public No. FA-92-29, October 1998.

Response The DEIS compares the project impacts to the National Ambient Air Quality Standards (NAAQS) which are intended to protect human health, including children and the elderly.

Comment *011-009* The District believes that the best way to protect air quality at the schools is to select Alternative 4, which would eliminate the concrete and asphalt batch plants. If one of the Exit 34/Lower Site alternatives is selected, the District urges the County to require Cadman to obtain the appropriate permits from the Puget Sound Clean Air Agency and to implement a Top-Down BACT Analysis in accordance with EPA Guidance, such as EPA's New Source Review Manual, October 1990.

***Comment** 012-107* Another proposed mitigation is locating the "processing plant and haul roads far from residential property." How is "far" defined? What legal and enforceable standard is to be applied? DEIS authors ignore the fact that one of the main areas of contention with respect to land use has to do with the proximity of the Lower Site to residential properties. Because of existing property lines, it is impossible for the Lower Site to be located "far" from residential property by any definition of the word. This same issue applies under Transportation (see section 16.4 below, "Truck Turning").

***Comment** 020-017* The "preferred alternative" emits the most particulate matter by far.

***Comment** 098-003* Dust from the operation to accumulate in your house and yard (and who knows what chemicals).

***Comment** 119-001* The impact on air quality from the concrete and asphalt plants Cadman wants to build near Exit 34. We are worried about exposing our children to toxic air pollution.

***Comment** 119-004* Secondary concerns include increased noise and dust pollution as well as increased traffic on I90. Although we currently live in town, we have long hoped to move closer to the Middle Fork. However, we believe that this mine will negatively impact the quality of life for anyone living near it.

***Comment** 124-002* A together the dust and noise created by these companies will cause the outsiders to laugh when a stranger comes by and asks where is North Bend? They will answer, "Oh you mean North Bend the noise and dust bowl city?"

***Comment** 127-062* And dust. There will be no dust. They have got water trucks. We don't like to work in dust. No one likes to be in dust. At the River site they have a sprinkler system set up that it turns on regularly. It sprinkles water on the roads that need to be watered down so there is no dust on those roads.

***Comment** 127-101* Personally, when I came over here, my eyes were stinging as it was. And I am saying, how is it that the City of Seattle can possibly accept a 16 percent increase, if it was their community? I came up -- I lived in Los Angeles. I lived in Denver. Some of the worst pollution in probably the United States. I moved to this area to avoid that, and it is getting just as bad.

***Comment** 127-107* I am tired of the stats for those of us that live there, of telling me how much rain there is, and I laughed when I read that. I laughed hysterically because it is not accurate.

***Comment** 127-135* right now talking about just me and my family. I have two children that at night I have to close the window because of the dust. That is now. That is not 600 trucks later or 900 trucks later. That is right now. I make the sacrifice because I love this valley. I am in here tonight for the reason that this is where I have chosen to be, but I still have to shut those windows.

***Comment** 127-145* Weyerhaeuser comes to my classroom and talks about what a great, great thing they are doing for the state, for the kids. And I just really am interested to see what they are going to say in a few years when they are saying this above the noise of gravel trucks and dust as they are talking to the kids in those schools right near the gravel mine.

***Comment** 127-146* I also am feeling pretty guilty that I fell in love with the valley and really encouraged my husband to build a house out here. And just kind of twisted his arm, saying come on, let's do it. It is going to be great. Do it. It is beautiful out there. And little did I know we were buying a house in a potentially noisy, dusty place around people that

weren't really concerned about ecological damages. And I just want to register my concerns and again speak for the kids of the valley.

Comment *127-154* I am allergic to dust. That is going to be fun.

Comment *127-160* the road, I can't breathe. I have lung damage. The dog starts to gag. I have to hold my breath and run back from North Bend Way. That is from one, not from hundreds. When they are out there, when people come out there and they are warming up their diesels and that smoke comes out, my windows have to be closed. It doesn't matter if it is 90 degrees outside. I can't breathe it. My dog can't breathe it.

Comment *127-172* And then I think of our winds and the wind tunnel that we get in the winter and how in the winter we just get blasted.

Comment *135-003* This would totally bring down the quality of life for nearby residents, school children, tourists, skiers, campers etc. The residents would deal with NOISE, air pollution, odor, water problems, traffic etc.

Comment *136-004* Dirt on congested traffic area to nearby housing and planned school(s).

Comment *138-004* Noise, light and air pollution will also compromise the quality of life for Humans and wildlife.

Comment *140-001* I am against the gravel mine for the reasons of the air quality.

Comment *142-007* The temperature, rain, and wind are very different than Seattle. They're right the winter temperatures average 30-40 F but they are wrong about the summer; it ranges from 60 to the mid 90's. In my DNR forestry management class information, North Bend gets 400% more rain than Seattle. As I mentioned earlier we have wind gusts past 40 mph mostly from eastern lies coming out of the pass and river valleys.

Comment *142-008* The PM10 and crusher dust will become airborne with the wind and travel miles. This can be a huge issue with respiration and visual problems to both humans and wildlife.

Response Comments acknowledged.

Comment *019-621* Finally, and most importantly, the mitigation proposed by the DEIS (relying on BACT, watering for fugitive dust, paving roads, lowering speed limits and "sheltering" the facilities) does not address any of the issues raised above.

Comment *020-476* Finally, and most importantly, the mitigation proposed by the DEIS (relying on BACT, watering for fugitive dust, paving roads, lowering speed limits and "sheltering" the facilities) does not address any of the issues raised above.

Response The mitigation measures in the DEIS address the air quality issues of this project.

Comment *022A-004* I observed and the video tape shows a substantial amount of dust being generated at the intersection of 468th Avenue SE (Exit 34) and SE North Bend Way by the gravel trucks using that intersection. Dust generated by the gravel trucks associated with the North Bend Gravel Operation on 468th Avenue SE, SE North Bend Way, and SE 146th Street in the vicinity of the Edgewick Inn will create a substantial adverse impact to the Edgewick Inn because of aesthetics and because it will make management's and guests' vehicles and the entrance area to the Inn dirty and unappealing and because the

dust will come into the Inn and damage and pollute the Inn's attractive interior appearance.

Response Existing dust from truck movement is due to the tracking of dust from unpaved truck parking lots and unpaved roads (SE 144th). The freshly washed trucks from Cadman's Lower Site traveling on paved roads will track a minimum of dust onto SE 468th and will not worsen the existing situation.

Comment *020-487* The analysis of the air quality impact is inadequate. There is not a complete base line of the current air quality with a comparison with predicted effects. The modeling and assumptions used are unclear and unspecific.

Response This project is located in an area where baseline air quality data is not available. This analysis assumes a worst-case baseline condition in the absence of onsite baseline data and then added the project's impacts. The modeling assumptions are detailed in the Air Quality Technical Report.

Comment *020-488* The date points need to be expanded in scope to cover the degradation of air quality in the larger North Bend area.

Response Concentrations of particulate matter (particularly the large particle sizes expected from mining operations) decrease as the distance from the source increases. Consequently, if no violations of the NAAQS occur close to the project, none will occur further away.

Comment *048-005* I would like to address the concern of Dust created by not only the extraction process but also the construction on the lower site. Misters and paved roads are going to be used. During the winter when the wind blows in excess of 40 miles per hour and temperatures reach well below freezing, these misters will not work. If the misters haven't already frozen up the mist will be crystallized and blown away along with the dust being created by the process. During the summer months when we are asked to conserve water because of excessively dry conditions, will misting continue? If yes. Why? At this time of the year water is water no matter where you get it. If no. Why? The wind comes from the south. I live directly north from the lower site. My family is healthy. I want to keep it that way!

Response Cadman will use a watering truck to clean the on-site roads and will have a truck washing system at the entrance of the Lower site lease area. The water from this system will be contained in its tank and will be reused. It is very unlikely that frozen water on the roads will become airborne. The use of water as proposed requires the approval of a water right by the Department of Ecology.

Comment *054-009* Ozone - It was added to the DEIS, but there isn't any information why. This is very suspicious.

Response Ozone in this region is the result of chemical reactions between pollutants emitted by the combustion of fossil fuels from sources throughout the Puget Sound region. The project's trucks, heavy equipment and asphalt plant will emit these same pollutants. However, ozone is a regional pollutant and is not traceable back to individual sources.

Comment *054-008* Carbon Monoxide - Impairs the hearts ability to pump blood. The DEIS states that cars must pass emissions tests in the Seattle area, but fails to mention that the 900 Dump Trucks do not.

Response A diesel truck emits less CO than does an automobile.

Comment *054-001* As a resident in the area near the proposed GRAVEL MINE, I am greatly concerned about the possible massive air pollution that will be generated at the site. It appears that the DEIS also discusses the problems, but appear to hide them.

Comment *054-005* The North Bend area is the gateway to the Alpine Lakes region, and is a very clean place to live. There is an abundance of wildlife and tall trees. The possibility of 900 Diesel burning Dump Trucks sitting around Idling, and spewing tons of contaminates into this unique area is heart breaking.

Comment *054-007* Particulate Matter- In other words, soot from badly tuned Diesel engines. And there isn't any testing facility nearby to make sure that problems do not arise.

Comment *054-010* Sulfur Dioxide - associated with respiratory diseases.

Response Comments acknowledged.

Comment *019-617* Because the degradation of air quality will be long-term and extensive, the DEIS should contain an accompanying outline of the economic impact to both businesses and residences within a 5-mile radius resulting from this decline.

Comment *019-631* The FEIS should contain an economic analysis of the impact to homeowners and businesses from the long-term adverse impact to air quality.

Response Analyzing the economic impact of reduced air quality (if it were to occur) is difficult and prone to subjective interpretations. This type of analysis is not required under SEPA.

Comment *020-016* Acid rain from diesel engine combustion is mentioned but no mitigation is proposed.

Comment *020-473* Additionally, the degradation of air quality due to truck exhaust emissions is not adequately addressed, even though "truck traffic generated by the project and its alternatives is substantial" [DEIS pg. 3.2 14], and in spite of the fact that acid rain (which damages vegetation and freshwater marine ecosystems) is formed by the combustion of diesel engines [DEIS pg. 3.2 - 7]. The DEIS should discuss the relative impacts of each alternative on the creation and distribution of acid rain as well as the impacts of the acid rain on the surrounding environment(s).

Comment *020-483* The FEIS should discuss for each alternative the impacts of the acid rain generated on the surrounding environment(s).

Response Analyzing acid rain impacts in the project area is not within the scope of the DEIS and FEIS.

Comment *019-630* The FEIS should include all the data used for the modeling of particulates released in the air.

Response The climatic adjustment factor accounts for the relationship between the number of days with rainfall and the amount of windblown dust. The Air Quality Technical Report contains an Appendix with the formulas used in the fugitive dust analysis.

Comment *020-206* It appears to be the opinion of the DEIS that the impact on Olallie State Park is comparable to the impact on the businesses, schools and residencies of thousands of people at the Lower Site. The FEIS should discuss the acceptability of dust and noise at Olallie State Park versus these same impacts on the people living in the vicinity of Exit 34?

Response The impacts of air pollutants and noise are compared to the federal and local standards at any location where people spend time, whether picnicking, doing business or living. No distinction between these uses is made under law. The Draft EIS does not indicate that impacts to recreational uses and more significant than comparable impacts to residential uses, or visa versa. The discussion of Alternative 4, indicated that impacts to land uses in the vicinity of the Lower Site would be lower and impacts to uses in the vicinity of the Upper Site would be greater than under Alternative 2.

Comment *019-626* The FEIS should show the airborne by-products of the asphalt plant.

Response The DEIS addressed all the significant air pollutants from asphalt plants. The DEIS addressed the odor issues of asphalt plants.

Comment *019-637* The DEIS failed to address the minimum expected levels and maximum expected levels of particulates for proper analysis.

Response The particulate emission analysis in the DEIS is conservative. SEPA does not require an analysis of minimum emission levels.

3.2.2.1 Construction Impacts

Comment *012-102* The DEIS does not address standards set forth in RCW 70.94.743 for outdoor burning. What monitoring will be used to ensure compliance with these standards? What assumptions and methodology were used to predict emissions from the burning of woody materials/debris at the site?

Response RCW70.94743 applies to areas within Urban Growth Boundaries or areas where air quality standards are already exceeded—it is not applicable to this project.

Comment *012-103* It is not clear that the DEIS takes into account the March 2000 revised WA DOE open burning regulations as found in WAC 173-425. The regulation clarifies that construction and demolition debris, including lumber scraps, may not be burned. WAC 173-425-050 (1), titled "Prohibited Materials," reads:

The following materials may not be burned in any outdoor fire: Garbage, dead animals, asphalt, petroleum products, paints, rubber products, plastics, paper (other than what is necessary to start a fire), cardboard, treated wood, construction/demolition debris, [emphasis added] metal, or any substance (other than natural vegetation) that normally releases toxic emissions, dense smoke, or obnoxious odors when burned.

Issues related to any outdoor burning need to be re-reviewed in light of the revised DOE regulations.

Response The "woody debris" that is mentioned in the DEIS is entirely forest debris not the prohibited materials mentioned.

Comment *012-104* What emissions will be produced from grading, excavation and other construction activities? The DEIS says these would be minimal; where are the data? Construction activity will generate substantial concentrations of PM_{10} and these have to be addressed in any analysis of total suspended particulate matter.

Comment *024B-016* There is no attempt to quantify emissions from grading, excavation and construction. The study assumes that these would be minimal - the study should attempt to prove it. Dust from construction is generally coarser than PM 10, but can still generate substantial concentrations of PM_{10}. The State of Washington has a total suspended particulate matter standard that should also be addressed.

Response The FEIS quantifies emissions from the construction phase.

Comment *024B-017* There is no clear reference to the method and assumptions used to predict emissions from burning woody materials/debris. Emissions in terms of pounds per day would be more appropriate for describing the disposal of these materials. What about odors from burns?

Response The EIS explains the methodology used to calculate emissions from the burning of woody debris. Given that it is unknown how much material might be burned per day it is impossible to calculate emissions on a per day basis.

Comment *115-029* p. 3.2-18 What happens if Cadman submits a smoke management plan, but, in the process of burning, the weather changes (which it does quickly around here!) How do we get them to put out the fires? Please elaborate.

Response The local forestry office is in charge of dealing with issues like this.

Comment *115-026* p. 3.2-9, Disposal of woody debris - Although the quantities of pollutants will not result in concentrations exceeding the NAAQS, it is still a lot of pollution going into the air, and can result in a lot of haze and smell if the wind is blowing the wrong way.

Response Comment acknowledged.

3.2.2.2 Operation Impacts

Comment *016-005* Air Quality

No reduction in air quality of the area should be allowed. Without significant mitigation measures, the addition of excavation and truck transport will diminish air quality in the vicinity. Dust from excavation, transportation and processing must not move off site. This is difficult due to strong winds in the vicinity. We understand that batch plants would be enclosed in building, but specifics are lacking on standards for exhaust from these buildings and on the precise measures that would be taken to

monitor and to guard against dust moving off the site. Diesel exhaust from trucks and other equipment must be controlled or offset by other reductions in the vicinity.

Response Comment acknowledged. Specific details for batch plants are not in the EIS because the regulations which apply to batch plants are not emission based (i.e., allowable pollutants per hour) but are technology based (i.e., requirements for pollution control devices). Truck emissions will decrease in the future as a result of federally-required changes in the composition of diesel fuel.

Comment *019-687* The use of a Weyerhaeuser Lumber Mill, Holman Cement or Birmingham Steel industries to compare the Operational Emission Impacts (vol. I, Chap. 3, Air Quality, PG 3.2-10) do not provide a comparison of equivalent scope and/or conditions

Comment *024B-027* The comparison indicating that the proposed project would have PM_{10} quantities comparable to other large industrial sources in King County (e.g., Weyerhaeuser Mill, Holan Cement, and Birmingham Steel) would seem very disturbing to local residences and indicates that the project would be a significant source of emissions.

Comment *115-027* p.3.2-15 All of these emissions have a low impact if you live somewhere else and do not have to breathe the air every day!

Response Comment acknowledged.

Comment *020-015* Strong winds in the area are mentioned but are not analyzed.

Response High wind speeds were modeled. See Section 3.2.2.2 in the DEIS for a discussion of wind speeds used in the FDM model.

Comment *054-006* The DEIS talks about possible air contaminates, but it tries to gloss them over. It talks about the few earth moving trucks, but it fails to mention the 900 Dump Truck that are proposed for this small area.

All of these Trucks are Diesel powered and the DEIS states clearly the contaminates that will be dumped into the air in this mountainous region.

Response All the dump truck trips are accounted for in the air quality analysis.

Comment *011-008* The Gravel Operation will generate air pollution at the Lower Site including: fugitive dust emissions, odor from the asphalt plant, exhaust from equipment exhaust stacks and from trucks, and particulate matter and other emissions from the burning of woody debris and other activities. See Draft EIS, Section 3.2. Air quality impacts could also result from a chemical spill or fire. Proposed mitigation measures identified in the Draft EIS include using water spray systems to control dust, covering conveyors, paving roads, washing vehicles exiting the site, disposing of woody debris off site rather than burning it onsite, training employees in emergency control measures, and meeting Best Available Control Technology ("BACT") requirements.

Response Comment acknowledged.

3.2.3 Cumulative Impacts

Comment *024B-025* Project PM_{10} sources are described as significant. Does that mean they have a significant impact on air quality?

Response Project impacts are described as "significant," which means they should be taken seriously, not that they exceed the NAAQS.

Comment *019-686* Cumulative Impacts were not: specified. Worst-case scenarios were not provided with full comparisons between each Alternative.

Comment *024B-026* As described in the report, cumulative impacts are really total project impacts. We would expect cumulative impacts to also include the impacts from new or planned sources (including residential development), besides the proposed project.

Response Future projects will have air quality impacts primarily due to increased vehicle traffic. The FEIS analyzes cumulative impacts of increased vehicle traffic for the alternatives.

Comment *024B-028* We are interested in the concerns of the PSCAA, regarding the predicted 47 ug/m3 increase in PM_{10} levels and even higher increases to TSP levels.

Response PSCAA had no specific comments on this issue.

3.2.4 Mitigation Measures

Comment *012-108* Another proposed mitigation technique consists of the use of "trees" and "evergreen conifers" to "assist in trapping fugitive dust." Unless these are very mature and densely planted, they will have little to no measurable mitigation effect. If seedlings are used (as is proposed in other sections of the DEIS), it will be at least a decade before they are large enough to have an impact on dust control. How much water will be required to get these plants to take root and grow and keep them healthy enough to mature? Rainfall in the area during the summer months can be very low. Is water used for this purpose included in consumptive water estimates?

Response Comment acknowledged. The trees referred to in the mitigation measures are existing trees which are sufficient in size to mitigate dust migration. If additional vegetation is planted at the proper time of year (i.e., early winter for evergreens), adequate precipitation should be available to establish vegetation.

Comment *012-109* If vegetation is used as a mitigation, the DEIS needs to assess the vulnerability of the mitigation to fire. Brush fires are a constant risk and common occurrence in the area.

Comment *019-615* The DEIS correctly indicates that there will be severe and long-term adverse impact to the air quality of the area if Alternatives: 2 or 3 are implemented (see Table 10, 3 - 12, Volume 2 DEIS). Some pollutants reach 79% of allowable EPA air guidelines and under certain conditions could easily exceed 100% of EPA guidelines.

The current study provides no base line data for current ambient concentrations of pollutants. Nor does it accurately indicate the increase percentages for each individual pollutant.

Comment *024B-031* We believe a disturbance coordinator should be assigned who would respond to local complaints and have authority to suspend activities if appropriate mitigation measures are not effective or being appropriately enforced.

Response The EIS says that particulate levels would reach 79% of allowable levels—it does not state that there would be severe and long-term adverse impacts to air quality. There is no baseline data for current pollutant concentrations.

Comment *020-019* A speed limit of 10 mph suggested, but on pg. 3.3 - 18 it says 25 mph.

Response Cadman says they will have a 10 mph speed limit, as a worst-case assumption we assumed that trucks might reach 25 mph on the on-site roads.

Comment *024B-029* The effectiveness of dust control measures are discussed in terms of their maximum efficiency, rather than the realistic efficiency that they would accomplish with this project. Based on our experience with quarries and mines, we would be very surprised to see that BACT could eliminate visible dust.

Response Road washing effectiveness was assumed at only 50%. The DEIS does not indicate that BACT would eliminate visible dust, only that BACT's intention is to eliminate visible dust.

Comment *019-616* Section 4.1 Volume 2 indicates that the key to mitigation of particulate matter will be the use of large volumes of non-recaptured water. Since Cadman has not received approval for this extensive water use Alternatives 2 and 3 should not be considered as viable alternatives until such time as this water right is secured.

Comment *019-635* The FEIS should identify the exact amounts of water, and their sources, that will be needed to provide adequate particulate emission reduction, Alternatives 2 and 3 should be precluded until Cadman has water rights. Without water rights the project cannot be assumed to have the capability of providing the necessary water demanded by the proposal.

Response In the event that Cadman, Inc. does not obtain the water right, King County may require additional environmental analysis before permitting the proposal.

Comment *008-001* The mitigation measures need to be specific concerning treatment of wood debris. Chipping and grinding the woody debris and using the material for a soil conditioner would significantly reduce the impact on air quality for any of the alternatives and should be the required mitigation measure.

Comment *017-005* Burning of Woody Debris

Vallley Camp is occasionally effected by smoke from the Washington State Fire Training Camp. An increase in smoke being generated on the upper site during clearing would increase the number of days per year Vallley Camp is effected by poor air quality. Chipping of woody debris and mixed with overburden soil would be a preferred alternative method of disposal.

Response Chipping/grinding of woody debris is included as a mitigation measure in the FEIS.

Comment *012-080*

[DEIS §3.2; p. 3.2-17] delineates measures designed to control fugitive dust but neither this section nor the section on water indicate the quantities of water needed to carry out dust suppression measures. Specifically:

Bullet point 2 reads: "aggregate should be maintained in a moist condition while it is being conveyed, sorted, crushed or stockpiled." This is clearly consumptive use and water for such uses needs to be accurately estimated.

Bullet point 4 states "Paved access roads should be kept free of dust accumulations by frequent cleaning." And the top paragraph asserts that "Frequent watering of paved haul roads is an effective method to control dust" and refers to mitigation by maintaining "a constantly wet road surface." How often is "frequent" and what quantity of water is required to maintain "a constantly wet road surface"? Where is a table outlining best-case, worst-case and average scenarios? This is clearly a consumptive use. The DEIS must quantify the number of miles of paved and unpaved roads to be maintained in such a moist state and how much water will be required to so do. Further, high winds occur during non-haul hours and the unpaved roads will need to be kept moist during those periods as well. The DEIS fails to address these impact issues.

Comment *019-623*

The FEIS should address the water access and quantities needed to suppress dust control.

Comment *019-624*

The FEIS should address if "gray water" is to be used for dust control, if so, how will contaminants be removed so as not to recycle into the ground water or into water run off?

Response

The Proposal and Alternative chapter of the FEIS describes the estimated quantity of water required for dust control. The water used for dust control would be mostly recycled process water.

Comment *012-106*

What measures will be taken and enforcements put in place to reduce dust and debris from trucks not operated by Cadman that are using the site?

Response

Non-Cadman trucks will travel on the same washed roads as Cadman's trucks and will pass through the truck washer just as Cadman's trucks do.

Comment *012-110*

The DEIS does not provide monitoring plans and determination factors for the need, and enforcement of, fugitive dust control techniques.

Response

The DEIS did not find that the project would exceed the NAAQS for any of the criteria pollutants and thus did not require that an air quality monitoring plan be implemented.

Comment *020-018*

"Truck traffic generated by the project and its alternatives is substantial" but no mitigation is proposed.

Response

No mitigation was suggested because no significant air quality impacts were identified.

Comment *012-113*

In addition, even "nuisance" impacts need to be addressed.

Response The mitigation measures proposed in the DEIS address all forms of particulate matter including the "nuisance" TSP.

Comment *064-007* Please provide monitoring plans and determination factors for the need, and enforcement of, fugitive dust control techniques.

Response The PSCAA has enforcement responsibilities for sand/gravel mines, responds to complaints and requires operational changes if necessary. No monitoring plans are proposed as mitigation because pollutant criteria were not exceeded.

Comment *064-010* Maximum mitigation measures against noise and dust from rock crusher must be met by enclosing the rock crasher within a building. The building should be kept under negative pressure and the air conveyed to a fabric filter to remove the dust, as recommended by the DOE(2).

(2) FOCUS: Major Air Pollutants--Particulate Matter. Washington Department of Ecology, Public No. FA-92-121, October 1994.

Response Containing the crusher in a building is not warranted at this site. Analysis showed rock crushing to be a minor contributor to fugitive dust emissions- especially after the crusher is moved to the Upper Site.

Comment *064-011* Particulate matter can cause damage to materials and can cause deposits on land and in water. Describe impacts and mitigations of settling particulate matter to adjacent residential properties, statues and structures.

Response The DEIS describes mitigation measures to reduces impacts of dust to adjacent properties.

Comment *012-105* [DEIS §3.2; p. 3.2-17] One of the proposed fugitive dust control mitigations is the establishment of a 10 mph speed limit on the paved access road. It is pure fiction to expect truck drivers with delivery schedules to be cruising on the mine site at this speed. How will such a speed limit be monitored and enforced? The DEIS should base mitigations on real and enforceable behaviors; this speed limit is not one of them and be eliminated as a mitigation.

Comment *024B-030* What are the specific mitigation measures and how would they be implemented and enforced? For example, what would be the criteria for determining when and where to water? Would the water or spray systems have an adverse effect on project operations. How would the speed limit be enforced? What would happen during dry windy periods if mitigation measures could not control dust emissions? Would activities be suspended? What would happen if the project does not properly implement the mitigation measures?

Comment *115-028* p. 3.2-17 Who plans on enforcing the 10 mph speed limit! That's a laugh, I've seen the way truckers drive.

Response The DEIS and FEIS recommend potential mitigation measures. Actual mitigation measures would be part of the operating permit that Cadman would receive from PSCAA. PSCAA is responsible for and enforcing the permit conditions by inspecting the operations, responding to complaints and levying penalties.

Comment *020-492* The DEIS failed to address the mitigation alternatives if air borne contaminates violate EPA standards.

Response No mitigation alternatives were proposed because no air quality exceedances of the NAAQS were identified.

Comment *064-009* How large are the trees to be planted and how long will it take for them to grow to a size that constitutes protection?

Response Trees can trap dust at almost any size. Obviously, the taller and bushier the tree, the better. Douglas fir seedlings will be planted at the site. Trees need to be 6 feet tall to offer protection from fugitive dust. Douglas firs take about 5 years, depending on environmental conditions, to grow to 6 feet in height.

Comment *008-002* The impact of noise generated by the project can be significantly mitigated by limiting operation of the facility to hours when people are not sleeping, typically from 7 AM to 10 PM and prohibiting operations on weekends when more people at home. This option should be addressed in the final DEIS for all of the alternatives and applied as a mitigating measure on the project.

Comment *020-326* The FEIS should list the minimum and maximum noise levels for each and every source of potential project generated noise. Further, the FEIS should not rely on the public or other agencies to point out omissions that were known to the applicant and their consulting firm, and are common for the type of project being proposed. Given that the applicant is in the mining business, and that this is not the first mining operation that they have put into place, it can be assumed that the applicant has full access to and complete knowledge of, all relevant noise data pertaining to all aspects of operations and construction that could be envisioned on the site during the length of it's operation.

Response The hours of operation are discussed in the FEIS in Section 2.2.2.4. Recommended mitigation includes limiting the hours of construction activities.

3.2.4.1 Alternative 1 – No Action

No comments were received on this section of the DEIS.

3.2.4.2 Alternative 2 - Proposal

Comment *142-009* Mitigation of the asphalt plant needs to be much stricter and controlled than "meeting BALT codes".

Response BACT is an acronym for "Best Available Control Technology" and is the most stringent level of pollution control applicable.

3.2.4.3 Alternative 3 – Lower and Upper Sites (Exit 34 and Exit 38)

No comments were received on this section of the DEIS.

3.2.4.4 Alternative 4 - Upper Site Only (Exit 38)

Comment *011-003*

In contrast, Alternative 4 (Exit 38/Upper Site) would limit mining activities to the Upper Site, three quarters of a mile away from the schools, and would also utilize off site concrete and asphalt batch plants. Trucks accessing the Upper Site would use Exit 38. The District believes that locating mining activities farther away from the schools would result in less adverse impacts on its school children. Since only the Upper Site would be mined, no trucks would be routed along the principal school bus route. Gravel Operations would take place farther away reducing security concerns. No concrete and asphalt batch plants would be constructed, removing these additional sources of dust, noise and, potentially, odor. Therefore, the District strongly recommends that Cadman pursue Alternative 4.

Response

Comment acknowledged.

3.2.5 Significant Unavoidable Adverse Impacts

No comments were received on this section of the DEIS.

3.3 NOISE

Comment *019-128*

The FEIS should insure that all definitions of all decibel levels are defined correctly. The DEIS makes references to "noise levels" without defining whether they are minimum, maximum, or average noise levels, or whether noise was measured utilizing a fast or slow time constant. This is true for the King County Noise Regulations as well.

The King County maximum permissible sound levels (in dBA) do not state what time averaging, if any, is included with these standards. The notes indicate that these may be average noise levels, even though they are identified as maximum noise levels. The lack of specificity throughout the DEIS Section on Noise, and in King County code makes it very difficult to understand, even for a trained professional, what the real potential adverse impacts are due to "loosey goosey" measurement that is passed off as "empirical."

Response

The Noise chapter of the FEIS includes additional text to clarify the noise metric shown in various tables and figures. The King County Code uses sound level exceedances to avoid the so-called "loosey goosey" measurement as alleged above.

Comment *020-453*

Gravel Mining and School Incompatible, Says Pierce County, Washington
PUBLICATION: News Tribune (Tacoma, WA)
DAT'E: March 13, 1998
SECTION: Local/State; Pg. A19
BYLINE: Rob Tucker
DATELINE: Pierce County, Washington

The News Tribune reports Pierce County, Washington, revoked a mining permit, preventing a sand and gravel company from reopening across from Rocky Ridge Elementary School.

Response

Comment acknowledged.

Comment *127-030*

What is at stake is the peace and quiet of a beautiful residential neighborhood for the next 25 years. Residents there are expected to rely on the stated DEIS conclusion that lower site operations will have no impact on noise levels at their homes. DEIS flatly predicts no noise impact at residences during construction or operation. I asked an environmental consulting firm to confirm that claim. They could not. They found the DEIS very incomplete. There is not enough information to check the DEIS noise predictions.

Response

The Noise Technical Report in the FEIS includes an appendix with model impacts and outputs and noise measurement data.

Comment *019-236*

As per Addendum A, both significant winds, and low-level inversions are common in the North Bend area. Even more significant however is that the winds are typically from the East, with southern winds rarely occurring. Given this information all of the ENM "Worst Case" scenarios are null and void, as they are based on inaccurate data.

Response The FEIS replaces the “worst case” scenario with a “high wind” scenario and an “inversion” scenario. The High wind scenario in the FEIS uses easterly winds based on data from The Climate Center in North Bend.

Comment *019-102* The DEIS Section on Noise fails to substantiate its findings, assertions, and conclusions, empirically, relying instead on inadequate, or bad data, conjecture, and improperly formed assumptions. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions, contained in the DEIS Section on Noise.

Response The DEIS substantiates its findings and conclusions based on accurate field measurements and state-of-the-art modeling techniques.

Comment *019-228* Attachment A, a report prepared for an interested party by Thomas Dunklee, Chief Atmospheric Scientist, The Weather Center, entitled "Climate Analysis - Exit 34 I-90, provides the kind of data that the DEIS consultant stated was not available. It should be noted that The Weather Center is located in the same office suite as Cadman's North Bend Mining Operations Office, at Ken's Trucktown, Exit 34.

Comment *019-244* Any one of these issues, when looked at individually, could be understood, but when reviewed together, in totality, and with knowledge of how these issues, when used together, would effect the data provided via the ENM, it would appear that there was a deliberate attempt on the part of the preparers to misrepresent the potential adverse environmental impacts of Noise from the project. Again, we ask that the Lead Agency, and the Department of Ecology, SEPA Division, investigate this, and they require that the entire study is should be redone by a Certified Acoustical Engineer.

Additionally, any, and all of the data presented in this study should be ignored going forward.

Comment *107-002* I am very concerned about the proposed North Bend Gravel Operation. My biggest concern is about quality of life in the people and animals that live there, The noise from the freeway can be heard all over the area due to what we call "valley acoustics.” I can't imagine what it will be with more trucks as well as the noise from the gravel.

Response Comments acknowledged.

Comment *019-247* If the environmental noise impact projected for the Grouse Ridge Project does not comply with Executive Order 12898 "executive Justice,” the EIS should state why the project is entitled to exemption from Executive Order 12898 "Executive Justice.”

Comment *019-245* The EIS should specify and identify how the Grouse Ridge Project will adhere, and comply with the intent of Executive Order 12898 "Environmental Justice.”

Comment *019-287* The EIS should require the applicant to implement a permanent noise monitoring system surrounding both the pit, and processing plant sites at 500 ft., IA mi., 1/2mi., 3/4mi., and one mile distances to insure that the intent of Federal Executive Order 12898 "Environmental Justice" is met.

Comment *019-288* Additionally, this would assist in insuring compliance throughout the life of the project for the various measurements used to determine the environmental impact of noise in regards to the public's health and welfare.

Comment *020-366* If the Grouse Ridge Project is excluded from compliance with Executive Order 12898 "Environmental Justice," the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-367* If the environmental noise impact projected for the Grouse Ridge Project does not comply with Executive Order 12898 "Executive Justice," the EIS should state why the project is entitled to exemption from Executive Order 12898 "Executive Justice."

Response Environmental justice is about fair treatment of all people when projects are proposed in their neighborhood. The proposal should not impact certain disadvantaged groups more than any other group.

Comment *019-199* A thorough, and comprehensive analysis needs to be provided, and done in such a manner that it clearly explains and compares the difference between the project alternatives, and their resulting impacts, specifically as they relate to residents adjacent to both the lower and upper site. Without a comprehensive review of this information, which can only be achieved by completing a new noise study, the County would not be able to make an informed decision. Continuing to rely on the existing noise analysis would be imprudent and would result in a challenge to both the DEIS and FEIS's adequacy, as well as the competency, and credibly of the Lead Agency, Dames and Moore, their Sub Consultants, and the Applicant.

Comment *019-200* The FEIS should clearly state each preparer's credentials, and expertise. In reviewing the list of DEIS preparers, ENVlROANALYSIS is listed as the Consultant for both Air and Noise sub consultants, showing the consultant's credentials for acoustical engineering as being a degree in Forestry?

Comment *019-201* While it is possible that the Consultant has received additional training, and perhaps even certification, this is not stated in the DEIS, and one must assume that the data provided indicates that the Consultant is indeed not an Acoustical Engineer.

Comment *024B-006* Please provide the credentials of the preparers of the noise analysis.

Response Carl Bloom, B.S., Forestry, has been responsible for the air quality and noise chapters of Environmental Impacts Statements and Environmental Assessments for the last 15 years. The range of his projects includes new and expanded highways, sand and gravel mines, hard rock quarries, major residential and commercial developments, industrial plants and state-wide assessments of noise barrier walls.

Comment *019-671* The DEIS failed to, and the FEIS should identify, measure, and describe the potential impacts of the two "worst case scenarios" high wind, and inversions, that were identified in the DEIS, but not studied, or considered in regards to potential impact.

DEIS, Noise Section, Volume 2, Appendix C, pg. 10"
Two meteorological conditions will cause the highest noise levels from a source, either high winds which "bend" the sound waves towards a ground level receiver or a low level inversion layer which inhibits sound waves from dispersing upwards.

Comment *019-672* Additionally, the FEIS should state, for the record, why these two serious and significant impacts, while noted as "causing the highest noise levels from a source" were not studied?

Comment *019-161* The FEIS should utilize the accepted standard used in acoustical engineering for determining a worst-case wind scenario, which is to assume the wind blows from the center of the source outward in all directions. While this never occurs, it correctly identifies, and reflects the maximum levels possible at all receptors due to wind.

Response The Noise chapter of the FEIS includes an analysis of both high wind and inversion scenarios.

Comment *019-132* We find this overt lack of concern for our children, their welfare, and their learning experience completely unacceptable, and demand that the FEIS conduct site-specific studies of our new schools, coupled with a true and comprehensive modeling of all project generated noise, the effects of adverse weather such as winds and inversions, and the fact that sound is amplified through windows. Once a proper, responsible, and socially ethical modeling has been completed, the FEIS should empirically demonstrate that noise generated by the project, either construction, operational, or onsite or offsite traffic, will not increase the ambient noise levels in our new classrooms beyond the 35dB required for an optimal learning experience.

Comment *019-212* The DEIS states that a D9 bulldozer generates 85 dBA at 50 feet. Noise reduces about 6 dBA for every doubling of distance, so at 1,300 feet from the site or, approximately 1/4 mile from the site, the noise from this one bulldozer would be about 58 dBA. The ambient noise environmental at some of the receivers listed in the DEIS during the daytime is 50 dBA, yet the DEIS states that the project will not increase the daytime Leq at these receivers. The claim is that berm would drastically reduce noise levels at these receivers, however, it is commonly known in acoustical engineering that berms, or noise walls, only provide effective attenuation is the receiver is within 800 ft. of the berm, or wall. All noise levels after 800 ft. cannot claim attenuation due to berm, vegetation, or walls, and need to be sampled accordingly.

"For distance r [from source to receiver] greater than about 300 m (800 ft), on the other hand, the influence of weather conditions results in very low values of insertion loss. At intermediate distances (100 m < r <300 m) the reduction increases gradually with increasing distance." Page 3.20, Handbook of Acoustical Measurements and Noise Control, Cyril M. Harris, Acoustical Society of America, 1998)

Response The FEIS clarifies the noise impacts of the proposals and alternatives.

Comment *039-001* During the 4th of July celebration the fireworks resonated through the valley like a cannon. A rock crusher is going to make less noise? My dad and I farmed 10 miles from a rock crusher and you could still here the noise. No Impact?

Comment *045-061* I will list just a few general concerns addressing traffic safety and vehicle noise during pit operation: placement of soundproof fencing on the berms or near the pit entry/exits; use of ambient sensitive backup beepers and rubber lined truck beds on trucks and loaders (at least those owned by the Applicant).

Comment *101-001* The DEIS for this project has not addressed the psychological impact of the same decibel level of noise at night as during the daytime, yet clearly the psychological impact is quite different. For instance, in your Table 3.3-1, you list the range of human response to various decibel levels, from jet take-off at 200 feet away (painfully loud) to a soft whisper (30dBA) as "very quiet."

***Comment** 140-003*

Trucks and conveyor belts going at all hours of day and night will add noise pollution. North Bend is situated in a mountain valley where noise travels and echoes in the mountains.

***Comment** 142-001*

King County ordinance 12.94.010.2 and .3 states "Safety equipment exempt i.e. back up alarms are for once and a while" I read into this as like once a week for garbage trucks or something. Not twice every two minutes, which could happen with the Cadman plant.

***Comment** 142-006*

The DEIS report claims the lower site will have no significant noise impacts; however, the data does not support this argument. In fact the data indicates there will be significant noise impacts. Noise pollution is as bad as every other pollution, especially in the rural areas where we've moved to get away from the urban chaos.

Response

The applicant has committed to using ambient sensitive backup beepers. The plant layout would be designed to minimize trucks and loaders having to reverse directions.

***Comment** 019-310*

The EIS should clearly state, for the record:

That if the Grouse Ridge Project is approved

And
if, per a comprehensive noise study, in which any of the known metrics of the environmental impact of noise described in this document, and it's supporting documentation, are exceeded

And

the local citizens are exposed to sound levels that exceed those listed by the Federal, State, and Local agencies listed in this document, which were designed to protect the public health and welfare

That

as per EPA data on cumulative noise, referenced at the beginning of this section, and the actions that the public will take as a result of such exposure

The EIS should clearly state that

The applicant, King County, and The State of Washington are subject to legal action as a result of knowingly exposing the population to sound levels shown by the E.P.A. to be harmful to the public health and welfare, and that have been demonstrated to cause such actions as delineated by the Environmental Protection Agency.

Response

An EIS analyzes the environmental impacts of a proposal and its alternatives and outlines mitigation measures which reduce those impacts.

3.3.1 Existing Conditions

***Comment** 020-406*

The EIS should require the applicant to implement a permanent noise monitoring system surrounding both the pit and processing plant sites at 500 ft., 1000 if, 1/4 mi., 1/2 mi., 3/4 mi., and one mile distances to insure that the intent of Federal Executive Order 12898 "Environmental Justice" is met.

Comment *020-407* This would assist in insuring compliance throughout the life of the project for the various measurements used to determine the environmental impact of noise in regards to the public's health and welfare.

Response The FEIS recommends a noise monitoring plan as mitigation.

Comment *019-177* It should be noted for the public record, that The Weather Center is located in the same office suite as Cadman's North Bend Mining Operations Office, at Ken's Trucktown, Exit 34. This fact makes it even harder to digest the fact that the author claims in the Noise section of the DEIS in good faith, that there was no meteorological data available for the North Bend area. It took citizens 3 days, and use of their own funds to obtain this report. A report that the County, the applicant, Dames and Moore, and sub consultants should have been able to provide, if they were interested in an objective representation of the area's meteorological conditions. Why should the public bare the burden cost of this study given that it was readily

Response The Air Quality Section of the DEIS mentions the lack of long-term (decades) meteorological data for North Bend. This long-term data is important for the analysis of air quality impacts, but not for noise impacts. The analysis of noise impacts merely requires meteorological data representing typical and extreme conditions. The FEIS noise analysis uses data from the Weather Center to develop a “high wind” modeling scenario.

Comment *017-002* Noise - Acoustical measurements done on 6-4-98 at Valley Camp were taken 5 feet from a rather noisy stream. We believe these measurements do not give an accurate representation of true noise levels within Valley Camp. The Dames and Moore study took no measurements for the DEIS on Valley Camp property. We would like to see an accurate measurement taken prior to beginning operations on the upper site.

Response The measurements referred to were performed by others and are not part of the measurements taken for the DEIS.

Comment *019-179* The FEIS should state why the consultants chose to rely solely on, NOAA, and Bonneville Power, as the sole sources for meteorological data, knowing the scope and charter of both, as sources for weather data for North Bend, a small rural community in Western Washington.

Response The FEIS uses meteorological data from North Bend weather center in its analysis of high wind conditions.

3.3.1.1 Methodology

Comment *019-289* The DEIS should measure and quantify the existing Day Night Sounds levels (DNL) for minimum, and maximum with a 5dB margin of safety for public health and welfare, and averages over a 10-hour period. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distances from the Grouse Ridge Mining Pit and Processing Plants.

Comment *019-290* Quantify the maximum projected increase of the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1/4 mi.,

1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing plants.

***Comment** 019-291* Identify and quantify the maximum effect of all (4) seasonal conditions on the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants.

***Comment** 019-292* The EIS should measure, and quantify the outside sound levels, with a 5dB margin of safety for public health and welfare, to insure that normal conversation can occur on any and all residential properties, during the hours of operation of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all causes, should comply with EPA Protective Levels.

***Comment** 019-293* The EIS should measure, and quantify inside sound levels, with windows open for summer ventilation to insure that normal conversation can occur within a household during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all causes, should comply with EPA Protective Levels.

***Comment** 019-294* The EIS should measure, and quantify inside sound levels, through single and double pane windows to insure that normal conversation can occur within a household during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all causes, should comply with EPA Protective Levels.

***Comment** 019-295* The EIS should Identify and quantify the maximum effect of all (4) seasonal conditions on the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, including Decadal Precipitation Oscillation (DPO) potential.

***Comment** 019-320* Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, at the following elevations: 500 ft., 750 ft., 1000 ft., 1500 ft., 2000 ft., 2500 ft., 3000 ft., and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-322* The EIS should measure, and quantify inside sound levels, through single and double pane windows to insure that normal conversation, at the levels required to insure a proper learning experience can occur within a classroom during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft. 1000 ft., 1A mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all causes, should comply with EPA Protective Levels.

***Comment** 020-411* The EIS should measure and quantify the outside sound levels with a 5dB margin of safety for public health and welfare to insure that normal conversation can occur on any and all residential properties during the hours of operation of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all cases should comply with EPA Protective Levels.

Comment *020-412* The DEIS should measure and quantify inside sound levels with windows open for summer ventilation to insure that normal conversation can occur within a household during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all cases should comply with EPA Protective Levels.

Response The EIS uses an accurate and relevant methodology to measure existing noise levels. Noise measurements were taken at the most sensitive receiver sites rather than arbitrary distances. Actual distances range from 1/4 mile to 1-1/8 miles. Measurements were taken at the actual elevations of these sites. The monitored data was recorded on an hour by hour basis and project impacts are modified assuming a peak hour noise level would continue all day, every day of operation.

Typical and inversion types of weather are examined in the DEIS. The FEIS includes analysis of noise impacts under a high wind scenario. These three meteorological scenarios cover the range of conditions (including worst-case) found in any season of the year.

Comment *099-006* In such a nebulous environment for accurate projection would it be reasonable to use and compare several methods to attain best results?

Response The Environmental Noise Model used for this project meets with the approval of regulatory authorities and it is widely accepted by project proponents and model users. The Environmental Noise Model has been used for all recent major noise studies in the Puget Sound area.

Comment *020-313* The FEIS should clearly delineate all types of measurements used for all sound measurements or projections.

Response The FEIS clarifies the metrics used in the Noise chapter.

Comment *020-314* The FEIS should provide a complete list of inputs used for the modeling of predicted noise levels, whether utilizing the environmental noise model (ENM) or other methods.

Response The FEIS includes a Noise Technical Report containing monitoring data.

Comment *099-004* What other projects have used the ENM Model software in the past with follow-up later establishing the validity of the projection over a reasonable time period?

Response The ENM model has been used recently on several mine projects in the Puget Sound region. These projects are recent and follow up monitoring may not have been completed.

Comment *099-005* What other software or other methodology for prediction was considered for this project and why was it rejected?

Response ENM is considered to be "state-of-the-art" for modeling mining projects. No other software was considered.

Comment *019-115* The FEIS should clearly delineate all types of measurements used for all sound measurements and or projections.

Response The FEIS includes additional text to clarify the noise metric shown in various tables and figures.

Comment *115-030* p. 3.3-1 Methodology - Are two days of monitoring sufficient to collect enough data for noise? I hardly think so.

Response Existing noise levels as captured in the 2 days of monitoring, occurred during fairly calm weather conditions and thus represent the quieter range of background noise levels. SEPA requires a comparison of project noise impacts to background noise levels. Obviously, the lower the background the greater the project's impacts will appear. The DEIS compares project noise impacts to this low background scenario and thus does really analyze a worse case scenario.

3.3.1.3 Regulation of Noise

Comment *019-248* The EIS should identify, assess, measure, and quantify the Grouse Ridge projects compliance with the U.S. Noise Act of 1972.

Comment *019-249* If the Grouse Ridge Project is excluded from compliance with the U.S. Noise Act of 1972, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *019-250* If the environmental noise impact projected for the Grouse Ridge Project exceeds the U.S. Noise Act of 1972 regulations regarding environmental noise impact, the EIS should state why the project is entitled to exemption from The U.S. Noise Act of 1972 regulations.

Comment *020-368* The EIS should identify, assess, measure and quantify the Grouse Ridge projects compliance with the U.S. Noise Act of 1972.

Comment *020-369* If the Grouse Ridge Project is excluded from compliance with the U.S. Noise Act of 1972, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-370* If the environmental noise impact projected for the Grouse Ridge Project exceeds the U.S. Noise Act of 1972 regulations regarding environmental noise impact, the EIS should state why the project is entitled to exemption from The U.S. Noise Act of 1972 regulations.

Response The project is subject to state and local noise regulations. There are no applicable federal regulations, although there are federal guidelines. The project's noise impacts are compared to the federal guidelines.

Comment *019-269* The EIS should specify and identify how the Grouse Ridge Project will adhere, and comply with the Federal Highway Administrations Noise regulations.

Comment *019-270* If the Grouse Ridge Project is excluded from compliance with the Federal Highway Administrations Noise regulations, the EIS should state why the Grouse Ridge Project

is entitled to regulations that are less than those that have been established to protect the public health and welfare by the Federal Highway Administration.

***Comment** 019-271* If the environmental noise impact projected for the Grouse Ridge Project does not comply with the Federal Highway Administrations Noise regulations, the EIS should state why the project is entitled to exemption the Federal Highway Administrations Noise regulations.

***Comment** 019-272* The EIS should measure, and quantify the Grouse Ridge projects compliance with the Federal Highway Administrations noise impact criteria.

***Comment** 019-273* If the Grouse Ridge Project is excluded from compliance Federal Highway Administrations noise impact criteria, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-274* If the environmental noise impact projected for the Grouse Ridge Project exceeds the Federal Highway Administrations noise impact criteria, the EIS should state why the project is entitled to exemption Federal Highway Administrations noise

***Comment** 019-275* The EIS should identify, assess, measure, and quantify the Grouse Ridge projects compliance with the Federal Highway Administration's suggested residential and commercial land use levels.

***Comment** 019-276* The EIS should describe, identify, and address, how failure to meet U.S.D.O.T. and or the Federal Highway Administration's guidelines for noise and land use surrounding freeways will effect the State of Washington's ability to obtain Federal Highway funding.

***Comment** 019-277* The EIS should describe, identify, and address who will be liable for payment of highway improvements should the Federal Government turn down a request for funding due to non compliance with Federal Highway Administration regulations for noise, and land use surrounding freeways as a result of environmental noise that is attributable to the Grouse Ridge project.

***Comment** 019-336* The EIS should measure, and quantify the Grouse Ridge projects compliance with the Federal Highway Administrations noise impact criteria. As stated in Highway Traffic Noise, (U.S.D.O.T.), if a project causes a “significant increase” in the future noise level over the existing noise level, it is also considered an “impact.”

***Comment** 019-345* The EIS should measure, and determine if the proposed project will exceed the Federal Highway Administrations “predicted noise levels” for Interstate I-90, which were completed when Interstate 90 was proposed.

***Comment** 019-346* The EIS should identify, project, and measure any environmental impact of noise from increased traffic on State Route 18 (S.R.18) at interchange (exit 25). This would include any and all residential districts that would be effected by increased sound levels at S.R. 18.

***Comment** 019-347* The E.I.S. should identify, project, and measure any environmental impact of noise from increased traffic on State Route 18 (S.R.18) between I-90 and I-5. This would include any and all residential districts that would be effected by increased sound levels on S.R. 18, wildlife living in the areas surrounding S.R. 18, and recreation areas bordering S.R. 18. The increased amount of truck traffic on State Route 18 cannot be

accurately predicted. In addition, State Route 18 is outside the study area for the noise assessment. Therefore, the potential impacts are not addressed in the FEIS.

***Comment** 020-389* The EIS should specify and identify how the Grouse Ridge Project will adhere and comply with the Federal Highway Administrations Noise regulations.

***Comment** 020-390* If the Grouse Ridge Project is excluded from compliance with the Federal Highway Administrations Noise regulations, the EIS should state why the Grouse Ridge Project is entitled to regulations that are less than those that have been established to protect the public health and welfare by the Federal Highway Administration.

The increased amount of truck traffic on State Route 18 cannot be accurately predicted. In addition, State Route 18 is outside the study area for the noise assessment. Therefore, the potential impacts are not addressed in the FEIS.

***Comment** 020-391* If the environmental noise impact projected for the Grouse Ridge Project does not comply with the Federal Highway Administrations Noise regulations, the EIS should state why the project is entitled to exemption the Federal Highway Administrations Noise regulations.

***Comment** 020-393* The EIS should measure, and quantify the Grouse Ridge projects compliance with the Federal Highway Administrations noise impact criteria.

***Comment** 020-394* If the Grouse Ridge Project is excluded from compliance Federal Highway Administrations noise impact criteria, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-395* If the environmental noise impact projected for the Grouse Ridge Project exceeds the Federal Highway Administrations noise impact criteria, the EIS should state why the project is entitled to exemption Federal Highway Administrations noise impact criteria.

***Comment** 020-396* The EIS should describe, identify, and address how failure to meet U.S.D.O.T. and or the Federal Highway Administration's guidelines for noise and land use surrounding freeways will affect the State of Washington's ability to obtain Federal Highway funding.

***Comment** 020-456* The DEIS should measure and quantify the Grouse Ridge projects compliance with the Federal Highway Administrations noise impact criteria. As stated in Highway Traffic Noise, (U.S.D.O.T.), if a project causes a "significant increase" in the future noise level over the existing noise level, it is also considered an "impact."

***Comment** 020-465* The DEIS should measure and determine if the proposed project will exceed the Federal Highway Administrations "predicted noise levels" for Interstate I-90, which were completed when Interstate 90 was proposed.

***Comment** 020-466* The EIS should identify and measure any environmental impact of noise from increased traffic on State Route 18 (S.R.18) at interchange (Exit 25). This would include any and all residential districts that would be affected by increased sound levels at S.R. 18.

***Comment** 020-467* The EIS should identify and measure any environmental impact of noise from increased traffic on State Route 18 (SR-18) between I-90 and I-5. This would include any and all residential districts that would be affected by increased sound levels on

SR-18, wildlife living in the areas surrounding S.R. 18, and recreation areas bordering SR-18.

Response FHWA noise impact criteria apply to public highway projects (i.e., the building of new or expanded roads) and do not apply to the proposed gravel operation.

Comment *019-278* The EIS should specify and identify how the Grouse Ridge Project will adhere to the State of Washington's Regulations regarding Noise Control.

Comment *019-279* If the Grouse Ridge Project is excluded from The State of Washington's Noise Regulations, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *019-280* If the environmental noise impact projected for the Grouse Ridge Project exceeds The State of Washington's regulations regarding environmental noise impact, the EIS should state why the project is entitled to exemption from State of Washington's noise regulations.

Comment *019-281* The EIS should specify and identify how the Grouse Ridge Project will adhere to the State of Washington's Department of Ecology Regulations.

Comment *019-282* If the Grouse Ridge Project is excluded from Department of Ecology Regulations, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *019-283* If the environmental noise impact projected for the Grouse Ridge Project exceeds State Department of Ecology regulations the EIS should state why the project is entitled to exemption from State Department of Ecology regulations.

Comment *019-284* The EIS should specify and identify how the Grouse Ridge Project will adhere to King Counties Regulations regarding Noise Control (12-86 through 12-100).

Comment *019-285* If the Grouse Ridge Project is excluded from King County's regulations, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *019-286* If the continuous and cumulative environmental noise impact projected for the Grouse Ridge Project exceeds King County's regulations, the EIS should state why the project is entitled to exemption from King County noise regulations.

Comment *020-398* The EIS should specify and identify how the Grouse Ridge Project will adhere to the State of Washington's Regulations regarding Noise Control.

Comment *020-399* If the Grouse Ridge Project is excluded from The State of Washington's Noise Regulations the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-400* If the environmental noise impact projected for the Grouse Ridge Project exceeds The State of Washington's regulations regarding environmental noise impact, the EIS should state why the project is entitled to exemption from State of Washington's noise regulations.

Comment *020-401* If the environmental noise impact projected for the Grouse Ridge Project exceeds The State of Washington's regulations regarding environmental noise impact, the EIS

should state why the project is entitled to exemption from State of Washington's noise regulations.

***Comment** 020-402* If the Grouse Ridge Project is excluded from Department of Ecology Regulations, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-403* If the environmental noise impact projected for the Grouse Ridge Project exceeds State Department of Ecology regulations the EIS should state why the project is entitled to exemption from State Department of Ecology regulations.

***Comment** 020-404* The EIS should specify and identify how the Grouse Ridge Project will adhere to King Counties Regulations regarding Noise Control (12-86 through 12-100).

***Comment** 020-405* If the continuous and cumulative environmental noise impact projected for the Grouse Ridge Project exceeds King Counties regulations, the E.I.S. should state why the project is entitled to exemption from King County noise regulations.

Response The project is subject to Department of Ecology and King County regulations. The EIS discusses how the project complies with the King County Noise Ordinance, which is based on and identical to, in all major respects, Ecology's regulations. The proposal is subject to King County regulations.

***Comment** 019-257* The EIS should identify, quantify, and measure how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding Inside and Outside Noise Levels as stated in the supporting documentation.

***Comment** 019-258* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding Inside and Outside Noise Levels, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-259* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding Inside and Outside Noise Levels, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding Inside and Outside Noise Levels.

***Comment** 020-377* The EIS should identify, quantify, and measure how the environmental noise impact from the Grouse Ridge Project will compare to EP.A. Guidelines regarding Inside and Outside Noise Levels as stated in the supporting documentation.

***Comment** 020-378* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding Inside and Outside Noise Levels, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-379* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding Inside and Outside Noise Levels, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding Inside and Outside Noise Levels.

Response EPA's Indoor-Outdoor levels document presents recommended noise levels for differing land uses and activities. The Indoor-Outdoor Levels document is not a regulation the project must comply with.

Comment *019-254* The EIS should identify, quantify, and measure how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding Day and Night Sound levels.

Comment *019-255* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding Day Night Sound Levels, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-374* The EIS should identify, quantify, and measure how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding Day and Night Sound levels.

Comment *020-375* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding Day Night Sound Levels, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-376* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding Day Night Sound Levels, the E.I.S. should state why the project is entitled to exemption from E.P.A. Guidelines regarding Day Night Sound Levels.

Comment *020-408* The EIS should measure and quantify the existing Day Night Sounds levels(DNL) for minimum and maximum with a 5dB margin of safety for public health and welfare, and averages over a 10-hour period. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distances from the Grouse Ridge Mining Pit and Processing Plants.

Comment *020-409* Quantify the maximum projected increase of the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing

Comment *020-410* Identify and quantify the maximum effect of all (4) seasonal conditions on the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants

Comment *020-414* The E.I.S. should identify and quantify the maximum effect of all (4) seasonal conditions on the Day Night Sound Levels (DNL) with a 5dB margin of safety for public health and welfare at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, including Decadal Precipitation Oscillation (DPO) potential.

Response The predicted noise levels generated by the proposal and alternatives are compared to the relevant EPA guidelines regarding noise impacts rather than the Day Night levels, which attempt to define appropriate land uses rather than regulate project impacts.

***Comment** 019-251* The DEIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding the impact of environmental noise with a margin for error.

***Comment** 019-252* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding the impact of environmental noise with a margin for error, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-253* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding the impact of environmental noise with a margin for error, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding the impact of environmental noise with a margin for error.

***Comment** 019-266* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding the level of impact. Will the Grouse Ridge Project, and it's associated environmental noise be considered a "slight impact" a "serious impact" or a "significant impact."

***Comment** 019-267* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding the level of impact, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-268* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding the level of impact, the F.I.S. should state why the project is entitled to exemption from E.P.A. Guidelines regarding the level of impact.

***Comment** 020-371* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding the impact of environmental noise with a margin for error.

***Comment** 020-373* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding the level of impact of environmental noise with a margin for error, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding impact of environmental noise with a margin for error.

***Comment** 020-387* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding the level of impact, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-388* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding the level of impact, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding the level of impact.

Response Chapter 5 of the FEIS compares project-related increases in noise levels to the applicable EPA guidelines. The EPA Guidelines are only a guideline, not a regulation. At one location, the project would exceed these guidelines. Mitigation is proposed. The term "margin for error" usually refers to a 1 to 2 dBA allowance when comparing measured noise levels to a noise standard. Only Type 1 sound meters were used in the noise analysis. This type of meter has a system error of "1" dBA.

Comment *019-226* The DEIS Section on Noise Section, Volume 2, 1.3 "Agency Coordination and Involvement" states: "Staff at the Bonneville Power Administration and the National Oceanographic and Atmospheric Agency, NOAA, researched the availability of meteorological data for the North Bend area and confirmed that it is not available."

Response The revised Noise Technical Report replaces the word "meteorological" with "rainfall." The meteorological data needed for the air quality analysis was long-term precipitation data.

Comment *016-010* Noise of operations, including trucks, must not exceed legally acceptable standards at any time, and not be noticeable in residential areas at night. While traffic noise on I-90 may mask some noise of operations during the day, this will diminish at night. The noise of trucks accelerating onto I-90 is another impact that must be clearly defined and quantified over the life of the project. Mitigation measures must be clearly defined with proof that they will indeed reduce the impacts to legally acceptable standards.

Response The FEIS shows that the noise of onsite operations, under typical meteorology, would not exceed the King County noise standards for Alternatives 2, 3 or 4. Under the high wind scenario, two sites show daytime exceedances and nine show nighttime (5 a.m. to 7 a.m.) exceedances for Alternative 2. In the Alternative 2 inversion scenario, five sites show nighttime exceedances. Three sites show nighttime exceedances under the Alternative 3 high wind scenario. Traffic noise on I-90 is exempt from those standards, but is analyzed for the FEIS and compared to EPA Guidelines. The Traffic Noise Model used in the analyses does account for the noise of vehicle acceleration on highway grades and when pulling away from a stop.

Comment *099-008* 3.3.1.3 Regulation of Noise
ALTERNATIVE 2 PROPOSAL and ALTERNATIVE 3
Page 3.3-16/17

No data has been given in this section, only unsupported statements. If King County exemption for daylight hours must be cited to justify operating heavy equipment, how can it be said that permissive levels are not exceeded during evening hours?

Response Washington State and King County noise regulations specify the noise levels a project is allowed to cause at the boundaries of residential and commercial properties. These regulations do not require that a project's noise "not noticeable in residential areas at night." The noise from truck acceleration is discussed in the FEIS.

3.3.2 Existing Conditions

Comment *133-002* Study noise pollution factors. Anyone who lives in this area already knows how loud the traffic noise is from I-90. There are times you can not sit outside because of the loud traffic noises. We are not able to open windows at night to sleep because of the noise. It would have a terrible impact on noise having gravel being minded and transported down conveyor belts. The echo of noise in this mountainous region must be considered.

Response The existing noise environment in the vicinity of the project is acknowledged. The FEIS shows the project will not increase existing noise levels except along the public roads used by the gravel trucks. The topography around the Lower Site is not well-suited to reflect echoes, as there are no sheer cliffs around it. In addition, there is no

direct way to predict the effect of echoes in mountainous terrain. To some extent, the FEIS analysis of inversion conditions, which models the effect of a very low ceiling reflecting downward, does mimic the process of an echo.

Comment *019-110* The FEIS should clearly identify all receptor locations, using a map containing streets, identify the receptors using a consistent naming convention, state clearly their addresses or locations, and their distances from the nearest border of the project, in such a manner that the common layperson could identify the location, and gain an understanding of the potential impacts on each project alternative.

Response Table 5-3 in the FEIS and Table 3 in the Noise Technical Report provide the street addresses of the noise measurement sites.

Comment *019-112* The FEIS should clearly describe, as per SEPA, the noise "context" of the project area and the effect the project will have on this existing quiet rural environment. All sensitive receptors should be mapped within the area where project operations could be audible and noise levels could be expected to exceed existing ambient levels, and, in worst case conditions, could potentially exceed established Noise regulations.

Response The DEIS describes the noise context of the area (i.e., existing conditions). The noise receptors were located along the borders of the lease area and at the most sensitive residential uses.

Comment *019-227* For the record, Bonneville Power is located in Portland Oregon, and NOAA, while local to the Puget Sound area, specializes in National, and International Weather and Oceanographic trends. Therefore, it should not be surprising that neither of these organizations, given their charter and focus would not have data on file for a rural town in Western Washington.

Response Comment acknowledged.

Comment *019-184* It would appear that the 7 mph figure referred to above is an arbitrary value that seems to have no empirical data to support it. The values that constitute wind noise are dependent on at least 3 factors. The level at which noise from wind in trees becomes louder than the background noise or a source noise depends on the background noise, the sources noise, and the vegetation. If no leaves are present on trees, as in the spring, fall, or winter, the noise from wind in the trees will be significantly less. Such a statement would require significant empirical data to justify it. This appears not to have been done.

Comment *019-231* It would appear that the 7 mph figure referred to above is an arbitrary value that seems to have no empirical data to support it. The values that constitute wind noise are dependent on at least 3 factors. The level at which noise from wind in trees becomes louder than the background noise or a source noise depends on the background noise, the sources noise, and the vegetation. If no leaves are present on trees, as in the spring, fall, or winter, the noise from wind in the trees will be significantly less. Such a statement would require significant empirical data to justify it. This appears not to have been done.

Comment *019-233* For outdoor measurements standards usually recommend that data not be taken if winds are greater than 7 mph. This is specified in ANSI S1.13-1971 (R1986)

American National Standard for Measurement of Sound Pressure Levels." (page 125, Noise Control Measurement, Howard K. Pelton, Van Nostrand Reinhold, NY, 1993.)

Note that this has nothing to do with noise of the wind, but rather noise created by the presence of a microphone in a stream of wind.

Comment *019-237* This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site directly into residential communities situated within one mile from the proposed lower site approximately 249 days of the year!

Comment *019-238* The DEIS also fails to state at what height are the winds measured. Ground level (say 5 feet) wind speeds are often significantly slower than at say 30 feet. Depending on the location, a 7 mph wind speed on a hill may be indiscernible in more sheltered areas, causing no wind noise at all. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *019-241* This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site directly into residential communities situated within one mile from the proposed lower site approximately 257 days of the year!

Response The Noise chapter of the FEIS includes data on the effect of wind on background noise levels. The FEIS also includes analyses of noise impacts under a high wind scenario.

Comment *020-022* Background noise was only measured on two days of light wind & rain.

Response Comment acknowledged.

Comment *019-185* The 7 mph figure may be drawn from the point that noise as an artifact of measuring occurs. Between 7 and 15 mph, winds start to cause turbulence near a microphone and that turbulence causes noise that is not actually present but an artifact of measuring. Therefore ANSI standards recommend measurements be taken when winds are less than 7 mph.

"For outdoor measurements standards usually recommend that data not be taken if winds are greater than 7 mph. This is specified in ANSI S1.13-1971(R1986) American National Standard for Measurement of Sound Pressure Levels." (page 125, Noise Control Measurement, Howard K. Pelton, Van Nostrand Reinhold, NY, 1993.)

Note that this has nothing to do with noise of the wind, but rather noise created by the presence of a microphone in a stream of wind.

Comment *019-232* The 7 mph figure may be drawn from the point that noise as an artifact of measuring occurs. Between 7 and 15 mph, winds start to cause turbulence near a microphone and that turbulence causes noise that is not actually present but an artifact of measuring. Therefore ANSI standards recommend measurements be taken when winds are less than 7 mph.

Comment *019-256* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding Day Night Sound Levels, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding Day Night Sound Levels.

Response Washington State regulations cite 12 mph as the maximum wind speed for noise measurements. With a proper wind screen (as used in this noise analysis), the accuracy of measurement is within tolerances. The ANSI standard of 7 mph applies when no windscreen is used. With a foam windscreen noise measurements can be taken when winds are up to 10-12 mph. For this analysis noise measurements were taken with a foam windscreen on all the SLMs and wind speeds were light during the measurement period.

Comment *019-104* Overestimates the existing background Noise levels.

Comment *020-303* Overestimates the existing background Noise levels.

Comment *020-304* Overestimates the existing background Noise levels.

Response Background noise levels were measured, not estimated. The measured levels are primarily due to I-90 traffic. Traffic volumes on I-90 are steady and will not change greatly day to day, although they may have seasonal variations.

Comment *019-668* The DESI failed to, and the FEIS should clearly describe, as per SEPA, the noise "context" of the project area and the effect the project will have on this existing quiet rural environment. All sensitive receptors should be mapped within the area where project operations could be audible and noise levels could be expected to exceed existing ambient levels, and, in worst case conditions, could potentially exceed established Noise regulations.

Comment *020-312* The FEIS should clearly describe the noise "context" of the project area and the effect the project will have on this existing quiet rural environment. All sensitive receptors should be mapped within the area where project operations would be audible and noise levels would be expected to exceed existing ambient levels, and, in worst case conditions, could potentially exceed established Noise regulations.

Response The FEIS describes the “noise context” (the existing noise environment). The noise measurement locations and noise model receptors include the most sensitive noise sites.

Comment *094-001* Referring to Section 3.3 NOISE, pages 3.3-1 through 19.

Background noise was measured only on two consecutive days that evidently had similar weather conditions. This is not a statistically reliable sample if it is to be used to predict the noise impact on an operation that is proposed to be 24 hours per day, over 360 days per year. Measurements should be taken during numerous periods, at varying times of the year, and under differing weather conditions. One sample is insufficient in relation to the seriousness of the conclusions drawn from it.

Response Please see the Noise Technical Report for a discussion of analysis methodology.

Comment *019-111* Once new noise level calculations are completed and a corrected noise impact assessment is completed the analysis should describe the effect on a quiet rural neighborhood.

Comment *019-118* The FEIS should collect baseline measurements for a minimum of six days at all receiving sites.

Comment *019-119* The FEIS should provide baseline data for all receivers with sampling microphones placed in three positions, upwards, downwards, and facing the nearest project boundary to that receiving site, changed every 48 hours. This will insure that an accurate baseline is sampled, and is truly representative of the existing day / night conditions in a rural, and rural residential environment.

Comment *020-309* Based on the extreme discrepancies highlighted below in the Technical Section, the FEIS should re-sample the background noise reported from all receptors listed in Table 3.3-4 to insure that it is accurate and consistent with other reliable data sources (E.P.A.) provided.

Comment *083-001* Referring to Section 3.3 NOISE, pages 3.3-1 through 19.

Background noise was measured only on two consecutive days that evidently had similar weather conditions. This is not a statistically reliable sample if it is to be used to predict the noise impact on an operation that is proposed to he 24 hours per day, over 360 days per year. Measurements should be taken during numerous periods, at varying times of the year, and under differing weather conditions. One sample is insufficient in relation to the seriousness of the conclusions drawn from it.

Response A full 24 hours of background noise levels were measured; this is more background data than has been provided for several recent mining projects. The dominant noise source at nearly all the measurement sites was highway traffic from I-90. Traffic volumes on I-90 are likely to be quite consistent from day to day with some seasonal variation. As a result, extending the period of background measurements would not provide noise data more representative of background conditions.

Comment *019-113* The FEIS should insure that there is an adequate number of baseline monitoring measurements are taken to insure that the property rights of all potentially affected landowners will be protected.

Comment *019-114* The FEIS should require that existing baseline measurements be taken as close as possible to each and every single, isolated residential property, and or housing development surrounding the property within a 1 mile radius to insure that the assessment of project impacts is thorough, and the rights, and interests of all surrounding land owners are represented.

Response The DEIS provides a comprehensive level of baseline noise measurements.

Comment *019-195* Given that the background noise levels presented in the DEIS are roughly the equivalent to that of a Noisy Urban Residential environment, (source- E.P.A. 1974), the FEIS should provide identify, analyze, and document why the rural, rural residential, and rural recreational area of North Bend has background noise levels equal to those found in Noisy Urban Residential areas.

Response Noise measurement sites 1, 6, 7, and 8 are exposed to high noise levels from I-90. Sites 2 and 4 are close to heavily traveled local arterials. Based on the baseline noise measurements, it is not accurate to characterize this portion of North Bend as a "quiet rural area."

Comment *099-007* 3.3.2 Existing Conditions

River Point development is probably as close to the proposed lower site as Wood River, but across the Middle Fork. Its 56 homes were not included in the noise study. It experiences steady highway noise primarily from I-90 which I would subjectively say is in the range of 55-6OdB. Possibly noise here is reinforced by bounce off Mt. Si and Tenerif.

Shouldn't the River Point development be included in the study along with Wood River and others, because of terrain differences in addition to proximity?

Response The River Point area would experience noises from the project similar to what WoodRiver would experience.

3.3.3 Environmental Impacts

Comment *024B-009* Particular attention should be paid to nighttime noise impacts when redoing the analysis. Adverse weather conditions, such as temperature inversions, will occur at night. Ambient noise levels are lower at night. The potential for a substantial increase in noise to exceed the objective significance threshold of 47 dBA and for the noise to annoying and disturbing is highest at night. The combined total noise from all nighttime operations must be accounted for in the assessment. Once new noise level calculations are completed and a corrected noise impact assessment is completed the analysis should also describe the effect of construction operation and truck traffic on a quiet rural neighborhood. The EIS should clearly describe the noise "context" of the project area and the effect the project will have on this existing quiet rural environment. All sensitive receptors should be mapped within the area where project operations would be audible and noise levels would be expected to exceed existing ambient levels.

Response The Noise chapter of the FEIS describes background noise (i.e., noise context). A conservative analysis of the projects noise which includes worst-case meteorological conditions is also presented.

Comment *024A-051* It is incomplete for the DEIS to state that the only significant noise impacts from the project are from truck traffic at two freeway exists. First, the effect of this truck noise should be assessed at sensitive receptors and not a freeway exit where no one lives. Second, the number of people affected by noise between the Lower Site and the freeway as compared to the Upper Site must be provided. It does not matter if there is a significant noise increase at Exit 38 for Alternative 4 if there are not sensitive receptors in the area that would be affected by this noise. The comparison of alternatives should clearly describe the number of sensitive receptors that would be affected by all operations for each alternative so that decision makers can determine the relative level of impact for the alternatives.

Response The effect of truck noise was assessed at all sensitive receptors in the vicinity of Exits 34 and 38. There is one sensitive use near Exit 34 (the Edgewick Inn) and one sensitive area near Exit 38 (Olallie State Park campground. STAMINA modeling showed no significant impacts (5 dBA or greater) at any of the other residences in the Exit 34 area.

***Comment** 019-260* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding speech interference inside one's home.

***Comment** 019-261* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding speech interference inside ones home, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-262* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding speech interference inside ones home, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding speech interference inside ones home.

***Comment** 019-263* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding speech interference on ones property. Property is defined as the WoodRiver development, and all properties located within Wood River.

***Comment** 019-264* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding speech interference on ones property, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 019-265* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding speech interference on ones property, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding speech interference on ones property.

***Comment** 020-372* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding speech interference inside ones home, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-380* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding speech interference inside one's home.

***Comment** 020-381* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding speech interference inside ones home, the EIS should state why the project is entitled to regulations that are less than those that have been established to protect the public health and welfare.

***Comment** 020-382* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding speech interference inside ones home, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding speech interference inside ones home.

***Comment** 020-383* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding speech interference on ones property. Property is defined as the WoodRiver development and all properties located within Wood River.

***Comment** 020-384* If the Grouse Ridge Project is excluded from compliance with E.P.A. Guidelines regarding speech interference on ones property, the EIS should state why the project is

entitled to regulations that are less than those that have been established to protect the public health and welfare.

Comment *020-385* If the environmental noise impact projected for the Grouse Ridge Project exceeds the E.P.A. Guidelines regarding speech interference on ones property, the EIS should state why the project is entitled to exemption from E.P.A. Guidelines regarding speech interference on ones property.

Response EPA Guidelines are only a guideline, not a regulation. The project is not required to comply with guidelines. Speech interference inside a building is influenced by both interior and exterior noises. Exterior noise levels would have to increase by at least 3 dBA over existing levels to be heard through an open window or door. This project would increase exterior noise by more than 3 dBA at only three locations- the Edgewick Inn, the Fire Training Academy and at Olallie State Park. Mitigation is proposed for these locations.

Comment *020-305* Fails to consider actual "worst case meteorological conditions."

Response The Noise chapter of the FEIS analyzes both high wind and inversion scenarios, which are considered worst-case meteorological conditions.

Comment *043-003* The DEIS provides audible sound metrics, but no mention of subsonic or non-audible sound levels. These can have a great impact on wildlife as well as people in the surrounding communities, as low subsonic sounds have been known to cause anxiety and unexplainable feelings of fear. It's therefore important to know the levels of such sound, and the expected impact on local wildlife. Please provide frequency and amplitude estimates of non-audible sounds in the FEIS.

Response Data on the noise spectrum of project equipment are provided in an appendix to the Noise Technical Report. Subsonic sounds are detrimental to very large mammals such as elephants or whales, but are not thought to disturb smaller wildlife.

Comment *142-002* 11 dBA increase EPA says "serious impact"
7 dBA increase is significant and serious impact
14 dBA increase is serious impact

These numbers don't make sense there will be an intense increase in noise let alone the 4 trucks per minute potential on I-90. This would add considerable amount of noise especially in the fall and winter when there are less tree foliage to dampen the sound and water on the road.

Comment *142-003* The comment of "sudden noise such as dropping a bolder into a crusher will startle mammals and birds into sudden movement or flight." Well it's my understanding that boulders will drop into the crusher every second. That means in the "region" every mammal and bird will not exist. I take pride in the wildlife that lives in this region and frankly my backyard. Under the new King County Compressive Plan 2000 Section E-107, "protection of lands where development would pose hazards to the following natural landscape features. Should be protected for, designated wildlife habitat networks g. critical Aquifer recharge areas. E-166 The County should maximize wildlife diversity in the rural areas. E-168 Habitats for species which have be identified as endangered, threatened or sensitive by the state or reds shall not be reduced and should be preserved. I see Eagles, Osprey, Spotted Owls, red tail hawks, pileated woodpeckers, blue birds, elk, deer, Bull Trout in my back yard, which is 1

mile away from the proposed lower site. Isn't the issue of E-168 to E-172 in total contradictory of this whole DEIS?

Response Comments acknowledged.

Comment *069-003* The noise doesn't seem like it was well addressed and the hours of operation seem to be increasing, so noise will be impacting the evening hours and maybe even our ability to sleep.

Response Comment acknowledged. Noise impacts are discussed in Chapter 5 of the FEIS and hours of operation are described in Chapter 2.

Comment *047-001* As nearby residents to the lower proposed mining site, we have serious concerns regarding the Noise Impacts mentioned in this DEIS. We live approximately one half a mile north and east of the site. We find that the information contained in the DEIS offer us no information on how we would be impacted by the noise generated by the operation. We understand that quite generally sound travels up and we also approximately 50 higher in elevation that the current lower site. Considering that oftentimes the wind comes out of the south and west, we are concerned that this factor will also increase the likelihood that we will frequently be disturbed by the noises of the operation and the trucks that would be moving the products and aggregate to and from the location in Alternative 2 of the proposal. One possible manner in which the noise problem could be lessened is by curtailing the hours of activity to be more compatible with a neighborhood setting. Hours such as Monday through Friday from 7 am through 4:30 pm would be more appropriate than those currently proposed. Twenty four hour trucking is unacceptable. Maintenance only hours on Saturday until 12 noon is reasonable and no activity on Sunday is appropriate.

Response Comment acknowledged. King County has yet to determine these hours of operation. The gravel operation can only operate at night if it meets the King County Noise Code. There are some exceptions that involve County or State projects for essential highway repair.

Comment *019-305* The EIS should quantify, and publish, a catalogue listing sound measurements in dBA for all equipment to be used, or potentially used, at the Grouse Ridge Project.

Response The Noise Technical Report of the FEIS includes an appendix with this information.

Comment *019-202* This project, as described, will be one of, if not the largest, mining operations in the State of Washington, and requires the expertise of the finest acoustic engineers to accurately assess potential noise impacts. Simply put, it is irresponsible, and cavalier for the applicant, the County, and Dames and Moore to:

Not insist that a certified, and degreed acoustical engineer be responsible for identifying the potential impacts of a project of this size and complexity.

Propose the incredulous findings in the noise study that the proposed operation, consisting of construction, operational, onsite and offsite truck traffic simply will not be heard by surrounding receivers within both one half, and one mile radius from the project site.

Due to the critical nature of this impact area, for the public record, we are requesting

that the Lead Agency require that certified, degreed acoustic engineers redo the noise analysis. If ENVIROANALYSIS does not have a acoustical engineer on staff, then the Lead Agency should disqualify them from further participation in the Noise study.

Response Comment noted.

Comment *019-306* Specifically, the EIS should describe, and identify any, and all, sources of noise, to include, but not limited to: Cadman and Third Party trucks, on wet and dry pavement, on site property, on county arterial and connector roads, and on Interstate Freeways, crushers, backup beeping signals, horns, whistles, conveyor belts, processing equipment, refuse removal, loaders, dump trucks, and all other Grouse Ridge project related sound and noise generators with their respective dBA levels. Measurement should show respective, continuous dBA levels for one minute, 5 minutes, 15 minutes, 30 minutes, one hour, 8 hour, 10 hour, and 24 hour increments.

Response The DEIS did identify, measure and analyze the noise source cited in the comment. The length of the measurement period varied depending on the equipment being measured.

Every piece of machinery listed in Table 3.3-5 of the DEIS was included in the noise modeling. The assumptions used in the modeling are clearly described in the DEIS and FEIS. Truck travel on wet roads was not analyzed for two reasons: (1) the noise measurement procedures, specified in the Washington Administrative Code, forbid noise measurements taken when precipitation may affect the readings (WAC 173-58-040); and (2) the approved FHWA traffic noise models cannot differentiate between wet or dry pavement.

The EIS quantified the project's noise impacts, not for a specific time period, but for a "window" during which all mining machinery was operating and peak truck traffic (in the morning) was entering and leaving the site. This analysis is conservative in that it assumes that peak operating conditions will occur for extended periods of time. This is a worst-case analysis as required for SEPA. Analysis for other time periods, if realistically done, would show lower long-term noise levels.

Comment *019-234* It is not believed at the this time that the residential receivers identified in Table 3.3-3 will have microphones, nor the amplification equipment required to make said microphone noise audible, and thus possible of creating this additional masking of the projects noise source. If this was indeed the reason that a maximum wind speed of 7mph was chosen, then it can be safely removed as an artificial barrier for measuring the true potential impacts created by winds that are representative of the Exit 34 area.

Comment *019-235* Of course, if there is detailed, empirical data that substantiates the use of winds over 7 mph as a global disclaimer for rejecting the potential impacts of all project related noise from all winds above 7mph for, then the FEIS should painstakingly detail this revolutionary and exciting new finding in acoustical engineering and cite the journal(s) in which this is published.

Response The Noise chapter of the FEIS evaluates a high wind scenario.

Comment *020-025* There is a "serious impact" in offsite noise level due to truck traffic.

Response Comment acknowledged. The EIS describes the offsite noise impacts.

***Comment** 019-099*

The DEIS section on Noise misrepresents the overall levels of project generated noise, and resulting impact of Noise that will originate from the Grouse Ridge mining operation, the levels of background noise found at the receiver sites, the availability of data, and the ability of the applicant, and Dames and Moore, to locate extremely relevant data that was, and is readily available. It is critical to understand that if any one of the data points used as a baseline is incorrect, it undermines most, if not all, of the discussion, assertions, and conclusions, contained in the DEIS Section on Noise.

***Comment** 019-100*

The Electronic Noise Models that were use to discuss the potential impacts, and their relation to the project alternatives, was based on data that is inaccurate, incomplete, and misleading. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions, contained in the DEIS Section on Noise.

***Comment** 020-298*

The DEIS section on Noise misrepresents the overall levels and resulting impact of Noise that will originate from the Grouse Ridge mining operation, and the availability of data, and the ability of the applicant Dames and Moore, to locate data that was extremely relevant and readily available. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions contained in the DEIS Section on Noise.

***Comment** 020-299*

The Environmental Noise Model was based on data that is inaccurate, incomplete, and misleading. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions contained in the DEIS Section on Noise.

***Comment** 020-300*

The Environmental Noise Model was based on data that is inaccurate, incomplete, and misleading. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions contained in the DEIS Section on Noise.

Response

Project impacts are based on measurements of similar or identical machinery while in operation.

***Comment** 127-002*

We are also concerned because we have many of our customers go there and they work odd hours, a lot of them are truckers in fact, and they ask for quiet rooms. And we are concerned by the amount of noise that will be generated by the crushing facility and the trucks that will be operating 24 hours a day.

Response

The outdoor area at the east end of the Edgewick Inn experiences fairly high noise levels currently. The project would add 2 to 4 dBA to these levels, an increase barely audible to most people. Enforcing a lower speed limit and maintaining SE 146th Street would help to minimize noise emissions.

***Comment** 127-010*

Parks. I am a park ranger at Olallie State Park which is located on Exit 38. Olallie State Park runs from Exit 38 west to Exit 38 east, and if the upper gravel pit is -- only that upper gravel pit is established, not the lower one, it is my understanding that they will be taking the gravel trucks past the state park property, and our concern is noise obviously from 500 trucks going by a day.

Response

The FEIS shows a “significant” noise impact at Olallie State Park under Alternatives 3 and 4.

***Comment** 127-029*

Once again, I believe I am the longest continuously personally present occupant of the immediately adjacent property. Do the math 1965 to 1992. And I think that that

information, that personal testimony, that personal experience, dialogue or monologue is an important part of this process that would enable the county to establish some concrete guidelines to enforce compliance with the sound issues. And for those of you who haven't lived next to a gravel pit, the most significant experience from the gravel pit is the sound.

Response Comment acknowledged.

Comment *019-130* The DEIS states that gravel crushing and processing, the concrete plant, the asphalt plant, all construction activities, and all truck traffic combined will not affect either the day, or night, noise levels in the area. This analysis is simply inaccurate and must be redone.

There is only way that this kind of finding could have been achieved. The study would need to overstate that the levels of existing background noise, understate the levels for all project related noise sources, and by not factor in realistic, and industry accepted, "worst case" meteorological data. In plain English, this could potentially be a valid finding if the mine were located in a downtown, industrial area, with neighboring, loud, outside noise sources, next to a heavily trafficked Interstate, and the number of pieces of equipment on site so few, that the site would only be able to ship approximately 1/8th of the product this mine expects to ship.

Response The noise analysis presented in the EIS is based on accurate measurements of background and equipment noise.

Comment *019-107* The effect of this "four play of obfuscation"' is to deliver a set of results that would ask the reader to believe that this would be the first mining operation in history that would not be heard by receivers directly adjacent to the mine, both from construction, and operational project generated noise. Beyond being simply counter intuitive, the results are not consistent with any measurement of existing mining operations on record. However, should the applicant have identified, through some sort of technological advancement, a means to create a mining site that would not be heard, as per the data provided, then the FEIS should clearly state, and outline how the applicant will achieve this "first of its kind" result.

Comment *020-315* All of the assumptions in the FEIS Noise analysis must be clearly, and thoroughly presented to substantiate the findings portrayed in the Noise section. Findings that have identified this mine, via the data presented, as the first mining operation in the history of mankind that would not be heard by surrounding residents within a one-mile radius of the upper and lower sites.

Response The FEIS does not state that the mine would be inaudible. The FEIS shows that the noise of onsite operations, under typical meteorology, would not exceed the King County noise standards for Alternatives 2, 3 or 4. Under the high wind scenario, two sites show daytime exceedances and nine show nighttime (5 a.m. to 7 a.m.) exceedances for Alternative 2. In the Alternative 2 inversion scenario, five sites show nighttime exceedances. Three sites show nighttime exceedances under the Alternative 3 high wind scenario. Certain frequencies at certain times of the day may well be audible.

Comment *019-129* The FEIS should address how the general public, with limited background, is supposed to be able to understand what the true potential adverse impacts of the project are, as per SEPA, when the data is unintelligible to professionals?

Response The format and content of the FEIS has been revised to more clearly present the findings of the environmental impact analysis.

Comment *019-105* Underestimates the Projected Project Noise.

Comment *019-106* Fails to consider actual "worst case meteorological conditions."

Response The FEIS provides a conservative estimate of noise levels based on potential worst-case meteorological conditions. Of all equipment to be used on site, the DEIS omits only the conveyor belt. The FEIS analysis includes the conveyor belt and a high wind scenario.

Comment *019-190* The FEIS should compare the impacts for the alternatives, as required by SEPA. The DFEIS notes that Alternative 4 would have a significant unavoidable impact at Exit 38 due to truck traffic. What does this mean? Are there residential homes near this exit? How close are they? What will be the effect at those residences of this "significant unavoidable impact"? If there are no sensitive receptors, such as residential property owners, which is unlikely, this is a substantially different impact that an increase in noise near Exit 34 residences. Accordingly, the FEIS analysis of traffic impacts must be expanded to show what the effects of truck traffic are at the sensitive receptors and not just at the exits (as this has little meaning). Additionally, the effects of truck traffic need to be combined with other project generated noise to determine the overall effect at all sensitive receptors.

Response The FEIS could qualitatively compare the number of potential users of Olallie State Park to be aversely affected by truck noise (due to Alternative 4) to the number of patrons of the Edgewick Inn (due to Alternative 2 or 3). However, it is not clear what would be gained by this exercise. The FEIS clearly compares the alternatives as required by SEPA. The impacts at Exit 38 are to users of Olallie State Park. There are no impacted residents in this area.

Comment *099-013* Why are not acoustic backup alarms simply forbidden in this environment and traffic routed accordingly? Ongoing unpleasant noise intended to attract attention would be very unhealthy for the residents of the community.

Response Backup beepers cannot be forbidden because they are a federal safety requirement and are thus exempt from the King County Noise Code. They are used to safeguard workers in industries using heavy equipment. The plant construction layout is designed to minimize the need for trucks to back up. However, front-end loaders frequently reverse direction.

Comment *101-002* The DEIS should have included research on the comparative effects of a soft whisper during the day versus one that lasts into the night, Given that the noise from the gravel mining can persist through the night, night after night, for 25 years, is of immense significance to the people and wildlife surrounding this project. That the DEIS contains no information about this effect would seem to be a highly significant lapse.

Response The increased sensitivity of people to nighttime noises is acknowledged in the King County's Noise Ordinance's reduction of allowed project noises by 10 dBA. Very low noise levels, "soft whispers" would be inaudible over a low background noise level and have no effect on people or wildlife. The gravel operation can only operate at night if

it meets the King County Noise Code. There are some exceptions that involve County or State projects for essential highway repair.

Comment *019-309*

The EIS should study, measure, project, and quantify the effects of noise, and it's resulting vibration. Measurements should be conducted at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *019-331*

The E.I.S. should study, measure, project, and quantify the effects of noise, and vibration on the new school sites. Specifically, the F.I.S. should identify LDN, SEL, and Vibration levels. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-428*

The EIS should study, measure, and quantify the effects of noise and it's resulting vibration. Measurements should be conducted at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-451*

The EIS should study, measure, and quantify the effects of noise and vibration on the new school sites. Specifically, the EIS should identify LDN, SEL, and Vibration levels. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *022C-004*

The vibration levels associated with the movement of haul trucks near a structure where patrons are sleeping have not been evaluated. This could potentially result in vibration induced building responses such as rattling of windows or tactile perception of the energy in the guest beds or in the vibrational energy being reradiated in the guest rooms as low frequency airborne sound. A methodology such as that outlined in Chapter 11 of the Federal Transit Administration "Transit Noise and Vibration Impact Assessment" Handbook is suggested. An analysis, of this type should be included in the DEIS to provide the public, expert agencies and our client an opportunity to review and comment on the adequacy of that analysis.

Comment *024A-084*

Please provide a discussion of the impacts of vibration that might be associated with the project particularly from the asphalt plant as required by Policy RLL-411.

Response

The potential for vibration impacts from the project's truck traffic was examined using procedures developed by the Federal Transit Administration. This analysis indicated that no vibration impacts are expected as a result of the project. If the process had indicated that further analysis was necessary, then a general vibration assessment would be required. Although this analysis did not indicate a vibration problem, a general screening was performed using the information shown in the following table.

Screening Data	Edgewick Inn	Fire Training Academy
Land Use Category	Type 2	Type 3
Allowable Ground-borne Impact Level	72 VdB	75 VdB
Distance at which impact may occur with rubber-tired vehicles	18 feet	10 feet
Are there frequent Events?	Yes	Yes
Screening Distance (based on land use)	50 feet	100 feet
Are there Properties within Screening Distance?	Yes	No
Vehicle Speed adjacent to Properties	25 mph	20 mph
Actual distance from center of closest lane to building wall	44 feet	Over 100 feet (to classrooms)
Net Ground borne vibration level	64 dB	NA
Exceedance of Allowable Impact Level	NO	NO

This screening analysis also indicates that no vibration impacts are expected as a result of the project.

Comment *019-304*

Given the extreme potential for the environmental impact of noise from the Grouse Ridge project to create a "substantial" or "serious" impact, the EIS should compare, and contrast the impact of the Grouse Ridge Project with that of the Expansion of Sea-Tac International Airport. Data is readily available on this environmental impact, as are proposed mitigation and remedies.

Comment *020-423*

Given the extreme potential for the environmental impacts of noise from the Grouse Ridge project to create "substantial" or "serious" impact, the DEIS should compare, and contrast the impact of the Grouse Ridge Project with that of the Expansion of Sea-Tac International Airport. Data is readily available on this environmental impact, as are proposed mitigation and remedies.

Response

Comparing this project to Sea-Tac Airport would not provide a better understanding of this project. The noise impacts of an airport are much greater and the mitigation needed for these impacts is very different from those of a sand and gravel mine.

Comment *024A-049*

We believe that when the noise analysis is revised per the comments and recommendations included in this letter that it will show that the proposed project will exceed County noise standards and will have a significant impact on a number of residential areas near the Lower Site. It is very important that this level of impact be carefully compared to the noise generated by Alternative 4.

Response

The FEIS shows that the noise of onsite operations, under typical meteorology, would not exceed the King County noise standards for Alternatives 2, 3 or 4. Under the high wind scenario, two sites show daytime exceedances and nine show nighttime (5 a.m. to 7 a.m.) exceedances for Alternative 2. In the Alternative 2 inversion scenario, five sites show nighttime exceedances. Three sites show nighttime exceedances under the Alternative 3 high wind scenario. EPA noise guidelines would be exceeded due to truck traffic on public roads and mitigation is proposed.

Comment *024B-010*

The discussion of project alternatives should clearly describe the differences in noise levels for each alternative rather than simply state that onsite noise would not exceed the County noise code (again, this is a questionable conclusion). The DEIS should clearly compare the potential noise impacts of not developing the lower site on the noise environment in that area.

Response The FEIS provides clear data on the differences in noise levels for each alternative.

Comment *020-359* Measurement and Maximum Levels Gravel Trucks. The noise levels presented for gravel trucks are substantially below noise levels commonly used for gravel trucks and "vehicle noise emission levels" published by the Federal Highway Administration. Truck noise is primarily a function of engine RPM, not vehicle speed. Trucks actually generate an A-weighted noise level of between 80 and 85 dBA measured at a distance of 50 feet. The A-weighted noise levels set forth in Table 3.3-6 are undefined in the time domain and, therefore, are assumed to represent maximum A-weighted noise levels. This poor definition of noise metrics occurs throughout the noise assessment.

Response The FEIS clarifies the metrics used in the Noise chapter.

Comment *020-469* Less dramatic in some respects than loss of hearing, heart disease, and agitation are the studies that compare levels of noise to the action people will take to avoid it. These studies are based on continuous, cumulative noise, which correlates quite well to the environmental noise impact that can be expected from the Grouse Ridge project.

E.P.A. Study of Cumulative Noise, and the Actions Taken by Individuals or Groups. Two metrics of the cumulative effects of environmental noise on people are:

- Specific actions taken by individuals or groups (such as complaints)

Several factors beyond the magnitude of exposure have been found to community reaction. These factors include:

- Duration of intruding noises and frequency of occurrence
- Time of year (windows open or closed)

WRAGRA response to DEIS for North Bend Gravel Operation 8/13/00 76Time of day of noise exposure.

- Outdoor noise level in a community where intruding noises are not present
- History of prior exposure to the noise source
- Attitude towards noise source
- Presence of pure tones or impulses

The EPA has documented (via this study) the degrees of public action that occurs as a result of cumulative environmental noise. (Protective Noise Levels - EPA). The results are as follows:

- 70dB. Widespread Complaints, Individual threats of legal action.
- 80dB. Widespread threats of legal action, Appeals to local officials to stop noise.
- 90dB. Vigorous Action

Response Comment acknowledged.

Comment *002-001E* The operations impacts of a second conveyor on the Upper Site

Comment *002-008* Second Conveyor on Upper Site: In the preferred Alternative No. 2, a conveyor is planned to transport material across the Upper Site to a conveyor transfer point, where the material would drop onto the downhill conveyor to the Lower Site. The use of the Upper Site conveyor is not mentioned in the summary discussions in Chapter I, or the Chapter 2 proposal description, except for one reference to a conveyor transfer point in Phase 6 Upper Site activities. This second conveyor is shown on Figs. 2-11 through 2-13 (Phases 9, 10, & 11), but only as an unnamed extension of the line depicting a

conveyor. Table 3.3-5 also lists only one conveyor as a noise source. The conveyor transfer point is a noise (see Table 3.3-6) and dust (see Table 3.2-1) emitting source. Both the Upper Site conveyor and conveyor transfer point impacts should be stated more explicitly in the project description and summary discussions.

Response The Upper Site conveyor is an extension of the original conveyor. It is included in the FEIS project description. A description and analysis of the noise generated from the Upper Site conveyor has been added to the FEIS.

Comment *020-386* The EIS should specify and identify how the environmental noise impact from the Grouse Ridge Project will compare to E.P.A. Guidelines regarding the level of impact. Will the Grouse Ridge Project, and it's associated environmental noise be considered a "slight impact" a "serious impact" or a "significant impact."

Response The FEIS states that the proposed project would exceed the King County noise ordinance under worst-case meteorological conditions. Much of the project would be subject to the ordinance, except for safety equipment such as beepers, daytime construction work and trucks on public loads are exempt. This project would not construct public roads and thus is not subject to WSDOT or FHWA noise regulations. The FEIS discusses the project's impacts compared to EPA guidelines.

Comment *012-148* [DEIS §3.3.2; p. 3.3-4] Table 3.3.4 shows that all noise monitoring locations recorded periods when maximum measured noise levels exceed permissible King County noise standards listed in Table 3.3.2. The time of day and duration of these levels may make the noise unacceptable.

Comment *127-056* The other thing is that the county -- well, it is true. It does. You know, you are sitting here looking at this from a scientific perspective, but I am looking at it from my heart and my life and the life of my kid. Okay, that is a pretty big perspective to look at things. You can't document that. You can't tell me I am not going to hear things, when God knows, I am going to hear it, because I hear it now.

Response Comments acknowledged.

Comment *127-031* However, the consultants were able to estimate noise impacts during the construction phase when huge D9 CAT's task will be beating noise directly toward the Lu residence. They predict these machines will cause noise much in excess of ambient noise. So if DEIS is wrong on construction noise, how can we rely on their claim about 25 years of quiet operations, when the D9 tasks will be joined by even more intrusive, as Bruce explained, rock crushers and other noisy devices, not to mention the noise from huge gravel trucks.

Response Construction noise levels were modeled to be less than daytime background noise levels. When mining operations start, additional equipment will move into the Lower Site. By Phase 5, the bulldozer, crusher and screening plant will move to the Upper Site.

Comment *019-219* Volume 1 of the DEIS Section on Energy, Fuel, page 3.6-8 states that "Alternative 3's energy use would include onsite transportation to the lower sites batch plants and offsite traffic to transport aggregate and products to other facilities. Alternative 3 would increase the volume of traffic along the existing road linking the sites, as

aggregate must be hauled approximately 8 miles from the upper site to the asphalt and concrete batch plants at the lower site. Based on estimates prepared by Heffron Transportation (1999), 118 trucks per day would travel between the sites to provide aggregate to the batch plants. "

Response The DEIS accounts for all truck trips onsite and all those truck trips which pass close to sensitive uses. Truck travel on I-90 between Exits 38 and 34 was not modeled due to the small number of project trucks compared to the total freeway volumes. A doubling of truck trips would cause only a 3dBA increase in freeway noise levels.

Comment *127-086* Point No. Six, what is the noise generated by this improvement? There are no elevations given for project improvements.

Response The noise analysis in the DEIS is based on the information available regarding location of the facilities, most of which are shown on the site plan. The FEIS also addresses noise from the conveyor. Elevations of site features are included in Chapter 2 of the FEIS.

Comment *098-002* Existing quietness giving way to a loud gravel operation (yes we will be able to hear it).

Response Comment acknowledged. The FEIS describes the increase in noise attributable to the proposal and alternatives.

Comment *099-001* It does not appear that the real increase in background noise, as traffic on I-90 as well as local traffic increases over the next 25 years, has been considered in the DEIS.

Response Comment acknowledged. Increases in background traffic noise are more fully discussed in the FEIS, however background noise levels have no bearing on whether this project meets King County Noise standards.

Comment *019-148* The FEIS should fully assess the noise impacts from back-up beepers on nearby residences. It is noted that the DEIS is recommending that they not be used at the lower site, however, should this not be allowed, they need to be measured and considered as a potential noise source that will definitely be audible and disturb the noise environment in the area.

Comment *019-149* The FEIS needs to identify and assess the frequency of any back-up beepers that might be used at either the upper, or lower site. These beepers can be heard for long distances, and while the noise from such beepers may not substantially affect day-night noise levels, they have a demonstrated, and documented effect on the noise environment of the surrounding area in which they are used.

Comment *020-336* The FEIS should fully assess the noise impacts from back-up beepers on nearby residences. It is noted that the DEIS is recommending that they not be used at the Lower site, however, should this not be allowed, they need to be measured and considered as a potential noise source that will definitely be audible and impact the noise environment of the area.

Comment *020-337* The FEIS needs to identify and assess the frequency of any back-up beepers that might be used at either the Upper or Lower sites. These beepers can be heard for long

distances and while the noise from such beepers may not substantially affect day-night noise levels, they have a demonstrated and documented effect on the noise environment of the surrounding area in which they are used.

Response Backup beepers are exempt from the King County Noise Code. Cadman has committed to the use of ambient sensitive beepers which adjust to emit a minimum warning noise consistent with safety. The noise of beepers was measured and is included in the noise levels shown for bulldozers and front-end loaders in the Noise chapter of the FEIS.

Comment *019-667* The FEIS should explain, in detail, why the DEIS states that the mine, with all of it's construction, operations, and onsite truck traffic, will not be heard by the residents of WoodRiver.

Response Please see the Noise chapter in the FEIS for a discussion of impacts.

Comment *019-116* The FEIS should provide a complete list of inputs used for the modeling of predicted noise levels, whether utilizing the environmental noise model (ENM) or other methods.

Comment *019-117* All of the assumptions in the FEIS Noise analysis must be clearly, and thoroughly presented to substantiate the incredible findings portrayed in the Noise section. Findings that have identified this mine, via the data presented, will be the first mining operation in history surrounded by rural, and rural residential areas that would not be heard by surrounding residents within a one-mile radius of the upper and lower sites.

Response The FEIS includes a technical appendix (Noise Technical Report) listing the inputs used in the noise model.

Comment *019-135* When measuring Project Generated Noise sources, the FEIS should correctly measure each of the noise sources provided, using Point Measurements for single, stationary, items only. Additionally, the FEIS should utilize Area Measurements for processing plants and other items that would be measured via an Area Measurement as per Industry Standards, or Line Measurements as per industry standards, to measure items such as trucks traveling on all onsite roads, or conveyor belts that span a distance.

Comment *019-136* The FEIS should list the minimum and maximum noise levels for each, and every source of potential project generated noise. Further, the FEIS should not rely on the public, or other agencies to point out omissions that were known to the applicant, and their consulting firm, and are common the type of project being proposed.

Comment *019-669* The DEIS failed to, and the FEIS should identify, analyze, and discuss the potential adverse impacts of this documented onsite truck traffic, identifying the true noise levels of the 118 "onsite" trucks, be measured using a Line Measurement, and account for the variances in noise levels to receivers based on the trucks altitude on the road. It can safely be assumed that the noise generated by these trucks, once they travel more than 100ft. in elevation up the roads steep grade, will not be able to take advantage of the "claimed" attenuation of berms and vegetation. Additionally, the FEIS should clearly identify the effects of easterly winds carrying this same project generated noise, down the hill, and into WoodRiver.

Comment *019-670* The DEIS failed to, and the FEIS should clearly identify the minimum, and maximum Noise levels for all sources of potential sources of project related noise. These should

include, but are not limited to: banging gates, equipment being loaded, the loading of crushers, trucks, or other equipment, and the maximum noise levels of rocks, boulders, and stones, being dropped onto metal surfaces and compare them to day and night noise regulations, and day and night baseline data.

Comment *020-324* The FEIS should clearly identify the minimum and maximum Noise levels for all sources of potential sources of project related noise. These should include, but are not limited to: banging gates, equipment being loaded, the loading of crushers, trucks or other equipment, and the maximum noise levels of rocks, boulders, and stones being dropped onto metal surfaces.

Response The DEIS used point source parameters for stationary machinery (crushers, screens, batch plants), and line source parameters for moving machinery (trucks, front-end loaders and bulldozers). The FEIS analyzes the effects of truck traffic, accounting for roadway grade and terrain. The effect of strong easterly winds is clearly identified. There are no area sources in this project. Minimum and maximum noise levels were not measured for most of the noise sources for this project because more accurate 1/3 octave band measurements were taken. No minimum or maximum levels are calculated by the meter when it is used as an octave band analyzer. The noise modeling used these measurements to forecast the project's impacts as compared to applicable noise regulations.

Comment *020-429* WA Residents Say Mine Noise and Traffic Incompatible with Quality of Life
PUBLICATION: The Spokesman-Review (Spokane, WA)
DATE: January 22, 1998
SECTION: North Side Voice, Pg. N8 BYLINE: Kathy Mulady

Dr. Elizabeth DeNiro, who lives a half-mile from the mine, noted that constant noise, especially the type created by a rock crushers, causes devastating stress. She described a family picnic during one of the past mining operations and not being able to hear standard dinner conversation. "I live there, I know it's loud," she said.

Response Comment acknowledged.

Comment *019-103* Failed to use data that the consultant had in hand, but claimed was unavailable.

Comment *019-157* This meteorological data, that Mr. Bloom claimed wasn't available, yet used in the Air Quality Section of the DEIS, would have had a significant effect on his Noise findings, had he used them. Assuming that Enviroanalysis, and Dames and Moore truly did not have the meteorological data at the time the noise study was conducted, they would have known that the data contained in the meteorological data, once they did obtain it, would have significantly changed, if not invalidated, the findings of the Noise Study. Therefore, in either situation, there is no excuse for what would appear to be blatant misrepresentation of the studies findings, and disregard for the SEPA process, SEPA Regulations, and the Publics Health and Welfare.

Comment *019-158* For the public record, we are formally requesting that the Lead Agency, and The State of Washington Department of Ecology, as the watchdogs of the SEPA Process, and Regulations, conduct a thorough investigation into this matter. Should the concerns illustrated above prove to be as perceived, we ask that the County, as Lead Agency, and The Department of Ecology, to immediately disqualify Dames and Moore from any further work on this projects DEIS. Given that Dames and Moore is directly responsible for any work done on their behalf, and would have also had to have

reviewed the DEIS in it's entirety, they are directly accountable, and responsible for the work done by their sub consultants.

***Comment** 019-174*

The FEIS should state for the record why the consultants failed to utilize highly relevant weather data for the North Bend Area that was brought to their attention. Volume 2, Noise Impacts - Technical Report, Section 6.0, References, the DEIS specifically cites "personal conversation with Eric Molstad, North Bend Meteorologist."

***Comment** 019-175*

For the record, Mr. Molstad personally operates a weather station in North Bend, which is published via the World Wide Web at http://www.nwlink.com/~kirkdm/NorthBend.htm. Weather statistics for the period 1996 - 2000 are published by the minute, hour, day, and month. Historical data is available at no charge. There is no reason to believe that Mr. Molstad did not bring this to the Consultants attention in the referenced conversation, and in fact, his data was used by the same consultant in the DEIS Section on Air Quality.

***Comment** 019-181*

Meteorological data is highly relevant to all sections of the DEIS, and the public expects that the consulting firm, Dames and Moore, manage, and coordinate their project members, and subcontractors, in such a manner that they insure that they adhere to SEPA Regulations, and share best practices and available baseline data for the area surrounding the project. This level of ineptness within the Noise Section, and throughout the DEIS reflects a quality for the collective work that smacks of capriciousness on the part of Dames and Moore.

***Comment** 019-182*

The FEIS should State for the record, given it's extreme relevance to the results, why the Consultant did not utilize the data available from the four weather stations within a 5-mile radius of the lower site. For the record, the sites are located at:

a. Central North Bend
b. Western River Bend Neighborhood
c. Cedar Lake
d. North Bend Ranger Station

This is especially relevant given that he references two of these same sites in the Air Quality section of the DEIS.

***Comment** 019-673*

The FEIS should state for the record why the consultants failed to utilize highly relevant weather data for the North Bend Area that was brought to their attention. Volume 2, Noise Impacts - Technical Report, Section 6.0, References, the DEIS specifically cites "personal conversation with Eric Molstad, North Bend Meteorologist" in the DEIS.

***Comment** 020-302*

Failed to use data that the consultant had, but claimed was unavailable.

Response

The ENM model is a short-term predictive noise model yielding noise results applicable to any given hour rather than a daily or monthly average noise level. Hourly (or shorter) time frames represent maximum project noise levels and are easily compared to King County Noise Codes. As a result ENM does not use, nor would it be enhanced by, long-term meteorological data such as might be obtained from local North Bend sources. However, local data was used in analyzing the noise impacts of the project during high wind conditions.

***Comment** 019-163* The FEIS should, in the worst case scenario modeling referenced above, include winds from the east, or east-southeast, and at wind velocities of greater than 20 mph, greater than 30 mph, and greater than 40 mph" in the "worst case scenario."

***Comment** 019-167* The FEIS should measure, and identify the potential impacts, accounting for the well-established fact that Wind can amplify a source up to 20 db to a given receiver.

***Comment** 019-168* This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site, directly into residential communities situated within a one mile radius from the proposed lower site approximately 249 days of the year.

***Comment** 019-170* The FEIS should measure, and identify the potential impacts, accounting for the well-established fact that Inversions, when present, can cause a 20 dB, or higher amplification, to a given receiver.

***Comment** 019-171* The FEIS should measure, and identify the potential adverse impacts, accounting for the well-established fact that Inversions can amplify a source up to 20 db to a given receiver. This should include the majority of the receiving sites listed in Table 3.3-3.

***Comment** 020-343* The FEIS should examine the effects of high winds and their relation to the proposed attenuating effects of "berms" or other proposed sound masking attenuators.

Wind and inversion are well known to negate the effect of barriers at distances greater than 300 feet, so in a worst-case scenario, attenuation due to barriers, berms, hillsides, etc. should not be used, particularly at large distances (greater than 800 feet). This would include the majority of the receiving sites listed in Table 3.3-3.

The FEIS should re-evaluate the potential impacts from project related noise for all receivers that are more than 300 feet from the projects defined boundaries and specifically exclude any and all attenuation attributed to barriers, berms, hillsides, etc. This would include the majority of the receiving sites listed in Table 3.3-3.

***Comment** 020-344* The FEIS should measure, and identify the potential impacts, accounting for the well-established fact that Wind can amplify a source by up to 20db to a given receiver.

This is highly significant given that strong winds from the east would carry project related noise sources generated by the Lower site approximately 249 days of the year, directly into residential communities situated within a one mile radius from the project.

Response The FEIS Noise Chapter and Noise Technical Report include an analysis of high wind events and an inversion scenario. The FEIS shows that the noise of onsite operations, under typical meteorology, would not exceed the King County noise standards for Alternatives 2, 3 or 4. Under the high wind scenario (20 mph winds from the east-southeast), two sites show daytime exceedances and nine show nighttime (5 a.m. to 7 a.m.) exceedances for Alternative 2. In the Alternative 2 inversion scenario, five sites show nighttime exceedances. Three sites show nighttime exceedances under the Alternative 3 high wind scenario.

***Comment** 019-169* The FEIS should, in the worst-case scenario referenced above, measure the effects of wind at a minimum of 5 heights, to include ground level, and winds at common winter cloud levels, with equal distances in between. Ground level (5 feet) wind speeds are often significantly slower than those at 30 feet. Depending on the location, a 7 mph wind speed on a hill may be indiscernible in more sheltered areas, causing no wind noise at all, while still acting as a source to "bend" project noise into a receiver.

Response The noise study did not measure winds at any height. The noise analysis conservatively uses worst-case assumptions about winds to present results biased toward the high side and protective of the local environment.

Comment *019-173* The FEIS should clearly identify any, and all, attenuating sources, or algorithms used for attenuation used in the ENM modeling, or other modeling schemes used, that impacted the projected impact of project related noise on identified receptors.

Comment *020-349* The FEIS should clearly identify any, and all, attenuating sources or algorithms used for attenuation used in the ENM modeling, or other modeling schemes used, that impacted the projected impact of project related noise on identified receptors.

Response No special attenuating sources were used in the ENM model. The primary model inputs were the actual topography, digitized from USGS maps, the actual ground cover types (forest and bare ground), and the noise signatures measured from equipment in use at other mines and batch plants in the region.

Comment *019-183* The FEIS should cite additional references for the claim that winds over 7mph would mask project noise levels to adjacent receivers. This is contrary to the bulk of the study done on this topic, and the FEIS should clearly study the accuracy of this statement.

Response High winds will both increase the project's noise levels reaching sensitive areas and increase the overall background noise levels. Winds greater than 7 mph cause substantial wind noise to be measured by the microphones of sound level meters with no wind screening devices, causing errors in a measurement of project generated noise levels. This type of error would occur whether or not the project was operating. With a foam wind screen accurate measurements can be taken with winds of up to 10-12 mph. The ENM model was run with 55 mph winds blowing from the south towards the nearest residences. The project's onsite noise levels were about 20 dBA higher than with 2 mph winds, but were still less than the King County Noise Code's maximum permissible levels. A project is said to meet the King County Noise Code when its noise levels are below the County's noise standards, not because project noise levels are less than background levels.

Comment *019-188* The FEIS discussion of project alternatives should clearly describe the reduction in noise effects from each alternative, rather than simply state that onsite noise would not exceed the County Noise Code. That conclusion in itself is questionable given the extreme discrepancies in the data presented.

Comment *019-189* The FEIS should clearly compare the potential noise impacts of not developing the lower site on the noise environment in that area. It is obvious that Alternative 4 is vastly superior to the proposed project in regards to potential adverse noise impacts to the local community, yet the DEIS does not discuss this alternative in any detail.

Comment *019-191* The FEIS should include a detailed discussion of project alternatives that clearly describe the reduction in noise effects from each alternative.

Comment *019-192* The FEIS should clearly compare the potential noise impacts of not developing the lower site to the noise environment in that area. It is clear that Alternative 4 is vastly superior to the proposed project in regards to noise impacts to the local residents.

***Comment** 019-193*

The DEIS does not compare the impacts for the two alternatives, as required by SEPA. The DEIS notes that Alternative 4 would have a significant unavoidable impact at Exit 38 due to truck traffic. The FEIS should state clearly what the significant unavoidable impacts are, what the effect will be to those receivers.

***Comment** 019-674*

The FEIS discussion of project alternatives should clearly describe the reduction in noise effects from each alternative, rather than simply state that on-site noise would not exceed the County Noise Code. That conclusion in itself is questionable given the extreme discrepancies in the data presented.

***Comment** 020-319*

The FEIS should include a detailed discussion of project alternatives that clearly describe the reduction in noise effects from each alternative.

***Comment** 020-321*

The DEIS does not compare the impacts for the two alternatives, as required by SEPA. The DEIS notes that Alternative 4 would have a significant unavoidable impact at Exit 38 due to truck traffic. The FEIS should state clearly what the significant unavoidable impacts are, what the effect will be to those receivers as compared to its impact at Exit 34.

Response

The FEIS compares the impacts of all the alternatives as required by SEPA. The alternatives are compared on the basis of their increase to future background noise levels. Please see the FEIS Noise chapter for a discussion of these impacts.

***Comment** 019-101*

The DEIS Section on Noise contains an unacceptable number of errors, omissions, and direct contradictions. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions, contained in the DEIS Section on noise.

***Comment** 019-108*

With that said, given the extreme inconsistency, inaccuracy, and misrepresentation of the projects true potential adverse impacts, as illustrated by the data provided, the DEIS Section on Noise needs to be completely redone by a certified, and degreed, Acoustical Engineer. Given the size of the proposed project, its potential impacts on a rural, rural residential, and rural recreational environment, and the degree, and the apparent magnitude of errors contained in the baseline data, it is not acceptable to simply amend or modify the existing study.

***Comment** 019-166*

The FEIS should re-evaluate the potential impacts from project related noise for all receivers that are more than 300 feet from the projects defined boundaries and specifically exclude any and all attenuation attributed to barriers, berms, hillsides, etc. This would include the majority of the receiving sites listed in Table 3.3-3.

***Comment** 019-213*

Similarly, the DEIS states that gravel crushing and processing, the concrete plant, the asphalt plant, and all the truck traffic will not affect either the day or night noise levels in the area. This analysis is inaccurate and must be redone.

***Comment** 019-242*

Wind and inversion are well known to negate the effect of barriers at distances greater than 300 feet, so in a worst-case scenario, attenuation due to barriers, berms, hillsides, etc. should not be used, particularly at large distances (greater than 800 feet). This would include the majority of the receiving sites listed in Table 3.3-3.

"For distance [from source to receiver] greater than about 300 m (800 ft), on the other hand, the influence of weather conditions results in very low values of insertion loss. At intermediate distances (100 m < r <300 m) the reduction increases gradually with increasing distance." Page 3.20, Handbook of Acoustical Measurements and Noise Control, Cyril M. Harris, Acoustical Society of America, 1998)

Based on the above, the data contained in Tables 3.3-7, 3.3-8, 3.3-9,3.3-10,3.3-11, 3.3-12, 3.3-14, "Typical and Worst Case Meteorological Conditions," which contained the data of the results used in the ENM models provided in the DEIS Section on Noise is inaccurate, incomplete, and misleading. It is critical to understand that errors within this baseline completely undermine any, and all, conclusions regarding the potential impacts of noise, and their relation to the project alternatives.

Comment *019-243* We have systematically illustrated how each of the five baselines used in the Noise section contained errors, omissions, inaccuracies, are not consistent with other accepted data sources or methodologies used in acoustical engineering, were not consistent with available manufacturers data, and how data that was readily available to the Consultants was not utilized, with the knowledge that doing so could, and would, have significant effects on the results provided.

Comment *020-301* The DEIS Section on Noise fails to substantiate its findings, assertions, and conclusions, empirically, relying instead on inadequate or bad data, conjecture, and improperly formed assumptions. It is critical to understand that this undermines most, if not all, of the discussion, assertions, and conclusions contained in the DEIS Section on Noise.

Comment *020-307* With that said, given the extreme inconsistency, inaccuracy, and misrepresentation of the projects true potential adverse impacts, as illustrated by the data provided, the DEIS Section on Noise does not adequately discuss the probable significant adverse environmental impacts of the proposal and as such should be completely redone by a certified Acoustical Engineer. Given the size of the proposed project, its potential impacts on a rural environment, and rural residential developments it is not acceptable to simply amend or modify the existing study.

Comment *024A-043* In our initial review of the noise section, we found the conclusions to be insupportable. Essentially the noise analysis finds that the project will not increase daytime or nighttime noise levels above the existing (or ambient) noise levels in the area (see Tables 3.3-7 to 3.3-10). Having prepared EIRs on similar mining projects, we felt that incorrect modeling must have been done to reach these conclusions. Because the impacts of noise on the local community will be such a long-term and critical impact, we decided to engage our acoustic subconsultants, Illingworth & Rodkin, Inc., to review the noise analysis included in the DEIS and the Appendix to the DEIS. They have provided the attached brief comment letter; we did not request a detailed analysis since LCA is funding this review itself.

Comment *024A-054* In conclusion, this critical part of the DEIS is inadequate in its analysis and the scope of study. It needs to be thoroughly revised by consultants who are experts in acoustic analysis.

Comment *024A-056* We believe that the applicant will not accept this mitigation as we doubt the applicant believes the conclusions of the DEIS noise analysis. In that case, the applicant should request that the noise analysis be redone to accurately describe future project-generated noise levels.

Comment *024A-057* The County should not accept this flawed noise analysis. If it does, then it should provide ample protection for residents in the area to ensure that the future noise is no louder or more impacting than predicted by the DEIS.

Comment *127-032* The environmental consulting firm says that the noise analysis is incomplete and inaccurate. That is further documented separately. I won't provide that tonight. I will provide it separately. The county should require a full peer review of this analysis. It

needs to be redone by a qualified acoustical engineer. This additional information is critical for the county to make an informed decision.

Response Comment acknowledged. The noise analysis was completed using techniques commonly applied to this type of project. The Noise chapter of the FEIS has been revised to eliminate inconsistencies and to more clearly present the results. Findings and conclusions presented in the DEIS and FEIS are based on accurate field measurements and state of the art modeling techniques. King County has reviewed and accepted the noise analysis.

Comment *020-024* Construction noise is exempt, so no mitigation is proposed, even though this is an 11-phase project.

Comment *127-061* And as far as noise, we are not even six miles to Snoqualmie Sand and Gravel. I don't hear a backup alarm going off. You go outside and you can't hear a backup alarm. At our pits you can go by the crusher, you can hear the noise. You go around the berm, it is like it is not even there. And from what I understand, they are going to do all sorts of landscaping and berms to eliminate the noise.

Comment *127-136* At night I am woken up sometimes by the noise of the trucks. We had Cadman come to visit our neighborhood to lay some concrete for those people that were doing some building, and every morning at 4:00 in the morning they came with their trucks and they beeped and made all kinds of noise.

Comment *127-153* I live a bit away from the actual site, and my heart reaches out to people who are closer, but I will probably hear the noise.

Comment *127-168* My brother-in-law over there can't sleep at night because he hears the gravel trucks. I don't know how far away they are possibly. But we have customers calling all hours of the night asking what is that noise going on?

Comment *136-002* Noise pollution.

Response Comments acknowledged.

Comment *020-306* Beyond being simply counter intuitive, the results are not consistent with any measurement of existing mining operations on record. However, should the applicant have identified, through some sort of technological advancement, a means to create a mining site that would not be heard, as per the data provided, then the FEIS should clearly state and outline how the applicant will achieve this kind result.

Response The DEIS does not say that the project will be inaudible at all times; it states that the project may be heard during periods of low background noise levels.

Comment *020-308* It is critical that the reader understand that the majority, if not all, of the DEIS section on Noise is based on the following data sets and their relation to each other as determined via a computer modeling and prediction system referred to throughout the section as the "ENM." To restate, all discussion of the potential impacts of environmental noise and their effects on project alternatives can be reduced to the following data points, and the data that comprises them.

Existing Background Noise (Table 3.3-3) 24-Hour Noise Monitoring Sites)

Measured Noise Levels (Table 3.3-4)
Project Generated Noise Sources (Table 3.3-6)
Typical and Worst Case Meteorological Conditions
(Referenced in Tables 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-11, 3.3-12, 3.3-14)

The accuracy of the data provided in each area listed above is critical to providing a true, and realistic representation of the projects potential adverse impacts, and their relation to the proposed alternatives. If any one of these data points is based upon inaccurate data, or contains error(s) or omission(s) then the complete body of work becomes suspect and would need to be redone. This is not an overstatement given the interrelations of the data and the fact that once they are entered into the ENM computer modeling system they become the very basis for the results provided.

In the following section, we will examine the data provided in these four critical areas and make recommendations based on supplemental data provided in the Technical Reference of this document.

Comment *020-354*

It is critical that the reader understand that the majority, if not all, of the DEIS section on Noise is based on the following data sets, and their relation to each other as determined via a computer modeling and prediction system referred to throughout the section as the ENM. To restate, all discussion of the potential impacts of environmental noise, and their effects on project alternatives, can be reduced to the following data points, and the data that comprises them.

Existing Background Noise (Table 3.3-3) 24-Hour Noise Monitoring Sites)
Measured Noise Levels (Table 3.3-4)
Project Generated Noise Sources (Table 3.3-6)
Typical and Worst Case Meteorological Conditions
(Referenced in Tables 3.3-7, 3.3-8, 3.3-9,3.3-10,3.3-11, 3.3-12, 3.3-14)

Therefore, the accuracy of the data provided in each area listed above is critical in providing a true and realistic representation of the projects potential adverse impacts, and their relation to the proposed alternatives. If any one of these data points is based upon inaccurate data, or contains error(s) or omission(s), then, due to the extreme interdependency of the data, the complete body of work becomes suspect and would need to be redone.

This is not an overstatement given the interrelations of the data and the fact that once they are entered into the ENM computer modeling system they are the very basis for the entire set of results provided in the DEIS Section on Noise.

In the following section, we will examine and highlight the more obvious omissions, discrepancies, inaccuracies, and misrepresentations of the data provided in these four critical areas.

Response

Existing noise levels have no bearing upon whether this project meets King County Noise standards. Measured noise levels were measured from similar or identical equipment proposed for this project. This data is considered to be more reliable than generic data from EPA or other sources.

Comment *020-310*

The FEIS should clearly identify all receptor locations using a map containing streets, identifying the receptors their addresses or locations, and their distances from the nearest border of the project, in such a manner that the common layperson could identify the location and gain an understanding of the potential impacts on each project alternative.

Response A revised figure in the FEIS shows the noise receptor locations.

Comment *020-311* Once new noise level calculations are completed and a corrected noise impact assessment is completed the analysis should describe the effect on a quiet rural neighborhood.

Response Based on the measured background noise levels, many locations monitored for the DEIS are not really "quiet rural neighborhoods." The DEIS and FEIS address project impacts upon the wide range of existing noise environments existing in the North Bend area.

Comment *019-225* Based on the above, the data contained in Table 3.3-6, Project Generated Noise Sources, which was used as the baseline to represent all known sources of project generated used in the ENM is inaccurate, incomplete, and misleading. It is critical to understand that errors within this baseline completely undermine any, and all, conclusions regarding the potential impacts of noise, and their relation to the project alternatives.

Comment *020-325* The FEIS should correctly measure each of the noise sources provided using Point Measurements for single, stationary, items only.

Response A calibrated state-of-the-art noise meter was used to measure noise levels from point sources and mobile sources at measured distances. If background noise was apparent, then it was measured when the source was not running and was subtracted from the source measurements. Measurements were made in 1/3 octave band frequency ranges.

Comment *019-143* The FEIS should expand the analysis of traffic impacts to illustrate the effects of truck traffic to sensitive area.

Comment *020-331* The FEIS should expand the analysis of traffic impacts to illustrate the effects of truck traffic to sensitive areas.

Response The FEIS expands the analysis of truck noise. Truck impacts were analyzed at the locations most sensitive to their noise.

Comment *019-146* The FEIS should identify the number of vehicles per minute, per hour, per day, the type of vehicle, and it's projected noise ratings on steep grades, using a Line Source measurement.

Response The FEIS uses the traffic volumes and vehicle types described in the Traffic section to analyze traffic noise impacts. The noise analysis uses the Traffic Noise Model, a sophisticated line source model that can account for highway grade.

Comment *019-145* The FEIS should identify, analyze, and the potential adverse impact(s) from any trucks that will use the road connecting the lower and upper site.

Comment *019-147* The FEIS should identify, analyze, and discuss the potential impact on the listed receivers, from truck traffic on the road connecting the lower and upper site at a minimum of four elevations of the trucks trip both up, and down the road.

Comment *020-333* The FEIS should identify, analyze, and discuss the potential adverse impact(s) from any trucks that will use the road connecting the Upper and Lower sites.

Response It is estimated that very few (less than 6 pickup trucks a day) would use the road alongside the conveyor belt connecting the Upper and Lower sites. Truck volumes this low would be an insignificant noise source.

Comment *019-240* Even though the DEIS Section on Noise clearly points out that these are the two meteorological events that will create the "highest noise levels from a source," the DEIS fails to empirically evaluate or discuss the impacts of either of these meteorological conditions, and their resulting significance and impacts.

Comment *020-345* The FEIS should, in the worst-case scenario referenced above, measure the effects of wind at a minimum of 5 heights, to include ground level and winds at common winter cloud levels with equal distances in between. Ground level (5 feet) wind speeds are often significantly slower than those at 30 feet. Depending on the location, a 7 mph wind speed on a hill may be indiscernible in more sheltered areas causing no wind noise at all, while still acting as a source to "bend" project noise into a receiver.

Response The worst-case analysis presented in the DEIS and FEIS focuses on sensitive receiver sites, which are located on the gradual slopes east of the Lower Site, not in the sheltered valley of the Middle Fork Snoqualmie River. These valley locations (such as Site 5) are so far from the project that they show very little project noise reaching them, even under high wind or inversion conditions.

Comment *020-351* The FEIS should state for the record why the data provided in Addendum A, or data similar to it, which was prepared by Thomas Dunklee, Chief Atmospheric Scientist, The Weather Center, was not obtained nor provided for reference in the DEIS. It should be noted for the public record, that The Weather Center is located in the same office suite as Cadman's North Bend Mining Operations Office, at Ken's Truck Town, Exit 34. This fact makes it hard to understand the fact that the DEIS implies there was no meteorological data available for the North Bend area.

Comment *020-352* The FEIS should state why the consultants assumed, and relied on, NOAA and Bonneville Power, knowing the scope and charter of both, as sources for weather data for North Bend, a small rural community in Western Washington.

The DEIS states, "Staff at the Bonneville Power Administration and the National Oceanographic and Atmospheric Agency, NOAA, researched the availability of meteorological data for the North Bend area (and confirmed that it is not available)" [DEIS, Section on Noise Section, Volume 2, 1.3 "Agency Coordination and Involvement]

Comment *020-353* The FEIS should state for the record, given its relevance to the results, why the Consultants did not utilize the data available from the three weather stations within a 5-mile radius of the lower site. The sites are located at:

a. Central North Bend
b. Western River Bend Neighborhood
c. Cedar Lake
d. North Bend Ranger Station

Response The search for local meteorological data was mentioned in the Air Quality section with regards to determining the number of days of rainfall per year- not in regards to the

Noise section in the FEIS. The Noise chapter of the FEIS evaluates worst case meteorological conditions.

Comment *026-014* We would like the FEIS to include noise-modeling data for the school site.

Response The DEIS and FEIS include the school site in its monitoring and modeling sections.

Comment *099-003* How will this affect the "Background plus Mine Day/Night figures in Tables 3.3-8 through 3.3-147.

Response There would be very little effect.

Comment *024B-007* Please provide all inputs used for the modeling of predicted noise levels, whether utilizing the environmental noise model (ENM) or other methods which led to these predicted project generated operational and construction noise levels.

Response The FEIS includes a technical appendix listing the inputs used in the noise analysis.

Comment *019-162* This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site, directly into residential communities situated inside a one mile radius from the proposed lower site approximately 249 days of the year.

Comment *019-164* This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site, directly into residential communities situated inside a one mile radius from the proposed lower site approximately 249 days of the year, as per the data provided in Addendum A.

Response The DEIS analyzed the worst-case meteorological scenario in which the wind blows directly from the project towards the closest residential areas. The FEIS adds a high wind scenario to the analysis.

Comment *019-172* The FEIS should include project noise impacts with a low cloud cover that can reflect noise, even if the cloud cover does not constitute an inversion. Low-level cloud cover, which is very common in the North Bend area near Exit 34, is known to reflect sound to receivers that may not have heard the sound in a direct line.

This is highly significant given that this could carry project related noise sources generated by the lower site, directly into residential communities situated within a one mile radius, in any direction, from the proposed lower site approximately 249 days of the year.

Comment *020-347* The FEIS should include project noise impacts with a low cloud cover that can reflect noise, even if the cloud cover does not constitute an inversion.

Response The ENM model allows the input of temperature, humidity, wind speed, wind direction and the temperature change with altitude (a measure of atmospheric stability- i.e. inversion). Cloud cover is not an input into the model and would have little effect upon noise levels compared to atmospheric stability.

***Comment** 019-176*

The FEIS should state for the record why the data provided in Addendum A, or data similar to it, which was prepared by Thomas Dunklee, Chief Atmospheric Scientist, The Weather Center, was not obtained, nor provided for reference in the DEIS.

Response

The ENM model is a short-term predictive noise model yielding noise results applicable to any given hour rather than a daily or monthly average noise level. Hourly (or shorter) time frames represent maximum project noise levels and are easily compared to King County Noise Codes. As a result ENM does not use, nor would it be enhanced by, long-term meteorological data such as might be obtained from local north Bend sources. Local data would not provide a model result more protective of the local residents than the conservative, worse care data used in the DEIS.

***Comment** 019-165*

The FEIS should examine the effects of high winds and their relation to the suggested attenuating effects of "berms" or other proposed sound masking attenuators. Wind and inversion are well known to negate the effect of barriers at distances greater than 300 feet, so in a worst-case scenario, attenuation due to barriers, berms, hillsides, etc. should not be used in noise modeling, particularly at for receivers at distances greater than 800 feet. This would include the majority, if not all, of the receiving sites listed in Table 3.3-3.

Response

The noise analysis in the FEIS uses data from the Weather Center to develop a “high wind” worst-case modeling scenario.

***Comment** 019-109*

Based on the extreme discrepancies highlighted in the Technical Section below, and the findings in Table 3.3-3, the FEIS should re-sample the background noise reported from all receptors listed in Table 3.3-4 to insure that it is accurate, and consistent with other reliable data sources (E.P.A.) provided. The data provided in the DEIS is inconsistent with published E.P.A. data for similar measurements. While it is possible that rural North Bend has an ambient noise level equivalent to that of a "noisy urban environment" it is highly unlikely, and given the discrepancy of the data, these measurements need to be redone.

***Comment** 019-203*

The chart below, prepared by the E.P.A., identifies Typical Day-Night Noise Levels in Urban Areas in the United States. Note that it does not measure a rural, or rural residential area, but that the "quietest area" sampled was a "suburban residential" area. Therefore, this should be considered a very conservative baseline with which to compare, and contrast the findings contained in the DEIS.

Typical Day-Night Noise Levels in Urban Areas in the United States

Description	Typical Range of Ldn, dB	Average Ldn, dB
Quiet suburban residential	48-52	50
Normal suburban residential	53-57	55
Urban residential	58-62	60
Noisy urban residential	63-67	65
Very noisy urban residential	68-72	70

Source: U.S. Environmental Protection Agency 1974.

Comparing the Average Ldn, dB reported in the DEIS to the E.P.A. data, the DEIS would ask us to believe that the rural North Bend receptors identified in Table 3.3-3 receive background noise levels (Table 3.3-4) comparative to that, at the low end, of a

Normal "Suburban" Residential area, and at the high end, to that of a "Noisy Urban Residential" area. The existing levels reported in Table 3.3-4 of the DEIS are not representative of a rural community, or even a rural community intersected by an Interstate freeway with moderate to light traffic.

Comment *019-204*

Given the above discrepancies, this data is highly suspect when compared to data on this same topic presented by the E.P.A. The numbers are not consistent with the reality of a rural, and rural residential community known for it's numerous recreation areas, and the data provided above. If the area was as noisy as the DEIS claims, the recreation value for the area would be greatly diminished, which is simply not the case.

Comment *020-355*

…for existing background noise.

Comparing the Average Ldn, dB reported in the DEIS to the E.P.A. data, the DEIS would ask us to believe that the rural North Bend receptors identified in Table 3.3-3 receive background noise levels (Table 3.3-4) comparative to that, at the low end, of a Normal "Suburban" Residential area, and at the high end, to that of a "Noisy Urban Residential" area. The existing levels reported in Table 3.3-4 of the DEIS are not representative of a rural community or even a rural community intersected by an Interstate freeway with moderate to light traffic.

Given the above discrepancies, this data is highly suspect when compared to data on this same topic presented by the E.P.A. The numbers are not consistent with the reality of a rural and rural residential community known for it's numerous recreation areas. If the area was as noisy as the DEIS claims, the recreation value for the area would be greatly diminished, which is simply not the case.

Response

The noise monitoring data presented in the DEIS is considered to be a more accurate picture of existing conditions than the generic EPA data cited in these comments. Two full days of monitoring were performed, one site was repeated on both days, and the results were nearly identical at that site (SLM 1 and 6). The dominant noise source at nearly all measurement sites was highway traffic from I-90.

Comment *024A-046*

The noise analysis apparently determined that the berms would reduce most noise. However, a berm, particularly one located several hundred feet from the noise source such as the north berm, would have little noise attenuation value under even normal conditions. And if the receptors are also say one or two thousand feet from the berm it again will provide little or no noise attenuation. Under windy conditions or temperature inversions, the noise attenuation would be far less due to the fact that noise reflects from the sky, and the berm has no effect on this noise reflection. They noted that they have frequently measured similar noise effects in their extensive research on the effectiveness of sound walls for the California Department of Transportation. Measurements made at some distance from the highway will show increases of 10 decibels under proper weather conditions.

Response

Although the north berm does reduce impacts for residents to the north of the Lower Site, the primary reason for no significant noise impacts is the placement of the processing and batch plants in a pit 60 feet below the general land surface.

Comment *024A-050*

Mr. Rodkin stated that not only will project noise be audible from many residences in the area, but he expressed great concern over the crushing and screening operations which will be a harsh mechanical noise which will be distinctly different from other ambient noise sources. People will hear the noise and it will be particularly impacting due to its quality.

Response Primary crushing and screening would move onto the Upper Site early in the mine's life under Alternatives 2 and 3.

3.3.3.1 Construction Impacts

Comment *019-153* The FEIS should discuss all project generated construction noise into the specific construction phase, and type of construction activity, creating an inventory of construction noise sources by phase, by construction activity.

Response The FEIS will provide more detail about the construction phase. Due to changes in the Lower Site layout, such as the water detention pond, the FEIS will provide more information on construction impacts.

Comment *063-001* Referring to Section 3.3.3.1 Page 3.3-5 Heading Alternative 2-Proposal

The paragraph indicates construction noise impacts rural or residential property. It indicates that this construction noise is exempt from the King County Maximum Permissible Noise Levels during "daytime hours."

I would like to know what the definition of daytime hours is in this paragraph. I believe excessive noise from the construction phase of this massive project will adversely impact the surrounding environment. "Daytime Hours" is too vague.

Response Daytime hours are defined as from 7 a.m. to 10 p.m. weekdays and 9 a.m. to 10 p.m. weekends and legal holidays.

Comment *019-122* The FEIS should review, and substantiate all of the assumptions in the DEIS to insure that the incredible findings regarding predicted noise levels from a construction operation, at these relatively short distances, with the given topographical information, could actually occur. Simply put, construction noise levels have clearly been underestimated. A brief, and incomplete discussion of potential construction noise impacts is provided on page 3.3-5.

Comment *019-126* The FEIS should describe the effect of construction, and operational activity, with regular heavy truck traffic, on a quiet rural neighborhood.

Comment *019-152* The FEIS needs to clearly identify, examine, and call out separately, the project generated noise sources specific to construction noise.

Comment *024A-053* It is inexplicable how the DEIS does not find the project construction impacts to be significant. Construction of the huge berms plus other project components will occur over several months at least (and the DEIS should describe how long berm construction, including application of soil amendments and planting, will take). The use of heavy equipment to construct these berms will have a much more serious impact on nearby residences than the 0 to 21 dBA described in the DEIS on p. 3.3-5. The DEIS dismisses these impacts because the County Code exempts construction noise. While the Code may exempt such activities, SEPA does not exempt these activities from environmental review. The DEIS should fully describe the noise that will be experienced at sensitive receptors, the duration of that exposure, and whether that noise is significant given the County's land use compatibility guidelines.

Comment *024B-005* Construction noise levels have been underestimated. A brief discussion of potential construction noise impacts is provided on page 3.3-5, Predicted construction noise levels appear to be similarly underestimated as the project operational noise levels described above. All of the assumptions in this analysis must be presented to substantiate such an incredible finding regarding predicted noise levels from a construction operation at these relatively short distances with the given topographical information.

Response The FEIS provides more information on construction impacts such as the berms.

Comment *012-147* [DEIS §3.3.1.3; p. 3.3-3] The noise exceptions noted in the middle of this page (in reference to King County Ordinance 12.94.010.B.3 and 12.94.010.2) are inappropriate interpretations of those regulations. The exemptions are intended to cover "construction activities" such as road construction, utilities repairs, and the like, not around-the-clock operations of industrial facilities for periods of a quarter of a century or longer.

Response The regulations are applied to onsite construction activities and do not apply to general mine operations.

3.3.3.2 Operation Impacts

Comment *048-002* The second concern is about the Noise that will be generated by the conveyor belt. This belt is to run 24 hours a day. How will Cadman cover the rumble or noise of the material traveling down the conveyor belt? And what about the actual mechanics of the conveyor? There must be a thousand bearings on this machine. When the bearings start to fail, when will they be replaced? Before or after they start to make the ear piercing squeals or chatters? I have seen a video put out by Cadman. Rod Shear is standing in front of a conveyor belt telling us how quiet they can be. I have a back ground in sound acoustics. Although I am not an Engineer, I do know that through specific filters, certain frequencies can be eliminated and or microphones can be directed at certain areas while eliminating sounds outside the area of focus. It's a good trick, but I'm not fooled. The berm that will be built to eliminate the sound being generated by the lower site will do nothing of the sort. It's true, certain sound waves on the higher end of the spectrum can be redirected, but not the sound waves from the lower end of the spectrum. Try turning you speaker from your home stereo around and listen to the music from the backside. You will find that most of the sound will still be audible.

Response Noise generated by the conveyor is included in the model that was used to predict project noise levels (see Chapters 5 of the FEIS). The conveyor would not operate 24 hours a day (see Chapter 2 of the FEIS for proposed hours of operation.)

Comment *019-223* The Conveyor Belt was measured as a single Point Measurement, listing the Conveyor Belt Transfer Point as the sole source of potential noise generated by the mite long conveyor. Using a Point Measurement on an item that should have been sampled using a Line Measurement is inappropriate, and known to produce inaccurate representations of maximum noise levels. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *020-020* There is no noise analysis of the conveyor belt/road/pipeline!

Comment *020-021* There is no noise analysis of tire & undercarriage washer.

Response The conveyor belt is measured and analyzed as a line source in the FEIS. The truck washer is a minor source and is not mentioned in the FEIS.

Comment *020-413* The DEIS should measure and quantify inside sound levels through single and double pane windows to insure that normal conversation can occur within a household during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all cases should comply with EPA Protective Levels.

Comment *020-440* The DEIS should measure and quantify inside sound levels through single and double pane windows to insure that normal conversation at the levels ensuring a proper learning experience can occur within a classroom during the hours of operation with a 5dB margin of safety for public health and welfare of the Grouse Ridge Project. Measurements should be taken at 500 ft, 1,000 ft, 1/4 mi., 1/4 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all causes, should comply with EPA Protective Levels.

Response The effect of project noise on speech intelligibility is not detailed in the EIS because existing noise levels will not cause these types of problems and the project would not increase cumulative noise levels under ordinary meteorological conditions. The project noise is compared to EPA guidelines.

Comment *024A-044* Basically, Illingworth & Rodkin found it incredible that the noise analysis concluded that an aggregate processing facility, an asphalt plant, a concrete plant, and over 500 trucks coming and going from the site on a daily basis would not have significant noise effects on residential neighbors of the project. In fact, they stated that this was impossible.

Response The commenters probably did not have adequate information about site topography and facility design to fully evaluate the project.

Comment *019-675* The DEIS failed to, and the FEIS should clearly compare the potential noise impacts of not developing the lower site on the noise environment in that area. It is obvious that Alternative 4 is vastly superior to the proposed project in regards to potential adverse noise impacts to the local community, yet the DEIS does not discuss this alternative in any detail.

Comment *020-320* The FEIS should clearly compare the potential noise impacts of not developing the lower site to the noise environment in that area. It is clear that Alternative 4 is vastly superior to the proposed project in regards to noise impacts to the local community in and around the Exit 34 corridor.

Response The FEIS includes a comparison of noise impacts for the alternatives.

Comment *019-134* The FEIS should clearly identify the minimum, and maximum Noise levels for all sources of potential sources of project related noise. These should include, but are not limited to: banging gates, equipment being loaded, the loading of crushers, trucks, or other equipment, and the maximum noise levels of rocks, boulders, and stones, being

dropped onto metal surfaces and compare them to day and night noise regulations, and day and night baseline data for the are

Comment *019-218*

Table 3.3-6 Projected Levels of Project Noise does not contain a complete listing of Noise Sources, an in fact, has failed to identify, quantify, or account for a number of the causes of maximum levels of noise. Items such as banging gates, equipment being loaded, the loading of the crusher, rocks, boulders, and stones, being dropped onto metal surfaces, or the 5300 feet of conveyor belt have simply not been measured, nor identified as probable sources of project noise. This is a partial list, and is not intended to be complete, however it underscores the incompleteness of Table 3.3-6 Projected Levels of Project Noise. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *020-360*

Measurement and Maximum Levels Project Noise Table 3.3-6 Projected Levels of Project Noise does not contain a complete listing of Noise Sources, an in fact, has failed to identify, quantify, or account for a number of the causes of maximum levels of noise. Items such as banging gates, equipment loading, crusher loading, rocks, boulders, and stones being dropped onto metal surfaces. As well as the 5300 feet of conveyor belt have simply not been measured nor identified as a probable sources of project noise. This is a partial list and is not intended to be complete, however, it underscores the incompleteness of Table 3.3-6 Projected Levels of Project Noise. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Response

Minimum and maximum noise levels are not available for most of the noise sources measured for this project because more accurate 1/3 octave band measurements were taken. When the sound level meter is set to take 1/3 octave band measurements no minimums or maximums are calculated by the meter. Incidental noises from the loading of equipment, banging of machinery, backup alarms and the dropping of rocks into crushers and trucks were all noticed and measured in the noise measurements taken at operating mine sites in the region. The noise modeling includes all the monitored noises in its noise source inputs.

Comment *024A-122*

Alternative 2 will expose the community to noise for a period as long as 30 years. This noise will exceed County standards at several nearby residences and be audible (though perhaps not exceeding noise standards) for many more residences. This noise intrusion for a generation will have a significant impact on the lives of those residents.

Response

Comment acknowledged. The noise analysis in the FEIS shows that the noise of onsite operations, under typical meteorology, would not exceed the King County noise standards for Alternatives 2, 3 or 4. Under the high wind scenario, two sites show daytime exceedances and nine show nighttime (5 a.m. to 7 a.m.) exceedances for Alternative 2. In the Alternative 2 inversion scenario, five sites show nighttime exceedances. Three sites show nighttime exceedances under the Alternative 3 high wind scenario.

Comment *024A-019*

The project includes an asphalt batch plant. However, the DEIS does not provide any description of the type of plant that would be constructed, other than mention it would be "enclosed." Further reading of the DEIS indicates that the asphalt plant will be "directional," which means that the construction can be done in such a way to direct the main noise in one direction or another. Such directional plants are the noisiest type of plant, typically generating noise levels of over 95 decibels at 50 feet. The state-of-the-art asphalt plants are explicitly designed to be non-directional, so that the noise is diffused. Even these plants generate noise levels of about 80 dBA at 50 feet. So, it is

imperative that a detailed description of the proposed facility be provided. The DEIS should be revised to provide a complete description of the asphalt plant, its precise location and elevations of all improvements and structures, and the operational process.

Comment *024A-020*

Similar information should be provided for the concrete plant. Again, the DEIS does not contain a full description of equipment, and processes involved with this plant. Additionally, since in some Figures the concrete plant is shown to be on the same footprint as the processing plant the location is unclear. This should be clarified for all alternatives.

Response

The FEIS provides a more detailed description of both batch plants. The general model for the asphalt plant is an enclosed plant in Everett, and the model for a concrete plant is a plant in Ellensburg. If Cadman, Inc., Inc. decides to build asphalt and concrete plants, it plans to purchase state of the art equipment that meets operational and environmental needs. The proposed locations are shown on figures in the FEIS. The elevations of the top of the plants are contained in Chapter 2. Design detail would be provided in the application for a building permit.

Comment *099-002*

What is projected noise level (a.) at start of operations, (b.) 10 years after start-up and (c.) 24 years after start-up?

Response

The DEIS shows the worst-case noise levels of the project at full production at Phase 2 (when all processing equipment is at the Lower Site) and at Phase 8 (when mining occurs only on the Upper Site with processing and trucking at the Lower site-Alternative 2 and 3).

Comment *019-131*

The FEIS should identify levels of project generated noise at the proposed new school sites, using a comprehensive noise modeling review that includes all sources of project generated noise, adverse weather conditions, and the effect of the amplification of noise through windows, and how this effects the Classroom Learning, and behavior in children.

In Volume 2, Appendix C, Noise Impacts, Section 6.0 "References" the DEIS shows that the effects of noise on swine, and calves were referenced, while the effect of noise on children, and the effect of noise on the learning process, or children, was not even addressed. This is particularly disturbing given the expert opinions, many from world-recognized experts and organizations, submitted in the Scoping comments by WoodRiver Community Association.

Response

The predicted increases in noise are small and should not have a significant impact on the schools. The DEIS measured and modeled noise levels at the potential school site. A more detailed discussion of the results for the school site is included in the FEIS.

Comment *019-151*

The FEIS should clearly identify, and quantify empirically, why the DEIS states that the "project nighttime noise is identical to daytime operation" given that the stated operating hours do not include nighttime operation past 10 PM.

Response

The project would operate from 5 a.m. to 7 p.m. The period 5 a.m. to 7 a.m. is considered by King County Code to be "nighttime." As a worse case assumption, we assumed that "nighttime noise levels could be as loud as "daytime" levels.

Comment *022A-006* The noise and vibration from these gravel trucks could be heard and felt from inside the building and disturbed conversations and people who were trying to sleep.

Response Interior noise levels for the Inn are included in the FEIS. The potential for vibration from the project's truck traffic was evaluated using procedures developed by the Federal Transit Administration. The analysis indicated that no impacts would be expected as a result of the project.

Comment *022C-001* It is unclear from this document what the King County Code requirement is for this site. Table 3.3-9, 3.3-10, 3.3-12 and Tables 10, 11, and 12 in Appendix C list a day/night code limit of 65/65. Tables 3.3-11, 3.3-13, 3.3-14 and Appendix C Table 13 list the code as 57/47 and Appendix C Tables 8 and 9 list the requirements as 57/47 65/65. Unless the property is being rezoned for the various alternatives, the Code should not vary.

Response The correct King County Noise Code requirement is 65/65. Tables in the FEIS have been corrected.

Comment *022C-002* The measured 24 hour Leq for this site is shown in Appendix C Table 4 as 57.6 dBA. Table 3.3-15 and Appendix C Table 16 list "existing noise levels" as 58.4 dBA.

Response 57.6dBA is the correct value.

Comment *022C-003* It is our understanding that the predictions were based on noise levels associated with constantly moving vehicles. There is a controlled intersection at 468th Avenue SE and SE 146th Street (refer to the traffic study attached to the David Bricklin letter). Noise levels from vehicles stopping and starting could increase the cumulative noise level significantly.

Response The recently released TNM version 1.1 was used to analyze truck noise impacts for the FEIS. This model can simulate noise levels from vehicles at controlled intersections.

Comment *022C-005* Given that the major source of increased noise at this site is the truck traffic, the full impact of the increase is not adequately reflected in a single descriptor analysis in dBA. Sound levels associated with truck movement contain a significant low frequency component, which is more difficult to mitigate. The noise study is incomplete without a more in-depth analysis of the levels of low frequency exposure at this site.

Response A 1/3 octave measurement were taken at Site 8 to document existing levels of low frequency sound.

Comment *022C-006* Alternate 2 identifies an increase of approximately 11 dBA in noise levels at this site. This would be a perceived increase of more than twice as loud as existing conditions and is accurately identified as a "serious" impact according the EPA definitions. Alternate 3 predicts an increase of 7 dBA, or a "significant" impact. Both are listed as significant Unavoidable adverse impacts." The "only effective mitigation" identified is a reduction of vehicle speed. Given that the nature of this business is to provide a sleeping environment for its patrons, an increase in noise levels of this magnitude

could indeed seriously impact the marketability of their facility. It would seem appropriate to explore alternate mitigation alternatives such as:

a) Alternate routes.

b) Sound walls along the intersection adjacent to the Edgewick site.

c) Improved acoustical glazing, additional construction along the exterior walls, improved door seals, improved guestroom ventilation to minimize the need to open windows.

d) Alternate use of the proposed mining site.

e) Alternate use of the Edgewick site.

Response The additional research performed for the FEIS included on examination of the suggested mitigation measures. They are not require due to the small increase in noise caused by the proposal.

Comment *043-001* The average dBA's in the referenced section were: derived from a 24-hour period of measurement at a similar facility. No mention is made of the mix of operating and non-operating times, or whether it's the same as the proposed operation. I'm concerned that if an excessive amount of non-operating sounds are averaged in with the sounds during operation that the cited sound levels will be lower than will actually be experienced in North Bend. Please explain this in the FEIS.

Response Noise measurements of other facilities were not of 24-hours duration; they were short-term, taken when the equipment was operating.

Comment *019-141* The FEIS should utilize noise levels commonly used for gravel trucks and "vehicle noise emission levels" published by the Federal Highway Administration.

Comment *020-323* The FEIS should present data that is consistent with other credible sources (E.P.A.) cited in the Technical Discussion section of this document for the same items, or give plausible, defensible explanations for why the DEIS findings were significantly different for the same items.

Comment *020-329* The FEIS should utilize noise levels commonly used for gravel trucks and "vehicle noise emission levels" published by the Federal Highway Administration.

Comment *020-356* The DEIS does not tell us what type of measurement was used in Table 3.3-6 except that it was from a distance of 50 ft. from the source. The data fails to identify if it is Leq, and if so, for what amount of time the average was based upon or if the data was simply a single point reference. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *024A-045* They found that the noise analysis significantly underestimated the noise generated by project components.

Comment *024B-001* Table 3.3-5 shows anticipated noise sources and their location by phase of the project, Noise levels generated by a sampling of the noise sources identified in Table 3.3-5 are presented in Table 3.3-6. Several significant sources of noise anticipated with the project, including the screening equipment and scrapers, are not included in Table 3.3-6. Furthermore, source noise levels set forth in Table 3.3-6 require further substantiation. The reported noise level for the asphalt facility of 53 to 78 dBA at a distance of 50 feet is much lower than the noise levels that are actually generated by

typical asphalt facilities. There is no description of the type of asphalt facility proposed. There are generally two types of asphalt facilities: one which includes an open-type burner and one which utilizes an enclosed-type burner. An open burner plant generates a noise level of up to 97 dBA at a distance of 50 feet. A typical enclosed burner plant generates a noise level of about 85 dBA at 50 feet. An enclosed-type burner utilizing the best available noise control technology generates a noise level of about 80 dBA at a distance of 50 feet. The range of noise levels reported in Table 3.3-6 (53 dBA to 57 dBA) is not consistent with data measured by our firm and manufacturers data, even utilizing the best available control technology, The noise levels presented for gravel trucks are substantially below noise levels monitored by our firm for gravel trucks and "vehicle noise emission levels" published by the Federal Highway Administration. Truck noise is primarily a function of engine RPM, not vehicle speed. Trucks actually generate an A-weighted noise level of between 80 and 85 dBA measured at a distance of 50 feet. The A-weighted noise levels set forth in Table 3.3-6 are undefined in the time domain and, therefore, are assumed to represent maximum A-weighted noise levels. (This poor definition of noise metrics occurs throughout the noise assessment.)

Response

Measured noise levels were measured from similar or identical equipment proposed for this project. This data is considered more reliable than generic data from EPA or other sources. The measured noise levels of the asphalt plant ranged from 53-78 dBA at 50 feet. The highest reading in 1/3 octave bands was used in the ENM modeling, Table 3.3-6 in the DEIS and Table 5-5 in the FEIS show noise levels in dBA LEQ not maximum levels.

Comment *024B-002*

Noise levels resulting from mine operation are set forth in Table 3.3-7. The Lou residence is the first receiver location identified and is the focus of the following discussion. Based on a review of maps and cross section drawings presented in the report, it appears that the Lou residence is approximately 2,000 feet from the center of where activity is proposed to occur in the lower site. (Distances to each sensitive receptor should have been included in the table summarizing predicted noise levels.) Cross sections between the Lou residence and the lower site are shown in Figure 2-16. It is clear from this cross section that this is a generally up-sloping condition between the noise generation area and the residence. Some minimal topographical features occur between the residential receiver and the noise generation area which could provide nominal acoustical shielding under favorable weather conditions. Utilizing the noise source and location information set forth in Table 3.3-5 and the upper limit of noise level data set forth in Table 3.3-6 (recognizing that some numbers may be substantially underestimated) an equivalent source noise level of about 90 dBA at 50 feet results for alternative 2 phase 2. Utilizing straight spherical spreading (without excess attenuation) the noise reduction between a distance of 50 feet and 2,000 feet would be 32 dB. Noise sources associated with the mining industry are typically fairly broad band in nature. Some excess atmospheric attenuation would be expected. Under favorable weather conditions some excess ground attenuation would be expected. However, without taking these into account the predicted noise level at the Lou residence would be 58 dBA. The predicted noise level in Table 3.3-7 is 12 dBA, indicating 46 dBA of unexplained excess attenuation. Based on measurements we have conducted at similar distances in similar conditions somewhere between 5 and 10 dBA of excess of attenuation is normally expected. A large topographical feature, such as mountain, is the only thing that could provide the degree of excess attenuation claimed in this analysis. Similar unexplained and impossible to understand conclusions are reached for other receptors, other weather conditions, other phases, and other alternatives. The extremely low predicted mine noise levels must be explained and most likely corrected. Conclusions will likely be completely reversed regarding significance, particularly if appropriate source noise levels are utilized and appropriate

and conservative assumptions are made regarding atmospheric attenuation, barrier attenuation and ground absorption. Predicted noise levels will likely exceed both the daytime and nighttime significance thresholds of 57dBA and 47 dBA, respectively.

Comment *024B-003* If an open-burner asphalt plant is assumed to be operating in the lower site generating a noise level of 97 dBA at a distance of 50 feet predicted noise levels at the Lou residence could be as high as 60 to 65 dBA, in contrast to the 8 to 12 dBA in the noise assessment.

Response The so-called "excess attenuation" referred to can be explained by the terrain of the Lower Site area. The processing equipment and batch plants will be located in an old gravel pit (deepened and expanded for this project) approximately 60 feet below existing grade. The north and west sides of the pit will be steep, at the top edge of the pit a berm at least 10 feet high will run east and west for several hundred feet and the entire distance between the berm and the Lease boundary is forested with young trees growing 1 to 2 feet in height a year.

Comment *019-140* The FEIS should clearly identify the model, and numbers of each piece of heavy equipment, referred to in Table 3.3-6, for both the upper and lower site and provide data that is consistent with manufacturers ratings for the same equipment.

Response The DEIS details all the available information. Specific equipment models would be determined during design.

Comment *019-154* The FEIS needs to clearly identify, examine, and call out separately, the project generated noise sources specific to operations noise.

Comment *019-155* The FEIS should discuss all project generated operations noise into the specific type of operational activity, creating an inventory of operational noise sources by phase, by operations activity.

Comment *020-639* Analyze the sound impact on surrounding neighborhoods from current truck traffic at Exit 34 and I-90.

Response Please see the FEIS Noise chapter for a discussion of existing noise and project generated noise. Table 3.3-5 of the DEIS identifies the noise sources for each phase of the project.

Comment *005-001* The proposed mining operation would involve fully loaded dump trucks passing on an access road nearby our student classrooms. The classrooms are located in older modular buildings that are not well insulated for noise. The noise caused by the trucks passing by the classrooms would be too loud and disruptive.

Comment *005-002* Student dormitories are mobile trailers made in the 1960s and were retrofitted for short-term housing. There would be constant disruptions to our students during their study and rest times with the proposed truck operations, especially throughout the night.

Response The FEIS discusses noise levels inside the Fire Training Academy's classrooms and dormitories.

Comment *024B-004* The assessment of truck noise impacts is inadequate.

Impacts of offsite traffic are discussed on page 3,3-15. The four sentences devoted to this subject demonstrate a lack of understanding of the topic, Table 3.3-15 labeled "Noise Impacts of Truck Traffic (in dBA-Leq) provide no information about the noise impacts of truck traffic. They present undefined noise levels. Page 3.3-16 concludes that alternative 2 would cause an increase of approximately 11 dBA in noise levels at the Exit 34 receptor site and that this constitutes a serious impact. No mitigation measures are offered to mitigate this impact,

Comment *115-031* p, 3.3-15 Impacts of noise on wildlife - Although there are no endangered species nesting in the area, the area is used by the elk herd. Dismissing certain species just because they are not endangered does not mean they will not be affected by the noise.

Response The Noise chapter of the FEIS discusses truck impacts, both offsite and onsite, and also discusses noise impacts on large mammals such as elk.

Comment *019-209* Measurement and Maximum Levels

The DEIS does not tell us what type of measurement was used in Table 3.3-6 except that it was from a distance of 50 ft. from the source. The data fails to identify if it is Leq, and if so, for what amount of time the average was based upon, or, of the data was simply a single point reference. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *019-217* The A-weighted noise levels set forth in Table 3.3-6 are undefined in the time domain and, therefore, are assumed to represent maximum A-weighted noise levels. This poor definition of noise metrics occurs throughout the noise assessment.

Response The Noise chapter of the FEIS clarifies the metrics used in the noise analysis.

Comment *020-362* Model Inputs - The DEIS fails to identify a complete list of inputs used for the modeling of predicted noise levels, whether utilizing the environmental noise model (ENM) or other methods which led to these predicted project-generated operational and construction noise levels. All of the assumptions in this analysis must be presented to substantiate the predicted noise levels from construction operation, at these relatively short distances, with the given topographical information. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Based on the above, the data contained in Table 3.3-6, Project Generated Noise Sources, which was used as the baseline to represent all known sources of project-generated noise used in the ENM is inaccurate, incomplete, and misleading. It is critical to understand that errors within this baseline completely undermine any, and all, conclusions regarding the potential impacts of noise, and their relation to the project alternatives.

Response Every piece of machinery listed in Table 3.3-5 was included in the noise modeling. The assumptions used in the modeling of construction noise impacts are clearly described in the FEIS.

Comment *011-011* The Draft EIS also indicates that Gravel Operations on the Lower Site (processing facilities, concrete and asphalt batch plants, bulldozers, trucks, etc.) will generate noise

levels ranging from 55-85 decibels 50 feet away. See Draft EIS, Section 3.3 (page 3.3-9, table 3.3-6). At nearby residences, mining activities will generate noise levels up to 20-30 decibels, depending upon meteorological conditions. See Draft EIS, Section 3.3 (Table 3.3-7 to Table 3.3-14). However, because intervening and nearby uses (such as I-90, the gas station, and the truck stop) are existing sources of background noise, the Draft EIS concludes that increased noise levels from combined mining and background noise levels will not be significant or serious at nearby residences. Nonetheless, the District remains concerned that distinctively jarring noises (such as the sound of heavy equipment crushing rocks) will still be noticeable at the school site and will disrupt school classrooms. Before pursuing one of the Lower Site alternatives, the District requests that Cadman complete a site specific assessment of potential noise impacts on the schools to determine whether additional noise barriers would be needed to mitigate impacts. The County should incorporate this additional analysis into the Final EIS. The District requests the County to require Cadman to implement whatever additional noise mitigations the analysis indicates are necessary in order to ensure that the schools will not be impacted.

Response The DEIS analyzed the potential school site for noise impacts and found no increase in noise levels. The FEIS recommends a noise monitoring program to detect potential changes in noise levels that may result from the project.

Comment *019-138* The FEIS should list the total number of all project generated noise sources that will operate onsite, offsite, and for construction and operational purposes. The DEIS listing of Project Generated Noise, as presented, would indicate that there is only one Caterpillar D9 and one Caterpillar D6 to be used at both sites for the duration of the project. Given the listing, one must assume that only one of each was used when completing the ENM studies, which knowingly misrepresents the Project Generated Noise, and invalidates the Noise study completed in the DEIS.

Response Table 3.3-5 summarizes the equipment proposed by the applicant to be used at each phase of the project for each alternative.

Comment *019-142* The FEIS should measure, and identify truck noise levels by means of revolutions per minute (RPM's), and not miles per hour.

Comment *020-330* The FEIS should measure and identify truck noise levels by means of RPM's, and not miles per hour.

Response During field sampling, it is not feasible to identify truck noise levels by RPM. At the low truck speeds measured at the Black Diamond operation, trucks were operating in their lower range of gears when RPM would be expected to be higher than when the trucks were traveling at highway speeds.

Comment *012-143* [DEIS §3.3.1.1; p. 3.3-1] describes the use of the Environmental Noise Model (ENM) for measuring future project-generated noise levels. But the data that went into the model are not provided in the DEIS nor in the Appendices.

The second paragraph describes noise sampling done at Cadman, Inc.'s Black Diamond pit, Ellensburg Cement Products facility, CSR's Everett Asphalt facility, and the 410 Quarry at Enumclaw. However, there is no report on the specific dBA levels recorded, at what time(s) of the day, what equipment was in use at the time, the surrounding environment, the meteorological conditions at the time, nor the location of the sensors. Any conclusions drawn from these comparisons are irrelevant due to insufficient data.

These comparisons are also invalid since their topography is not at all similar to that surrounding Grouse Ridge where nearby mountains rise some 3,500 to 4,000 feet above the proposed operational sites.

Comment *019-224*

The DEIS fails to identify a complete list of inputs used for the modeling of predicted noise levels, whether utilizing the environmental noise model (ENM) or other methods which led to these predicted project generated operational and construction noise levels. All of the assumptions in this analysis must be presented to substantiate such an incredible finding regarding predicted noise levels from a construction operation at these relatively short distances with the given topographical information. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Response

The appendix to the FEIS Noise Technical Report contains monitoring data. Note however, that the monitored noise levels, although taken at a variety of locations, are relevant to the North Bend site. The monitored noise levels were taken at a standard distance of 50 feet- at this distance differences in the surrounding terrain are irrelevant.

Comment *012-144*

The assumptions regarding daytime versus nighttime noise levels are patently nonsensical. [DEIS p. 3.3-6] states "the project's nighttime noise levels are identical to its daytime levels" and Tables 3.3-7 through 3.3-14 all show identical dBA levels for day and night noise levels. These conclusions are contradicted by the data elsewhere which show individual noise sources with levels ranging from 53 to 85 dBA.

Response

The project would operate from 5 a.m. to 7 p.m. The period 5 a.m. to 7 a.m. is considered by King County Code to be "nighttime." As a worse case assumption, we assumed that "nighttime noise levels could be as loud as "daytime" levels.

Comment *012-145*

Noise analysis fails to take into account the acoustic effect of the mountain elevations that surround the proposed project. Local residents are well aware of the reverberation effect of adjacent mountains.

Response

Current noise models cannot account for reverberation or echoes off of mountains. However as a worst-case assumption, it could be said that that the project noise impacts were augmented by echoes off of surrounding mountains. However, there are few, if any, sheer rock cliffs on the mountain slopes within a mile or two of the project site that could cause echoes or reverberation of project noises.

Comment *012-146*

Apparently no sampling was done during times of low cloud cover and/or periods of high humidity, high winds, or fog. Acoustical effects vary greatly in these circumstances. Prevailing wind directions are also critical in an accurate assessment of noise. Prevailing winds patterns are incorrectly described in [DEIS §3.2.1.2]. See section titled "Local Data" under "Meteorology" (on page 29) for a fuller description of DEIS inaccuracies with respect to weather.

Response

The noise modeling in the DEIS included a severe inversion scenario which would be more conductive to noise propagation than "low cloud cover" or "periods of high wind or fog." The FEIS also includes a "high wind" scenario. The noise modeling represents conditions under worst case meteorological scenarios.

Comment *012-150* [DEIS p. 3.3-15] Discusses high noise level impacts on wildlife but makes no mention of subsonic or non-audible sound levels. Sounds in low frequency ranges can have a detrimental impact on wildlife and humans. The DEIS needs to provide frequency and amplitude estimates of non-audible sounds with potential impacts. Mitigations need to be recommended.

Response Low frequency or "sub-audible" noises impact only the very largest of marine and land mammals such as whales and elephants; not the species expected to be found at the project site.

Comment *019-123* The FEIS should carefully examine the possibility of nighttime noise impacts. To state that the noise from trucks traveling to and from the site, the noise of loaders, the filling of trucks with gravel, cement, and asphalt, will not be heard in the area in the middle of the night when ambient noise levels are at their lowest is simply unacceptable and inaccurate.

Response The FEIS discusses noise from night time operations such as truck trips and the early morning startup of the asphalt plant.

Comment *019-124* Adverse weather conditions, such as temperature inversions, will occur at night, yet they are not identified, nor are their potential adverse impacts studied, or discussed in the DEIS. This, coupled with the fact that the ambient noise levels are lower at night, the potential for a substantial increase in noise to exceed the objective significance threshold of 47 dBA is a likely situation that needs to be carefully.

Comment *019-125* The combined total noise from all nighttime operations must be accounted for in the FEIS.

Response The FEIS discusses adverse weather conditions and assumes the project's daytime noise levels could continue at night.

Comment *127-084* Next bullet point which is number four, how can the DEIS assess noise impacts and other impacts without knowing where this improvement will be located?

Response The noise analysis in the DEIS is based on the information available regarding location of the facilities, most of which are shown on the site plan. The FEIS also addresses noise from the conveyor.

Comment *019-508* Analyze the sound impact on surrounding neighborhoods from current truck traffic at Exit 34 and I-90.

Response The FEIS documents existing conditions in the project vicinity and evaluates potential impacts related to the proposal and alternatives.

Comment *019-150* The FEIS should identify the route of the conveyor belt, and then measure the conveyor belt as a Line Source, and account for any variances in noise based on length, elevation, distance, and worst-case meteorological effects upon the listed receptors. A Line Source measurement would be appropriate given that the conveyor belt:

a. Is 5,300 feet in length

b. Contains an 800 foot rise in elevation

c. Will have either a 36 or 42 inch wide belt

Response The route of the conveyor belt is shown in Figure 3-2 of the FEIS. The conveyor belt is included in the FEIS noise modeling.

Comment *019-133* The FEIS should present data that is consistent with other credible sources (E.P.A.) cited in the Technical Discussion section of this document for the same items, or, give plausible, defensible explanations for why the FEIS findings were significantly different for the same items.

Comment *019-205* Below is the data included in the DEIS for Project Generated Noise Sources.

TABLE 3.3-6

PROJECT-GENERATED NOISE SOURCES	NOISE LEVELS (in dBA)	50 FEET FROM SOURCE
Equipment	dBA	
Bulldozer (Cat D6)		72
Bulldozer (Cat D9)		85
Front-end loader (Cat 988)	2	75
Primary Crusher	2	84
Processing Facility	2	79
Wash Facility J	82	
Conveyor Belt Transfer Point	3	67
Concrete Facility	3	82
Asphalt Facility	4	53-78
Loaded Gravel Truck Traveling at 25 mph	2	65
Loaded Gravel Truck Traveling at 55 mph	2	67
Empty Gravel Truck Traveling at 25 mph	2	55

Sources:
1 Cadman, Inc., North Bend WA-calculated from a D4
2 Cadman, Inc., Black Diamond Operation, Black Diamond, WA
3 Ellensburg Concrete Products, Ellensburg, WA
4 CSR, Inc., Everett Asphalt Facility, WA - noise levels vary with direction
5 D911 at the 410 Quarry, Enumclaw, WA

There are a number of serious problems with the data provided above. The data provided:

1) Is not consistent with other credible sources for the same items

Comment *019-206* 2) Does not represent all of the known potential sources of project related noise.

Comment *019-207* 3) Incorrectly measures some of the noise sources provided.

Comment *019-208* 4) Does not list minimum and maximum levels for each source.

Comment *019-214* The reported noise level for the asphalt facility of 53 to 78 dBA at a distance of 50 feet is much lower than the noise levels that are actually generated by typical asphalt facilities. Additionally, there is no description of the type of asphalt facility proposed. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Comment *019-215*

There are generally two types of asphalt facilities: one, which includes an open-type burner and one, which utilizes an enclosed-type burner. An open burner plant generates a noise level of up to 97 dBA at a distance of 50 feet. A typical enclosed burner plant generates a noise level of about 85 dBA at 50 feet. An enclosed-type burner utilizing the best available noise control technology generates a noise level of about 80 dBA at a distance of 50 feet. The range of noise levels reported in Table 3.3-6 (53 dBA to 57 dBA) is not consistent with manufacturers data, even utilizing the best available control technology.

If an open-burner asphalt plant is assumed to be operating in the lower site generating a noise level of 97 dBA at a distance of 50 feet, predicted noise levels at within a quarter mile of the plant could be as high as 60 to 65 dBA, in contrast to the 8 to 12 dBA listed. Additionally, should there be high winds, or an inversion present, these figures could increase significantly at any downwind receivers, or in the case of an inversion, any receiver within a one mile radius.

Comment *019-216*

The noise levels presented for gravel trucks are substantially below noise levels commonly used for gravel trucks and "vehicle noise emission levels" published by the Federal Highway Administration. Truck noise is primarily a function of engine RPM, not vehicle speed. Trucks actually generate an A-weighted noise level of between 80 and 85 dBA measured at a distance of 50 feet.

Comment *099-010*

TABLE 3.3-6 PROJECT GENERATED NOISE SOURCES

In my employment I have experience working with industrial equipment but not construction equipment. In working with OSHA requirement standards normally require manufacturers to commit to equipment noise levels measured one meter from the machine. How were the values in this table obtained. (Only the source is explained and this is to me questionable in accuracy)

Response

The DEIS used actual data from operating mines and onsite noise monitoring. This data is considered to be more relevant than generic data from other sources. The FEIS provides additional clarification regarding the source of the noise data.

Comment *019-297*

Potential noise sources would include, but are not limited to: the gravel pit operation, the processing plant operation(s), reclamation activities, back up beepers, all trucks (Cadman, or third party), additional motor vehicle traffic, grinding gears, crushers, etc.

Comment *020-416*

Potential noise sources would include, but are not limited to: the gravel pit operation, the processing plant operation(s), reclamation activities, back up beepers, all trucks (Cadman, or third party), additional motor vehicle traffic, grinding gears, crushers, etc.

Response

These noise sources were included in the onsite measurements used in the ENM modeling in the DEIS.

Comment *019-307*

The EIS should assess and quantify potential Shadow Effect of the Noise Barrier proposed for the Gravel Pit(s) and Processing Plant(s) (referred to by the applicants as Berms) to residents, businesses, and schools, located above the proposed site(s).

Comment *019-308*

The EIS should assess and quantify potential Shadow Effect of the Noise Barrier proposed for the Gravel Pit(s) and Processing Plant(s) (referred to by the applicants as Berms) to residents, businesses, and schools, located below the proposed site(s).

Comment *020-426* The EIS should assess and quantify potential Shadow Effect of the Noise Barrier proposed for the Gravel Pit(s) and Processing Plant(s) (referred to by the applicants as Berms) to residents, businesses, and schools located above the proposed site(s).

Comment *020-427* The EIS should assess and quantify potential Shadow Effect of the Noise Barrier proposed for the Gravel Pit(s) and Processing Plant(s) (referred to by the applicants as Berms) to residents, businesses, and schools located below the proposed site(s).

Response The Environment Noise Model simulates the movement of noise over topographical obstacles, such as barriers and berms, for all the noise receivers used in the model. The effectiveness of these barriers is reduced as distance from the noise sources increase. Output from this model is included in an appendix to the Noise Technical Report.

Comment *019-139* The FEIS should clearly identify the type of asphalt burner to be used, and provide data that is consistent with manufacturers ratings for the same equipment.

Response The FEIS Noise Technical Report provides details on the asphalt plant burner.

Comment *037-001* Noise from trucks, rock crushing, and other mining operations.

Response Projects noise impacts are discussed in the Noise chapter of the FEIS.

Comment *019-339* It is well documented that noise increases with vehicle speed. A heavy truck, at 30 mph. at 50 ft creates an 80 db sound rating. At 70 mph, the legal speed limit on Interstate 90, a heavy truck, at 50 ft. creates an 89db rating. The EIS should measure, and quantify the predicted noise levels generated by the 200, 400, 600, 800 and 1000 trucks per day at 500 ft., 1000 ft., 1 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants.

Comment *020-459* It is well documented that noise increases with vehicle speed. A heavy truck, at 30 mph at 50 ft. creates an 80 db sound rating. At 70 mph, the legal speed limit on Interstate 90, a heavy truck, at 50 ft. creates an 89 db rating. The DEIS should measure and quantify the predicted noise levels generated by the 200, 400, 600, 800, 1000, 1200 and 1500 trucks per day at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile distance from the Grouse Ridge Mining Pit and Processing Plants.

Response The FEIS calculates noise impacts from trucks operating at 60 mph, the speed limit on I-90 for trucks.

Comment *019-334* Highway noise is never constant. The noise level is always changing with the number, type, and speed of the vehicles that produce the noise. Traffic noise variations can be plotted however, and the EIS should assess and quantify the increase and effect of traffic noise specific to the type of traffic (heavy trucks) that the applicant will be introducing.

Comment *019-335* The E.I.S. should measure the projected increase in heavy truck traffic, add it to the existing freeway noise levels on I-90, measure, and project the environmental noise impact for traffic on the I-90 corridor, and at Exit 34 and 38 in both wet and dry conditions. This is particularly important in that heavy trucks are significantly louder on wet pavement.

Comment *020-454* Highway noise is never constant. The noise level is always changing with the number, type, and speed of the vehicles that produce the noise. Traffic noise variations can be plotted and the DEIS should assess and quantify the increase and effect of traffic noise specific to the type of traffic (heavy trucks) that the applicant will be using.

Comment *020-455* The EIS should measure the projected increase in heavy truck traffic, add it to the existing freeway noise levels on I-90, measure, and project the environmental noise impact for traffic on the I-90 corridor, and at Exit 34 and 38 in both wet and dry conditions. This is particularly important in that heavy trucks are significantly louder on wet pavement.

Response The DEIS examines only peak traffic noise impacts in order to present a conservative analysis protective of human health and the environment.

Truck travel on wet roads was not analyzed for two reasons: (1) the noise measurement procedures, specified in the Washington Administrative Code, forbid noise measurements taken when precipitation may affect the readings (WAC 173-58-040); and (2) the approved FHWA traffic noise models cannot differentiate between wet or dry pavement.

Comment *019-144* The FEIS needs to carefully, and empirically identify, and assess the potential adverse effects of both onsite and offsite truck traffic when combined with other project generated noise to determine the overall effect at all sensitive receptors. Provided that the list of project-generated noise is complete, and accurate, and uses maximum noise values, this should represent the total impact of environmental noise at the identified receivers.

Comment *020-332* The FEIS needs to carefully and empirically identify, and assess the potential adverse effects of both onsite and offsite truck traffic when combined with other project-generated noise to determine the overall effect at all sensitive receptors. Provided that the list of project-generated noise is complete and accurate, and uses maximum noise values this should represent the total impact of environmental noise at the identified receivers.

Response Please see the Noise chapter of the FEIS for a discussion of truck traffic noise.

Comment *020-334* The FEIS should identify the number of vehicles per minute, per hour, per day, the type of vehicle, and it's projected noise ratings on steep grades using a Line Source measurement

Comment *020-335* The FEIS should identify, analyze, and discuss the potential impact on the listed receivers from truck traffic on the road connecting the Upper and Lower sites at a minimum of four elevations for truck trips up and down the road.

Response The DEIS uses data for maximum truck trips per hour, as required in the Traffic Noise Model (TNM). Truck volumes for other time periods are not relevant. TNM is FHWA's most recent and advanced line source model.

Comment *020-338* The FEIS should measure the conveyor belt as a Line Source and account for any variances in noise based on length, elevation, distance and worst-case meteorological effects upon the listed receptors. A Line Source measurement would be appropriate given that the conveyor belt:

Is 5,300 feet in length
Contains an 800 foot rise in elevation
Will have either a 36 or 42 inch wide belt

Response The FEIS noise analysis includes the conveyor belt as a line source.

Comment *019-220* The DEIS Section on Noise, Table 3.3-6, Project Generated Noise Sources, only identifies the sound of one truck at 50 feet, using averaged sound levels (Leq), and not the maximum levels that can, and will be generated by the projects noise sources. Given that the 118 trucks mentioned in the Energy section will be traveling up and down the steep grade of the onsite road, the noise generated by them will include engines straining, and belching, metal grinding, the sound of brakes, and extremely loud noise from the revving of engines as the trucks attempt to work their way up, and down, the steep grade of the road on site.

Comment *019-221* Failure to utilize this data, which was documented in other sections of the DEIS, and the estimates prepared by Heffron Transportation (1999), misrepresents the noise studies findings, and demonstrates the lack of completeness of the noise study in the DEIS.

Comment *019-222* The not only casts doubts on the credibility of the complete, and whole study, given that project generated noise that was identified in the DEIS, was not accurate, as per the sources above, but renders any and all discussion of "worst case scenarios." This example underscores the fact that the Noise study failed to meet SEPA Guidelines and Regulations in identifying known project noise sources, their potential adverse impacts, and their relation to project alternatives, thus obstructing meaningful public commentary of the projects impacts. This is consistent with other aspects of the noise study.

Response The full volume of truck traffic was used in the noise analysis of the DEIS.

Comment *020-361* The Conveyor Belt was measured as a single Point Measurement, listing the Conveyor Belt Transfer Point as the sole source of potential noise generated by the mile long conveyor. Using a Point Measurement on an item that should have been sampled using a Line Measurement is inappropriate and known to produce inaccurate representations of maximum noise levels. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

Response The Conveyor belt is modeled as a line source in the noise analysis in the FEIS.

Comment *020-358* Measurement and Maximum Levels
Asphalt Plant The reported noise level for the asphalt facility of 53 to 78 dBA at a distance of 50 feet is much lower than the noise levels that are actually generated by typical asphalt facilities. Additionally, there is no description of the type of asphalt facility proposed. This is consistent with the poor definition of noise metrics that occurs throughout the entire noise assessment.

There are generally two types of asphalt facilities: one, which includes an open-type burner and one, which utilizes an enclosed-type burner. An open burner plant generates a noise level of up to 97 dBA at a distance of 50 feet. A typical enclosed burner plant generates a noise level of about 85 dBA at 50 feet. An enclosed-type burner utilizing the best available noise control technology generates a noise level of

about 80 dBA at a distance of 50 feet. The range of noise levels reported in Table 3.3-6 (53 dBA to 57 dBA) is not consistent with manufacturers data, even utilizing the best available control technology.

If an open-burner asphalt plant is assumed to be operating in the lower site generating a noise level of 97 dBA at a distance of 50 feet, predicted noise levels within a quarter mile of the plant could be as high as 60 to 65 dBA, in contrast to the 8 to 12 dBA listed. Additionally, should there be high winds or an inversion present these figures could increase significantly at any downwind receivers, or in the case of an inversion any receiver within a one mile radius.

Comment *019-210*

Note that these [EPA hourly average noise levels] are averaged, and thus, by definition, the maximum levels are significantly higher than the numbers provided, just as minimums are significantly lower. The DEIS data provided in 3.3-6, which are supposed to represent maximum sound levels of project generated noise, are equivalent to that of Leq levels, averaged over time, and thus cannot represent maximum sound levels. As such, the data provided in the DEIS misrepresents the maximum sound levels from the sources listed.

Comment *019-211*

This negates the complete listing of potential impacts, and their relation to project alternatives provided in the DEIS Section on Noise.

Comment *020-357*

Measurement and Maximum Levels Construction/Construction Equipment The chart below, provided by the E.P.A. illustrates typical overall hourly average noise levels produced at 50 feet from a construction site for different types of construction, and construction equipment. While there is not a specific rating for mining, the Noise associated with ground clearing and excavation is the most applicable to the proposed Grouse Ridge Project.

(See comment document volume of FEIS for chart).

Note that these are averaged, and thus, by definition, the maximum levels are significantly higher than the numbers provided, just as minimums are significantly lower. The DEIS data provided in 3.3-6, which are supposed to represent maximum sound levels of project generated noise are equivalent to that of Leq levels, averaged over time, and thus cannot represent maximum sound levels. As such, the data provided in the DEIS misrepresents the maximum sound levels from the sources listed.

This negates the complete listing of potential impacts, and their relation to project alternatives provided in the DEIS Section on Noise.

Response

The noise monitoring data presented in the DEIS is considered to provide a more accurate picture of existing conditions than the generic EPA data cited above. Two full days of monitoring were performed, one site was repeated on both days, and the results were nearly identical at that site (SLM 1 and 6). The general model for the asphalt plant is an enclosed plant in Everett, and the model for a concrete plant is a plant in Ellensburg. If Cadman, Inc., Inc. decides to build asphalt and concrete plants, it plans to purchase state of the art equipment that meets operational and environmental needs. Design details would be provided in the application for a building permit. The noise impact is analyzed in the DEIS and FEIS.

Table 3.3-6 does show the LEQ in dBA of machinery at 50 feet. There is no conflict between the data in Table 3.3-6 in the DEIS and data referenced in the comments. The FEIS clarifies the metric for the noise source data.

Comment *019-121*

Volume 1 of the DEIS Section on Energy, Fuel, page 3.6-8 states that "Alternative 3's energy use would include onsite transportation to the lower sites batch plants and offsite traffic to transport aggregate and products to other facilities. Alternative 3 would increase the volume of traffic along the existing road linking the sites, as aggregate must be hauled approximately 8 miles from the upper site to the asphalt and concrete batch plants at the lower site. Based on estimates prepared by Heffron Transportation (1999), 118 trucks per day would travel between the sites to provide aggregate to the batch plants."

The DEIS Section on Noise, Table 3.3-6, Project Generated Noise Sources, only identifies the sound of one truck at 50 feet. Given that the 118 trucks mentioned in the Energy section will be traveling up and down the steep grade of the onsite road, the noise generated by them will include engines straining, and belching, metal grinding, the sound of brakes, and extremely loud noise from the revving of engines as the trucks attempt to work their way up, and down, the steep grade of the road on site. Failure to utilize this data, which was documented in the DEIS illustrates the lack of thoroughness of the noise study presented for review, and casts doubts on the credibility of the complete, and whole study, given that project generated noise that was identified in the DEIS, was not considered in the Noise study. Thus, Table 3.3-6, Project Generated Noise is severely underestimated as per the DEIS itself. This is consistent with other aspects of the noise study.

Response

Noise from trucks is addressed in the Noise chapter. The DEIS accounts for all truck trips onsite and all those truck trips which pass close to sensitive uses. Truck travel on I-90 between Exits 38 and 34 was not modeled due to the small number of project trucks compared to the total freeway volumes. A doubling of truck trips would cause only a 3 dBA increase in freeway noise levels.

Comment *127-054*

The other issue is also the context with which everything was looked at and, you know, I mean when you look at noise and you are looking at it in the industrial area, that is one thing. But there are homes around this. I live around this. These people live around this. And that echoes with noise. The valley echoes with noise. Echoes. I mean six miles down the road there is a gun shop and I hear it. Okay. I mean come on, you are you telling me I am not going to hear the beepers on those trucks or it can be mitigated. That is bullshit. That can't be mitigated.

And then the light, if the state allows lights, okay, and if not, then what? I am going to have to live for 25 years with beep, beep, beep while I am pushing my kid in his swing. I don't think so. Those kinds of things need to be addressed, the quality of people who live there.

Response

Potential impacts resulting from the proposed project noise and lighting are discussed in Chapters 5 and 12 of the FEIS.

Comment *019-120*

The FFIS should identify, analyze, and discuss the potential adverse impacts of this documented onsite truck traffic, identifying the true noise levels of 118 trucks, measured using a Line Measurement, and account for the variances in noise levels to receivers based on the trucks altitude on the road. It can safely be assumed that the noise generated by these trucks, once they travel more than 100 ft. in elevation up the roads steep grade, will not be able to take advantage of the "claimed" attenuation of berms and vegetation. Additionally, the FEIS should clearly identify the effects of easterly winds carrying this same project generated noise, down the hill, and into residential receivers nearby.

Response The Noise section of the DEIS does "identify, analyze and discuss the potential adverse impacts of this documented onsite truck traffic." The FEIS analyzes the effect of strong easterly winds on the project's noise impacts.

Comment *020-425* Specifically, the EIS should describe and identify any, and all, sources of noise, to include, but not limited to: Cadman and Third Party trucks on wet and dry pavement, on site property, on county arterial and connector roads, and on Interstate Freeways. As well as crushers, backup beeping signals, horns, whistles, conveyor belts, processing equipment, refuse removal, loaders, dump trucks, and all other Grouse Ridge project related sound and noise generators with their respective dBA levels. Measurement should show respective and continuous dBA levels for one minute, 5 minutes, 15 minutes, 30 minutes, one hour, 8 hour, 10 hour, and 24 hour

Response The FEIS identifies all noise sources for each phase for the Upper and Lower Sites. One hour increments are not relevant for analysis of impacts and comparison to regulatory standards. The DEIS and FEIS provide analysis of worst case conditions.

Comment *142-005* Odor impacts based on data from Table 8 odors will be detectable only at the borders of the lower site. How does the odor just stay in the border? Have you ever been around a freshly paved road? It stinks for miles. In addition, we have big winds in this area, the odor will move all over the valley, every day and night! This is unacceptable.

Response The DEIS Technical Report stated that "…it is unlikely that odors would be detectable at the boundaries of the Lower Site lease area." In other words, the concentrations of odorous compounds diminish with distance from the source and would not be detectable at distances greater than those from the source to the lease boundaries. High winds, such as are common in the North Bend area, can push pollutants and odors towards residential areas, however, high winds also churn up the air thus diluting odors.

Comment *026-017* The DEIS should evaluate and contrast the relative impact of truck noise increases under Alternatives 2, 3 and 4. Alternative 2 assumes an incremental increase in existing heavy truck traffic noise. In contrast, Alternatives 3 and 4 pose a significantly greater increase in noise over existing conditions (see Table 3.3-15). More importantly, Alternatives 3 and 4 pose a new noise generating activity along the length of SE Homestead Valley Road and the adjoining Ollalie State Park. Qualitatively, the introduction of a heavy truck haul route in an area where such activity does not exist has a greater impact than does an incremental increase of this activity where it is already long established.

Response The Homestead Mine Road area was examined for sensitive uses. No homes are close to the S.E. Grouse Ridge Road. There are homes close to I-90 in the Homestead Valley. They are subject to high noise levels now. The increase due to the project's gravel trucks on I-90 would be similar to that for the other residential areas south of I-90 near Exit 34.

Comment *026-018* We would like the FEIS to make reference to the commitment Cadman has made to use ambient sensitive back up beepers on our on site equipment. We do not believe that will substantially change the noise analysis, but this mitigation measure should be noted.

Response The FEIS acknowledges Cadman's commitment to use ambient sensitive back up beepers.

Comment *020-328* The FEIS should clearly identify the model, and numbers of each piece of heavy equipment, referred to in Table 3.3-6, for both the Upper and Lower sites and provide data that is consistent with manufacturers ratings for the same equipment.

Response An equipment list is included in Chapter 6 of the DEIS. Detailed information such as models of heavy equipment would be determined at the design phase of the project and is not required for an EIS.

Comment *020-424* The EIS should quantify and publish a catalogue listing sound measurements in dBA for all equipment to be used or potentially used at the Grouse Ridge Project.

Response Noise measurements for equipment are included in the FEIS.

Comment *024B-012* Define all decibel levels correctly throughout the report. There are numerous references "noise levels" without defining whether this is a maximum noise level or an average noise, whether it is measured utilizing a fast or slow time constant, etc. It is true for the noise regulations as well. The "King County maximum permissible sound levels (in dBA)" do not state what time averaging, if any, is included with these standards. The notes indicate that these may be average noise levels, even though they are identified as maximum noise levels. The lack of specificity throughout the noise assessment makes it very difficult to understand it.

Response The FEIS clarifies the metrics used in the Noise chapter.

Comment *024A-058* 13. Finally, we would note that we requested Pierce Milliman to visit Cadman's Black Diamond facility to determine noise levels at residences around that facility. Mr. Milliman visited the facility and was given a tour of the facility by a Cadman representative. He drove the area and spoke with several residents living near the facility. He spoke with one individual living on 357th street who lives about 400 feet from the berm. She has lived there 20 years. She said that she experienced constant but fairly low level noise that was much louder about twice a week (probably due to weather conditions). She often notices a thudding noise, perhaps from the crusher. A neighbor across the street and somewhat higher in elevation hears the noise much more clearly. It should be noted that the Lu residence is significantly higher than the operations area.

Response Site visits by the Noise consultant for the EIS tend to confirm this comment. Noise from the Black Diamond facility was not heard until within 400-500 feet of the site entrance.

Comment *024A-059* It is also interesting to note that operations at the Black Diamond site are restricted to the hours of 7 a.m. to 10 p.m. and do not operate throughout the night as proposed for the North Bend project. Why would the County permit all night operations at the North Bend site when there are many more residences within hearing distance than is the case at the Black Diamond site?

Response Only trucking is proposed 24 hours a day. King County has yet to determine hours of operation.

Comment *024A-047* They were particularly amazed at the predicted noise generated by the asphalt plant. The DEIS appears to indicate that the asphalt plant will be of a "directional" type which means that it does not utilize the best available noise control technology. Such plants generate as much as 97 dBA at 50 feet. As Mr. Rodkin notes to us, this approaches the noise generated by jet airplanes.

Response Our measured data shows a maximum LEQ of 78 dBA at 50 feet from the outside of the asphalt plant (no trucks or FELs included). This measurement was collected at ground level at the side of the plant with the exhaust fan. Noise levels inside the plant 30 feet from the Hauk Echostar burner are 92 dBA LEQ.

Comment *099-011* (3.3.2.2) Impacts of Offsite Traffic

It appears that the future impact of offsite traffic due to the project itself were not factored into the projections in Tables 3.3-8 through 3.3-14. They were discussed separately as a separate unrelated study for SEPA review, and dismissed at that point, seemingly with the rationalization that traffic on public highways is exempt from regulation. However it will raise the overall noise level. How can this substantial component of noise be included objectively in the final EIS?

Comment *024A-048* There is no evidence that the assessment of noise generated by large trucks was factored into the analysis of overall noise impacts on sensitive receptors.

Response Truck noise was included in the DEIS analysis.

3.3.4 Cumulative Impacts

Comment *019-510* What type of sound barriers can be erected near or at Exit 34?

Comment *019-511* Analyze the effectiveness of sound barriers, and the impact to the Exit 34 corridor of their actual construction.

Comment *020-641* What type of sound barriers can be erected near or at Exit 34?

Comment *020-642* Analyze the effectiveness of sound barriers, and the impact to the Exit 34 corridor of their actual construction.

Response Comments acknowledged. Noise barriers can provide effective mitigation of traffic noise, but they are not effective in business districts due to the need for driveways and exits. Sound barriers along Exit 34 were not proposed as mitigation.

Comment *020-026* The proposed mitigation during operation is to orient buildings, limit hours, reduce speeds (to 25 mph) and replace backup alarms with lights. Nothing is proposed to reduce sound emissions.

Response Comment acknowledged. Limited speeds would reduce truck noise.

Comment *012-010* The analyses contained in the DEIS are done in a "snap-shot" fashion. Impacts of noise, air quality (as in P10 contaminants), traffic, etc., are confined to current conditions and no modeling is done to assess cumulative impacts of the proposed mine operation or impacts of the mine in combination with future residential and commercial development. WAC 197-11-060, paragraph (4)(c) states that: Agencies shall carefully consider the range of probable impacts, including short-term and long-term effects. Impacts shall include those that are likely to arise or exist over the lifetime of a proposal or, depending on the particular proposal, longer.

Response The effects of other development in the North Bend area on the background air quality are qualitatively assessed in the FEIS. The primary noise impact of cumulative development would be due to increased traffic volumes. Future increased traffic volumes are incorporated into the future "No Build" traffic models presented in the FEIS.

Comment *019-127* The FEIS should clearly identify, discuss, and analyze the potential for the cumulative impacts of environmental noise from construction and operational activities, and all onsite and offsite traffic. Cumulative noise is defined in the noise study to be the noise of the project plus ambient noise. "Cumulative" normally means the effects of the proposed project and other reasonable or foreseeable projects. Such an analysis has not been completed.

Comment *020-640* What will be the cumulative sound impact with the project located at the Lower Site and utilizing the Exit 34 corridor?

Comment *024B-011* The discussion of cumulative impacts is confusion, Cumulative noise is defined in the noise study to be the noise of the project plus ambient noise, "Cumulative" normally means the effects of the proposed project and other reasonable or foreseeable projects. Such ma analysis has not been completed.

Response The primary noise impact of cumulative development would be due to increased traffic volumes. Future increased traffic volumes have been incorporated into the future "No Build" traffic models presented in the FEIS.

Comment *019-296* The EIS should project, measure, and quantify the impact of environmental noise using accepted world standard measurements for cumulative impact of environmental noise. Cumulative noise is defined as any, and all noise generated from all sources associated with the Grouse Ridge Project, cumulatively, and over time, that would adversely impact the public's health and well being.

Comment *019-298* The EIS should specify that all measurements of the cumulative effect of environmental noise from the Grouse Ridge Project be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years, and in all cases, should comply with EPA Protective Levels, Federal, State and King County regulations, whichever is the greater standard in regards to the public health and well being.

Comment *019-300* The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the recommended Inside and Outside noise levels. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-301*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on recommended Day Night noise levels. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-302*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on heart disease. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-303*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on ulcers. Measurements should be taken at 500 ft., 1000 ft, 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-311*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on low birth weight. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-312*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-313*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on hearing loss. Measurements should be taken at 500 ft.,1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-314*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the ability to concentrate. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-315*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on high blood pressure. Measurements should be taken at 500 ft., 1000 ft., 1,/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-316*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on anxiety levels in humans. Measurements should be taken at 500 ft., 1000 ft., 1 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-317*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the human fetus during gestation. Measurements should be taken at 500 ft., 1000 ft., 1A mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-318*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on high frequency hearing loss in newborns. Measurements should be taken at 500 ft., 1000 ft, 1/4 mi., 1/2 mi.3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-319*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on any recreational areas, within one mile of, and including, but not limited to: The Grouse Ridge gravel pit(s) and Processing Plants, Edgewick Road, I-90 between Exit 38 and 1-405, S.R. 18 between I-90 and I-5, and Middlefork Road.

***Comment** 019-321*

The E.I.S. should identify, asses, measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the teacher-student learning process. Measurements should be taken at 500 ft., 1000 ft., 1 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25.

***Comment** 019-323*

The E.I.S. should study the effects of continuous, cumulative noise on children waiting for school buses. Measurement should be conducted for 1 minute, 5 minute, 10 minute, 20 minute, 30 minute, 45 minute, and one hour exposures, and be projected per school day, school week, school month, school year, and per 5, 10, 15, and 25 school years.

***Comment** 019-324*

The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference inside proposed school sites.

Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-325*

The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference outside proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-326* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on hearing loss both inside, and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-327* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the ability to concentrate both inside, and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-328* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on high blood pressure both inside, and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-329* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on anxiety levels in children both inside, and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-330* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the increase in anti-social behavior in children both inside, and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-332* The E.I.S. should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on our new schools ability to adhere to the recommendations put forth in "Quiet Classroom Letters" (source: The Acoustical Society of America).

***Comment** 019-333* Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 019-337* The E.I.S. should identify, quantify, project and publish the cumulative effect of any, and all sources of transportation noise to include, but not limited to: trucks (on wet and dry pavement, on site property, on county arterial and connector roads, and on Interstate Freeways), horns, refuse removal, loaders, dump trucks, and all other Grouse Ridge project related transportation sound and noise generators.

***Comment** 019-338* The EIS should study the cumulative effect of noise levels at 500 ft., 1000 ft., 1 mi., 1/2 mi., 3/4, and one mile distances of the I-90 corridor from Exit 38 to Exit 25.

***Comment** 019-340* The EIS should measure, and quantify the cumulative noise levels generated by the 200, 400, 600, 800, 1000, 1200, and 1500 round trip truck trips per day at 500 ft.,

1000 ft., 1 mi., 1/2 mi., 3/4 mi. and one mile distance from the Grouse Ridge Mining Pit and Processing Plants.

***Comment** 019-341* The EIS should project, measure, and quantify the cumulative levels generated by the 200, 400, 600,800, 1000, 1200, and 1500 round trip truck trips per day at 500 ft., 1000 ft, 1/4 mi., 1/2 mi., 3/4 mi. and one mile distance from Exit 38 to Exit 25 on I-90.

***Comment** 019-342* The EIS should measure, and quantify the predicted cumulative noise levels generated by all traffic resulting from the projects operation on a per min., per hour, per day (operating 10 hr., 12 hr., and 24 hr. per day) per week, per month, and per year from the Grouse Ridge Mining Pit and Processing Plants.

***Comment** 019-343* Given the unique geography inherent in the Snoqualmie Valley, and the I-90 corridor from Exit 38 to Exit 25, where the valley is surrounded by mountains on either side, the EIS should assess and measure the cumulative effect of sound from all Grouse Ridge Operations at the following elevations: 500 ft., 750 ft., 1000 ft., 1500 ft., 2000 ft., 2500 ft., 3000 ft. from Exit 38 to Exit 25.

***Comment** 019-344* Given the unique geography inherent in the Snoqualmie Valley, and the I-90 corridor from Exit 38 to Exit 25, where the valley is surrounded by mountains on either side, the EIS should assess and measure the cumulative effect of sound, and vibration and reverberations throughout the valley. Measurement should be conducted at the following elevations: 500 ft., 750,ft., 1000,ft., 1500,ft., 2000,ft., 2500,ft., 3000,ft., and on the valley floor, at the following distances: 50fft., 100,ft., 250,ft., 500,ft., 750 ft., 1000 ft., 1/4 mi,. 1/2 mi, 3/4 mi., and one mile.

***Comment** 019-509* What will be the cumulative sound impact with the project located at the Lower Site and utilizing the Exit 34 corridor?

***Comment** 020-415* The EIS should measure, and quantify the impact of environmental noise using accepted world standard measurements for cumulative impact of environmental noise. Cumulative noise is defined as any and all noise generated from all sources associated with the Grouse Ridge Project, cumulatively, and over time, that would adversely impact the public's health and well being.

***Comment** 020-417* The EIS should specify that all measurements of the cumulative effect of environmental noise from the Grouse Ridge Project be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years, and in all cases, should comply with EPA Protective Levels, Federal, State, and King County regulations, whichever is the greater standard in regards to the public health and well being.

***Comment** 020-419* The EIS should measure and qualify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the recommended Inside and Outside noise levels. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-420* The EIS should measure and qualify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the recommended Day Night noise levels. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-421* The EIS should measure and qualify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on heart disease. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-422* The EIS should measure and qualify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on ulcers. Measurements should be taken at 500 ft., 1000 ft, 1/4 mi., 1/2 mi., 3/4, and one-mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-430* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on low birth weight. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-431* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-432* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on hearing loss. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-433* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the ability to concentrate. Measurements should be taken at 500 R., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-434* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on high blood pressure. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-435* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on anxiety levels in humans. Measurements should be taken at 500 ft., 1000 ft., A mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-436*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the human fetus during gestation. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-437*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the high frequency hearing loss in newborns. Measurements should be taken at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-439*

The EIS should identify, assess, measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the teacher - student learning process. Measurements should be taken at 500 ft, 1000 ft, 1/4 mi., 1/2 mi., 3/4, and one mile, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25

***Comment** 020-443*

The EIS should study the effects of continuous, cumulative noise on children waiting for school buses. Measurement should be conducted for 1 minute, 5 minute, 10 minute, 20 minute, 30 minute, 45 minute, and one hour exposures, and be projected per school day, school week, school month, school year, and per 5, 10, 15, and 25 school years.

***Comment** 020-444*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference inside proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-445*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on speech interference outside proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-446*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on hearing loss both inside and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

***Comment** 020-447*

The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the ability to concentrate both inside and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-448* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on high blood pressure both inside and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-449* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on anxiety levels in children both inside and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-450* The EIS should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on the increase in anti-social behavior in children both inside and outside the proposed school sites. Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Comment *020-458* The DEIS should study the cumulative effect of noise levels at 500 ft., 1000 ft, 1/4 mi., 1/2 mi., 3/4, and one mile distances of the I-90 corridor from Exit 38 to Exit 25.

Comment *020-460* The DEIS should measure and quantify the cumulative noise levels generated by the 200, 400, 600, 800, 1000, 1200, and 1500 round trip truck trips per day at 500 ft., 1000 r, 1/4 mi., 1/2 mi., 3/4, mi. and one mile distance from the Grouse Ridge Mining Pit and Processing Plants.

Comment *020-461* The EIS should measure and quantify the cumulative levels generated by the 200, 400, 600, 800, 1000, 1200, and 1500 round trip truck trips per day at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4,mi. and one mile distance from Exit 38 to Exit 25 on I-90.

Comment *020-463* Given the unique geography inherent in the Snoqualmie Valley and the I-90 corridor from Exit 38 to Exit 25, where the valley is surrounded by mountains on either side, the DEIS should assess and measure the cumulative effect of sound from all Grouse Ridge Operations at the following elevations: 500 ft.,. 750 ft., 1000 ft., 1500 ft., 2000 ft., 2500 ft., 3000 ft., from Exit 38 to Exit 25.

Comment *020-464* Given the unique geography inherent in the Snoqualmie Valley and the I-90 corridor from Exit 38 to Exit 25, where mountains on either side surround the project.

WIAGRA response to DEIS for North Bend Gravel Operation 8/13/0075 influence valley, the DEIS should assess and measure the cumulative effect of sound, vibration, and reverberations throughout the valley. Measurement should be conducted at the following elevations: 500 ft., 750 ft.,1000 ft., 1500 ft., 2000 ft., 2500 ft., 3000 ft., and on the valley floor, at the following distances: 50 ft., 100 ft., 250 ft., 500 ft., 750 ft., 1000 ft., 1/4 mi, 1/2 mi, 3/4 mi, and one mile.

Comment *099-009* How can it be said that cumulative noise levels during construction would be unchanged from current conditions unless "cumulative levels" is a meaningless value?

Response The FEIS addresses cumulative noise impacts in detail. Speech interference inside a building is influenced by both interior and exterior noises. Exterior noise levels would have to increase by at least 3 dBA over existing levels to be heard through an open

window or door. This project would increase exterior noise by more than 3 dBA at several locations—residences south of I-90 (seven locations for Alternative 2, three locations for Alternative 3, four for Alternative 4), the Edgewick Inn, the Fire Training Academy and at Olallie State Park. Mitigation is proposed for the later three locations. Mitigation is not required under either the K.C. Noise Ordinance or EPA's guidelines for either the Edgewick Inn or the residences south of I-90; however, good road maintenance and adherence to the existing speed limits will help mitigate noise levels at Edgewick Inn. The effect of this project's noise upon speech intelligibility hearing loss or other health-related concerns was not detailed in the DEIS because existing noise levels will not cause these types of problems.

The EIS uses an accurate and relevant methodology to measure existing noise levels. Noise measurements were taken at the most sensitive receiver sites rather than arbitrary distances. Actual distances range from 1/4 mile to 1 1/8 miles. Measurements were taken at the actual elevations of these sites. The monitored data was recorded on an hour by hour basis and project impacts are modified assuming a peak hour noise level would continue all day, every day of operation.

The potential for vibration impacts from the project's truck traffic was examined using procedures developed by the Federal Transit Administration. This analysis indicated that no vibration impacts would be expected as a result of the project.

Comment *020-452*

The EIS should measure, and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on our new schools ability to adhere to the recommendations put forth in "Quiet Classroom Letters" (source: The Acoustical Society of America) Measurements should be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Response

Cumulative noise impacts are addressed in the FEIS. The FEIS shows that noise levels at the proposed school site would increase by no more than 1 dBA over existing background levels (currently 53 dBA during the daytime).

Comment *019-160*

Additionally, the FEIS should state, for the record, why these two serious and significant impacts, while noted as "causing the highest noise levels from a source" were not studied?

Comment *020-339*

The FEIS should identify, measure, and describe the potential impacts of the two "worst case scenarios" high wind and inversions that were identified in the DEIS, but not studied, or considered in regards to potential impact.

"Two meteorological conditions will cause the highest noise levels from a source, either high winds which "bend" the sound waves towards a ground level receiver or a low level inversion layer which inhibits sound waves from dispersing upwards. [DEIS, Noise Section, Volume 2, Appendix C, pg. 10]

Comment *020-340*

The FEIS should state why these two serious and significant impacts, while noted as "causing the highest noise levels from a source" were not studied?

Comment *020-341*

The FEIS should utilize the accepted standard used in acoustical engineering for determining a worst-case wind scenario, which is to assume the wind blows from the

center of the source outward in all directions. While this never occurs, it correctly identifies, and reflects the maximum levels possible at all receptors due to wind.

Comment *020-342*

The FEIS should, in the worst case scenario modeling referenced above, include winds from the east or east-southeast, and at wind velocities of greater than 20mph, greater than 30mph, and greater than 40mph" in the "worst case scenario." This would provide an accurate representation of the winds found near the site at Exit 34 for approximately 257 days of the year, as per the data provided in Addendum A.

This is highly significant given that strong winds from the east would carry project related noise sources generated by the lower site approximately 249 days of the year, directly into residential communities situated inside a one mile radius from the proposed lower site.

Comment *020-346*

The FEIS should, in the worst-case scenario modeling referenced above, include the effects caused by Inversions, as identified in Addendum A.

Comment *020-348*

The FEIS should measure, and identify the potential impacts, accounting for the well-established fact that Inversions, when present, can cause a 20dB or higher amplification to a given receiver.

This is highly significant given that this could carry project related noise sources generated by the lower site approximately 249 days of the year, directly into residential communities situated within a one mile radius, in any direction, from the proposed lower site.

Response

The DEIS analyzed the scenario in which the wind blows directly from the project towards the closest residential areas. The DEIS Noise section also analyzed typical and inversion meteorological conditions. The FEIS adds a high wind scenario to the analysis. The inversion and high-wind scenarios are considered to be worst-case meteorological conditions

---

Comment *020-457*

The EIS should identify, quantify, and publish the cumulative effect of any, and all sources of transportation noise to include, but not limited to: trucks (on wet and dry pavement, on site property, on county arterial and connector roads, and on Interstate Freeways), horns, refuse removal, loaders, dump trucks, and all other Grouse Ridge project related transportation sound and noise generators.

Response

The Noise chapter of the FEIS addresses cumulative noise impacts in detail. This comment assumes that wet pavement will affect measured traffic noise. Truck travel on wet roads was not analyzed for two reasons: (1) the noise measurement procedures, specified in the Washington Administrative Code, forbid noise measurements taken when precipitation may affect the readings (WAC 173-58-040); and (2) the approved FHWA traffic noise models cannot differentiate between wet or dry pavement.

Comment *020-462*

The DEIS should measure and quantify the predicted cumulative noise levels generated by all traffic resulting from the projects operation on a per minute, per hour, per day (operating 10 hr. 12 hr. and 24 hr. per day) per week, per month, and per year from the Grouse Ridge Mining Pit and Processing Plants.

Response

The EIS quantified the project's noise impacts, not for a specific time period, but for a "window" during which all mining machinery was operating and peak truck traffic (in the morning) was entering and leaving the site. This analysis is conservative in that it assumes that peak operating conditions will occur for extended periods of time. This is

a worst-case analysis as required for SEPA. Analysis for other time periods, if realistically done, would show lower long-term noise levels.

3.3.5 Mitigation Measures

Comment *071-009* A full peer review by a qualified acoustics engineer of the entire project and further detailing of how noise will be monitored over the length of the project.

Response Comment acknowledged. The FEIS recommends noise monitoring as a mitigation measure.

Comment *020-023* Off-site vehicle traffic is exempt from noise regulation, so no mitigation measure is proposed.

The FEIS proposes mitigation to reduce noise from project-related off-site truck traffic.

Comment *019-299* The EIS should require that all measurements for the environmental impact of noise be taken, or projected at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all cases, should comply with EPA Protective Levels, Federal, State and King County regulations, whichever is the greater standard in regards to the public health and well being.

Response The Noise chapter of the FEIS recommends noise monitoring as a mitigation measure. The requirements of the plan would be developed by King County during the design and permitting of the project.

Comment *019-196* The FEIS should state as a condition of approval that the project related noise would not be heard by any of the receivers, as per the data in the DEIS, and if the FEIS makes the same representations.

Response Neither the DEIS nor the FEIS state that the project would be inaudible. The EIS does not determine conditions of approval; that is up to King County.

Comment *099-012* What is the significance to the residents in all these areas of placing one building in line with another if they are not in the same narrow line?

Response The advantage of aligning the asphalt plant as described in the EIS is that this arrangement uses the asphalt plant to buffer the noise of its high capacity exhaust fan.

Comment *019-194* The DEIS recommends several mitigation measures for the proposed project despite finding that the project will not change ambient noise conditions at sensitive receptors, if the latter is true, then the FEIS should clarify why the five measures on p. 3.3-18 are recommend.

Comment *020-322* The DEIS recommends several mitigation measures for the proposed project despite finding that the project will not change ambient noise conditions at sensitive receptors. If the latter is true, then the FEIS should clarify why the five measures on p. 3.3-18 are recommended.

Comment *024A-052* We are curious why the DEIS essentially finds that the project will not create any substantial amount of noise at nearby receptors and yet on p. 3.3-18 the DEIS recommends mitigation measures to reduce noise. Similarly, in other sections of the DEIS noise mitigation measures are recommended to decrease noise impacts on wildlife (p. 3.5-18). The inclusion of these mitigations corroborates our conclusions that the project will generate significant amounts of noise. Please discuss.

Response Two sets of standards apply to this project. Under King County Noise Codes, which exempts trucks on public roads, there would be exceedances under high wind and inversion meteorology, but none under typical meteorology. Under EPA Guidelines (not a legal standard) there would be "serious" or "significant" increases in noise due to truck traffic on public roads. Mitigation measures would be needed to minimize impacts during high winds. Some mitigation measures were assumed in the noise modeling and are listed to ensure they are incorporated into the project design.

Comment *012-149* [DEIS §3.5; p. 3.5-15] Table 3.3-15 lists dBA Leq levels that exceed King County Noise Ordinance levels. Project noise levels thus violate County ordinances. Why does the DEIS ignore this? What mitigation in proposed?

Response The DEIS does not ignore truck noise impacts, however truck noise from public roads is exempt from the King County noise ordinance. The noise increases caused by trucks are compared to EPA standards and mitigation is proposed.

Comment *026-015* We would like the FEIS to include specific recommendations for long term noise monitoring. After our review of the DEIS, Cadman suggests a long term monitoring program that includes several residences in close proximity, Middle Fork residential areas, the Valley Camp and the proposed school site. This monitoring could be conducted quarterly throughout the life of the operation with results available to the public for review.

Response The FEIS includes a recommendation for a long-term noise monitoring plan.

Comment *043-002* Averages for dBA's are given for a variety of equipment, but no mention is made of horns or whistles, which are a basic part of any mining operation. Please include in the FEIS how many horns and whistles will be used, when they will sound, what frequency and amplitude their sound will be. In addition, provide peak amplitudes for the other noise levels mentioned and frequency limits.

Response Noise measurements of other facilities included any horns, whistles or backup beepers in use during the measurement period. This project would be designed to minimize vehicles backing up and Cadman has committed to using ambient sensitive back up beepers.

Comment *115-032* p. 3.3-16 Alternative 2, Offsite truck noise. How will this "serious" impact be mitigated?

Response Lower truck speeds are a primary way to reduce truck noise impacts.

Comment *115-033* P 3.3-18, 3.3.5.2 Operation - why would it not be practical to re-designate the speed limit on the Ollalie Park/SE Grouse Ridge Road? You need an explanation here.

Response King County would need to decide whether it is possible to change the speed limit.

Comment *115-054* P 3.5-18 Sound reducing kits on bulldozers? This should be interesting. Care to expound a bit? I don't even know what that is, or how feasible they are.

Response Please see the revised FEIS Noise chapter for a discussion of measures to mitigate noise. Sound-reducing kits are not recommended as mitigation in the FEIS.

Comment *127-094* Thank you for this opportunity to speak. There were several things in the impact summary that I had issues with, one being the noise mitigation issue.

Response Comment acknowledged.

Comment *024B-008* Please include in the noise impact assessment a subjective assessment of the character of the noise. Appropriate penalties could be imposed if the character of the noise is pure tone in nature (such as the noise resulting from back-up beepers), A mitigation measure is recommended in the noise assessment to eliminate back-up beepers. It is our experience that back-up beepers may not be eliminated unless a substitute method is implemented that is often costly and unacceptable, If strobe lights or spotters are going to be utilized than this condition should be required not simply suggested.

Response A subjective assessment of the project's noise is inappropriate in an EIS. The proponent has committed to using ambient-sensitive backup beepers in order to reduce pure tone noise impacts.

Comment *019-197* To insure the above condition, the FEIS should, as a condition of the permit's approval, require that Noise monitoring equipment be placed at any, and all receivers that the FEIS states will not hear project related noise over the ambient noise levels. If noise generated by the project exceeds the predictions of the FEIS (namely an increase over the ambient level), then the applicant shall take immediate steps to reduce the noise to the ambient level.

Comment *019-198* This mitigation measure would ensure that the FEIS is accurate, and correct and complies with stated levels of project related noise and County noise standards will not be exceeded by the project. Monitoring is an established methodology for insuring that projects remain within Permit Conditions. Given that the County, and State Agencies have limited personnel to insure compliance, mandatory monitoring would provide a straightforward means for the County, and the public to insure that the project operates within the parameters of the FEIS, and the permit conditions specified. If the County, as the Lead Agency, and specifically, the Project Manager and Management Chain within the Department of Development and Environmental Services are convinced that the FEIS is correct in its assertions that the project will not increase the ambient noise levels at specified receivers, and the surrounding area, then there should be no problem requiring this mitigation on behalf of the public.

Comment *024A-055* If the County, for whatever reason, decides not to revise this section of the report along with the rest of the DEIS, then the County should assure local residents that it agrees with the conclusions of the DEIS by adding a mitigation measure. This mitigation measure would require noise monitoring stations be established in the nearest sensitive receptors as well as more distant receptors such as the proposed school location and at the residential development of Wood River and the small residential development just

northeast of the Lower Site. If noise from the project is audible at these receptors (or, at least, if it exceeds County noise standards), then the applicant will be required to immediately cease operations and implement additional noise controls until the noise is not audible or, at least, is reduced to the level established by the County noise code. The County should flesh out this mitigation to establish the monitoring protocol, methods of closure, and methods of compliance.

Response Comment acknowledged. The FEIS recommends noise monitoring plan. However, there are methodological problems with using monitoring equipment to determine if the project is louder than the background noises, while the project is operating. For example, monitoring equipment may detect loud noises that are not project-related. A protocol would need to be developed to ensure that the monitoring can detect changes due to the gravel operation. The protocol would be developed after consultation with King County.

Comment *020-418* The EIS should require that all measurements for the environmental impact of noise be taken or projected at 500 ft., 1000 ft., 1/4 mi., 1/2 mi., 3/4, and one-mile distance from the Grouse Ridge Mining Pit and Processing Plants, and in all cases, should comply with EPA Protective Levels, Federal, State, and King County regulations, whichever is the greatest standard in regards to the public health and well being.

Response The FEIS recommends a noise monitoring program. The details of such a program would be developed in conjunction with King County.

Comment *011-010* The DEIS indicates that trucks entering and exiting the Lower Site will generate "serious" noise impacts at nearby residences in the vicinity of the schools. According to the EPA, an increase of more than 5 decibels is already considered "significant," but an increase of more than 10 decibels is considered "serious" and is likely to draw many complaints. See Draft EIS, Section 3.3 (page 3.3-2). The mitigation measures proposed in the Draft EIS include low speed limit on site and on the adjoining road, non-noise based alarms, and orientation of entrances to the site and components of the site (e.g., asphalt plant and concrete facility) to minimize noise impacts. See Draft EIS,

Section 3.3.5.2 (page 3.3-18). The District is concerned that these mitigation measures will not be sufficient to ensure that District classrooms are not disrupted by mining and batch plant noise. The District believes that the best way to ensure that its classrooms remain conducive to learning is to select Alternative 4 and keep the noise sources farther away from the schools.

Response Comment acknowledged.

3.3.6 Significant Unavoidable Adverse Impacts

Comment *020-316* The FEIS should clarify contradictory information contained in the DEIS that states, "The North Bend Gravel mine will have no significant noise impacts adjacent to the Upper or Lower Site operations."

Comment *020-317* That is contradicted in the very next sentence that states, "There will be significant unavoidable adverse impacts under Alternative 2, at SE 146th Street (Exit 34), and under Alternative 3, at Exit 34 and the Olallie State Park area (Exit 38), due to increases in noise levels with additional truck traffic. Under Alternative 4, there will

be significant unavoidable adverse impacts due to increases in noise levels with additional truck traffic at Exit 38.

Comment *020-318* The FEIS needs to clearly identify to the reader whether there are, or are not, significant unavoidable impacts as a result of project generated noise, how those projected noise impacts relate to project alternatives, and what mitigation will be put in place for those impacts that are identified as "significant" or especially, "serious."

Response The FEIS clarifies the noise impacts related to the proposal and alternatives.

Comment *019-186* 1. The FEIS should clarify contradictory information contained in the DEIS that states:

a. "The North Bend Gravel mine will have no significant noise impacts adjacent to the Upper or Lower Site operations"

That is contradicted in the very next sentence that states

"There will be significant unavoidable adverse impacts under Alternative 2, at SE 146th Street (Exit 34), and under Alternative 3, at Exit 34 and the Olallie State Park area (Exit 38), due to increases in noise levels with additional truck traffic. Under Alternative 4, there will be significant unavoidable adverse impacts doe to increases in noise levels with additional truck traffic at Exit 38.

Comment *019-187* The FEIS needs to clearly identify to the reader whether there are, or are not, significant, unavoidable impacts as a result of project generated noise, how those projected noise impacts relate to project alternatives, and what mitigation will be put in place for those impacts that are identified as "significant" or especially, "serious"

Response The noise chapter of the FEIS clarifies the impacts issue.

Comment *026-016* The conclusion that additional truck traffic at SE 146th Street "will" cause a significant unavoidable adverse noise impact should be reconsidered. Noise modeling results show that the Proposal just barely exceeds at 10.3 dBA the 10.0 dBA threshold that the draft EPA noise guideline states is a "serious" impact. However, the DEIS recognizes at page 3.3-15 that the noise modeling "likely somewhat over predicts traffic noise on Exit 34 because it assumes that vehicles travel at least 30 mph." Cadman's experience with heavy haul trucks is that gravel trucks will travel the short distance from the site entrance to Exit 34 at speeds considerably less than 30 mph. Exiting trucks are limited to 10 mph onsite, and must come to a stop for the left turn at the intersection of SE 146th Street and 468th Avenue SE. Trucks, after accelerating to make a left turn, will coast downhill and slow to make a right turn onto the I-90. Unloaded gravel trucks, which produce less noise that loaded trucks, will travel north on 468th Avenue SE, and slow to right turn onto SE 146th Street. The evaluation of noise impacts for Alternative 2 should also note that these peak level impacts would occur only during the July to October peak construction season, approximately one third of the year. Given all of these factors, the DEIS should be revised to state that significant noise impacts on public roads "might" occur with the proposed action.

Response The recently released TNM version 1.1 was used to analyze truck noise impacts for the FEIS. This model was used to simulate noise levels from vehicles at controlled intersections, where vehicle accelerations increases noise levels and was used to model low vehicle speeds. The results of this modeling are described in the FEIS.

3.4 WATER AND ENVIRONMENTAL HEALTH

Comment *045-033*

There needs to be a much better system of phone calls regarding an emergency spill. The onsite, in-company phone plan has a "keep it to ourselves, and use the Company hierarchy" feel to it. And there is no way for a citizen who detects a leak on- or offsite to contact proper authorities. DOE and/or County Code Enforcement (Grading Department?), rather than the Operator, should be contacted by citizens if contaminants are found offsite. Also, there needs to be a detailed explanation of the statement that "even without monitoring or corrective actions, natural attenuation is expected to reduce petroleum concentrations in groundwater to below applicable standards before it could migrate the one-half mile to the River" (depending on where the spill occurs, and its size, what materials it passes through, angle of surface it flows over, etc.). The contaminant migration rates are extremely different from those reported in the Joel Massmann, Ph.D., P.E. Review of the DEIS (July 2000), which professionally estimates that "a spill of diesel fuel would penetrate 1.5 feet in closer to 30 minutes than 30 days"! (Appendix D, Figure 23 in this DEIS charts the Applicant's ,estimate of 30 days.)

Response

Communications and contingencies will be developed for the SPPP. Spills are addressed in the Environmental Health chapter in the FEIS. The DOE is to be notified in the event of a spill. Natural attenuation by adsorption to soils and biological activity should reduce the concentrations of potential hydrocarbon spill migration a significant distance. Review of the Massmann document indicates that the comment is anecdotal, rather than a quantitative analysis such as presented in the DEIS.

Comment *115-035*

p. 3.4-8 Deep Valley Aquifer - The productive aquifer being considered by the East King County Regional Water Association could be a potential water source for the entire East King County area. If the aquifer is not well defined near North Bend, and there is some uncertainty regarding the continuity of the aquifer, all the more reason to protect it, not to casually dismiss it as is done in the DEIS.

Response

The intent of the DEIS was to use all data available to provide the greatest level of detail. The DEIS qualifies the assumptions and limitations of the various data sources. The DEIS and FEIS recommend mitigation measures to address significant uncertainties.

Comment *127-142*

I am going to be very closely scrutinizing the portion of the DEIS that has to do with aquifers, how close they establish in areas surrounding our wells, to make sure there isn't any contamination of groundwater that we use. I would like to see and intend to see the same assurances in the Cadman proposal, and I will be studying that very closely. Thank you very much for your time.

I also found when I put up a deck, it took me much longer than I could have ever imagined. I had to have plans up the wazzu. Everything had to be clear and all written out. I had an architect. It had to be approved. Just having an outdoor deck, they had to decide about water, as if I was going to put a toilet on it which really upset me. And here we are talking about a conveyor belt of which there is no virtual plan and nothing is written out. It is kind of imaginative. Now in this day of science, it seems to me that all this whole plan should have been done using a CAD system. We should be able to view it from every angle possible, and the public should be able to see that, not just a photograph here and a photograph there. I think that will make a big difference.

I think it is a poor excuse that Weyerhaeuser hasn't done that. Cadman hasn't done that. It will cost a few bucks, but I think before anything should be considered, one should be able to see this thing from the public's point of view and everyone else's on a CAD system, three-D, what it will look like in five years, ten years, 20 years, and 25, and whatever it takes. Before, the after, and then have some decisions made here that make a little bit more sense. Thank you.

Response Comment acknowledged. The DEIS and FEIS identify impacts related to groundwater quality and aesthetics. The FEIS includes visual simulations showing the conveyor and different phases of the gravel operation.

Comment *127-133* I personally haven't seen precipitation data. The groundwater flow information is very, very sketchy. Lots of information not there in the water studies that I have seen, and you could possibly include that in you next revision. Appreciated it.

Response A range of precipitation data is included in the FEIS. Groundwater level data was collected monthly through March 2001 to better define groundwater conditions.

Comment *127-071* Aside from the seemingly destructive concept of placing a gravel mine in the scenic, largely established residential area, one of my greatest concerns is with the safety of the existing water supply being drawn from the proposed lower operations area, as well as a threat to the aquifer in that area. The mitigating measures are the establishment of bumper zones and how they will circumvent problems. In Section 3.4, page eight, it is stated that the aquifer is not well-defined and that there is no uncertainty as to the continuity of the aquifer. With that being the case, how much of the mitigation can a bumper zone with a distinct width be?

Response The aquifer conditions were further defined by additional groundwater level monitoring through March 2001. The establishment and maintenance of buffer zones would be accomplished by the installation and monitoring of additional monitoring wells and a groundwater interception trench at the Lower site.

Comment *127-072* One of the existing wells in the proposed lower site is Sallal well No. 3, which system is providing water to 1,300 cooperative members. It is indicated that monitoring wells would be drilled to predetermine whether ongoing operations may affect this water supply. Yet Section 3.4, page 20, indicates that there is uncertainty regarding both the relationship of the aquifers and the groundwater flow direction beneath the western portion of the lower site where the Sallal well is located. This tells me that the existing knowledge provides an uncertain future for this critical water supply if this project should proceed. Given the stated uncertainty of the groundwater flow direction, the information from the monitoring well may come after damage has already occurred.

Response Continued water level and spring discharge information was collected monthly through March 2001 and is included in the FEIS. The DEIS recommends continued monthly periodic monitoring prior to and during construction and excavation activities at the site as mitigation. The DEIS recommends the installation of one or more additional monitoring wells on site to further define groundwater flow directions. The FEIS recommends that an alternative water supply plan be developed and implemented in the event the gravel operation impacts the quantity or quality of water in Sallal Well No. 3.

***Comment** 008-003*

The DEIS documents that the project will use ground water which will reduce the base flow in the South and Middle Forks of the Snoqualmie River and ground water in the Upper Snoqualmie Valley aquifer. The City of North Bend has been unable to get a response from Ecology to their 1992 and 1999 requests for water rights. The EIS should be expanded to address how the project will obtain the necessary water rights from the Ecology.

***Comment** 136-006*

Aquifer for locals and other Seattle communities.

***Comment** 136-007*

Water supply (can't water now in dry season- What comes later when they are washing their trucks and not enough water for fire fighting?)

***Comment** 142-016*

3.11.2.2 Cadman needs water rights, this should be a separate DEIS. They need to drill potentially hundreds of feet to hit a well. What guarantees do we have that they won't pollute the aquifer?

Response

Impact to local water levels and available water quantities will be addressed in Cadman's water right application(s) to Ecology. If pumping impacts are observed on any of these bodies, Ecology has the jurisdiction to either deny the right, or to approve the right with limitations or mitigation requirements, such as seasonal pumping restrictions. Potential impacts to groundwater and recommended mitigation measures are addressed in the Water and Environmental Health chapters of the FEIS.

***Comment** 019-006*

The DEIS did not and the FEIS should address the cumulative adverse impacts to streams and ground water due to the areal redistribution and/or refocusing of groundwater recharge caused by mining activities as cited in [DEIS Vol. I page 3.4-39].

Response

The DEIS and FEIS discuss potential groundwater and surface water impacts , such as lag time between precipitation and discharge and potential changes in flow rates.

***Comment** 012-087*

SEPA 1998 (p. 32) requires an EIS to consider "magnitude and duration of an impact." In this context the DEIS should have noted that King County 1996b determined that the ground water in the vicinity of the Middle Fork of the Snoqualmie River is "an excellent source of water from the standpoint of both water quality and water quantity." Further, it concludes: "This area near the Middle Fork of the Snoqualmie River is being pursued as a regional water supply source" (p. 48).

Response

The FEIS Water chapter indicates that King County has determined that the deep aquifer near the Middle Fork Snoqualmie River is a potential regional water supply. Water quality issues are addressed in the Water chapter.

***Comment** 020-201*

The FEIS must evaluate the mining permit to see if it has met the minimum standards required by the Washington State Department of Ecology's Water Quality Program for Sand and Gravel General Permits. This document requires the permittee to develop a monitoring plan based on DOE standards. These standards have not been fully complied with as currently addressed in the DEIS. [See Addendum E, Water Quality Program for Sand and Gravel General Permits].

Response

FEIS is a planning document, not a permit document. Specific permit requirements would be addressed prior to issuing a grading permit.

Comment *022D-012* Infiltration pond sizing.

There is insufficient information regarding the size of proposed stormwater ponds, the amount of project area that will drain to them at various stages in the operation, and the space available for these proposed ponds. The proponent must demonstrate that sufficient space is available for the proposed stormwater management systems. Additionally, we are concerned about the potential for clogging of infiltration facilities if they are sized according to conventional means. The standard King County design approach for infiltration systems is based on typical runoff quality observed in other types of urban developments. Stormwater runoff and process wastewater at the proposed gravel mine will likely exhibit much greater suspended solids content compared to typical urban runoff elsewhere in King County. Thus, a standard infiltration pond design could be vulnerable to failure (more than normal - and the history of infiltration systems is filled with failures). The EIS should assess the likely suspended solids content of water that would drain to infiltration facilities, provide a comparison to typical urban runoff quality, and discuss the implications for infiltration pond design and pre-settling system design. Based on the flow control requirements set forth in the King County SWDM, the site is subject to peak flow control up to the 50-year storm event (Level 2 flow control for forest production areas). The proposed infiltration systems must retain all inflows up to this event or else provisions must be included to prevent adverse impacts if overflows could occur in lesser events. Infiltration system design is particularly important at this site given the potential disastrous effects of a blown-out infiltration pond on the South Fork Snoqualmie River nearby.

Response Additional analysis completed as part of the FEIS (see Water and Environmental Health Technical Report) indicate that there is sufficient space available at the Upper and Lower Sites for infiltration ponds. The number and location of these ponds would be determined during the design phase of the project.

Comment *141-002* For example. Detail grading and drainage plans as well as temporary and permanent erosion-sediment control plans, as required by the King County Code, have not been filed with the application. No analysis on quantification of the amount of stormwater runoff or movement of silt generated from the operation is provided. Yet, the DEIS goes on to stipulate specific mitigation requirements for each alternative evaluated and cites no significant impact to the environment under the water resources section as long as the King County Surface Water Management Manual is followed. We are at a loss to understand how these conclusions can be made without detailed quantification of surface water flows and sediment loading. Interestingly, the Impact Summary table shows nearly identical impacts and proposed mitigations for all alternatives except No Action alternative.

Response Detailed engineering designs are not required for an EIS and would be submitted as part of the grading permit application (WAC 197-11-055) prior to construction. The water-related impacts of the action alternatives are similar because the alternatives are similar (particularly Alternatives 2, 2A, 3 and 3A). Under Alternative 4, there would be fewer water-related impacts at the Lower Site.

Comment *020-169* Provide as an attachment to the DEIS, copies of all applications, approvals, conditions and compliance documents pertaining to the State of Washington Water Pollution Control Law, Chapter 90.48 RCW and the Federal Water Pollution Control Act (Clean Water Act) Title 33, United States Code, Section 1251 et seq for improvements which will be required as mitigation in the "Access" area.
* The DEIS did not address this item.

Comment *020-171* Provide all information as required for the National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Stormwater Discharges associated with the "Access" area as a result of the project.

Response The DEIS and FEIS identify the permits required for the proposal. Project applications, compliance documents, and permits are not required at the EIS stage. Ultimately, the applicant would need to obtain the required permits prior to grading permit approval.

Comment *045-044* Page 3.4-60, Upper Site: Given the conflicting groundwater information in this document, under NO circumstances must the "permit door" be left open for the Applicant to excavate deeper than the proposed elevation. The County's 5-year project review should be only of the current operation, and include a careful evaluation of the Applicant's compliance with every detail of every permit granted (IF granted) for this Project.

Response Excavation limits would be established by the grading permit. Any revision to permit requires additional SEPA review.

Comment *115-002* Overall question regarding Chapter 1: Why were the Water and Environmental Health topics combined in the DEIS? Seems like each one was important enough to have addressed separately. The size and scope of the document lead me to believe that there are numerous environmental impacts that, contrary to the opinion of Dames and Moore, might not so easily be mitigated.

Response Water and Environmental Health have been separated into two chapters in the FEIS.

3.4.1 Existing Conditions

Comment *019-694* The DEIS failed to provide detailed groundwater contour maps, information and water level data for the project site and adjacent lands that are or may be tributary sources for the South and Middle Forks of the Snoqualmie Rivers (to include seasonal springs, streams, aquifers etc.)

Response The DEIS relied on available data for adjacent lands to assess groundwater conditions. Water level data and groundwater contour maps for the Upper and Lower Sites were included in the DEIS. Additional spring discharge and water level information was collected through March 2001 and is included in the FEIS.

Comment *020-237* The FEIS should address the amount of precipitation and infiltration that will occur on the steep slopes of the site.

Response Precipitation and infiltration on the slopes of the ridge would not change as a result of the project and was therefore not evaluated.

Comment *045-017* Table 3.4-3: This table shows the "surface water" amounts discharged from the onsite springs. But the DEIS does not address estimates of" groundwater amounts" of the springs which are part of the perched aquifer system at the Upper Site.

Response Groundwater from the perched aquifer system is the source of water in the springs.

Comment *020-029* Groundwater travel times are uncertain.

Response The FEIS Water chapter provides order of magnitude calculations for groundwater velocity and pumping effect lag times. Actual data does not exist.

Comment *020-080* The FEIS should address the adverse environmental impacts of any storm event in excess of a 25-year storm that occurs on the property, given the fact that only 25-year facilities are contemplated. [DEIS 3.4 - 37].

Response The facilities would be designed in accordance with the King County Surface Water Design Manual and would be adequately sized to pass the 25-year storm event, with the capacity to convey the 100-year event. The infiltration capacity would be sufficient to handle the 100-year storm event without overflowing. Therefore, there would be no adverse flooding impacts under this scenario. Text has been added to the Water Chapter of the FEIS to clarify this issue.

Comment *020-088* The DEIS states, "Groundwater beneath Grouse Ridge is not currently developed." [DEIS 3.4-30]. The FEIS should address what that statement actually means, and why a project of this scope and magnitude would be allowed without establishing the appropriate parameters for groundwater.

Response The phrase “not currently developed” means groundwater beneath the Upper Site is not used for individual or municipal purposes.

Comment *045-011* Page 3.4-6, 2nd para., last line: What "historic groundwater level and seasonal climate information" was used to arrive at these flow rates?

Response Historic information included river flows in the vicinity and water level records from the onsite piezometers..

Comment *001-004* We note from the EIS that a limited number of gauges were installed along the streams emerging from Grouse Ridge and data was only collected for the month of March. In order to understand the influence of the proposed operation on stream flows and to avoid potential localized effects, frequent and ongoing monitoring would be required to establish baseline conditions, identify unacceptable alterations in the hydrology, and adjust operations as warranted.

Comment *012-051* [DEIS § Table 3.4-3, page 3.4-7] lists estimated discharge at selected springs in the vicinity of the upper site. There are no data on seasonal fluctuations in these spring flows. It is difficult to assess impacts without having a baseline of data that describe these seasonal fluctuations. However, based on field observations it is estimated that over 50% of the spring discharge related to the shallow and deep perching layers was measured. [DEIS page 3.4-33, paragraph 3]The basis for this estimate is not stated.

Comment *012-187* Table 3.4-3, page 3.4-7 lists estimated discharge at selected springs in the vicinity of the upper site. There are no data on seasonal fluctuations in these spring flows. It is difficult to assess impacts without having a baseline of data that describe these seasonal fluctuations." However, based on field observations it is estimated that over

50% of the spring discharges related to the shallow and deep perching layers was measured." page 3.4-33, paragraph 3.

Comment *019-062* The DEIS did not and the FEIS should conduct field observations and identification of streams on the Upper site during the highest months of rainfall rather than the month of September.

Comment *020-125* The FEIS should address why field observations and identification of streams on the Upper site occurred during the month of September, instead of during the highest months of rainfall.

Comment *020-287* The DEIS states that "water levels fluctuate in response to seasonal precipitation patterns." [DEIS 3.1-3]. Therefore, quantitative data needs to be collected to identify the vertical range of the perched aquifers throughout the seasons, as well as, over a statistically significant span of years. This will provide the necessary information to allow the Proposal to avoid compromising any perched aquifer.

Response Monthly water level and spring discharge information was collected from March 2000 through March 2001 and is included in the FEIS. The DEIS and FEIS recommend continued periodic monitoring prior to and during construction and excavation activities at the site as mitigation. Conclusions regarding total spring discharge were based on site observations.

Comment *012-075* The relationship between the surface and underground waters beneath Grouse Ridge and nearby water resources on the other side of 1-90 (e.g., Rattlesnake Lake, Chester Morse Lake, Cedar Lake and the Cedar River Watershed) should be studied. In reference to the Lower Site well, [DEIS §3.4.4.2; p. 3.4-61] reads: The water supply well should be located in an area of the property and screened at a depth where it can be shown that there would be no interference with the water levels in nearby water supply wells due to the pumping of groundwater at the Lower Site.

Response The Cedar River and Chester Morse Lake are not located in the same drainage basin as the proposed project. Rattlesnake Lake is located in a sub-basin of the Snoqualmie River watershed that is isolated from the Lower Site by topography and hydrologic features. Therefore, these relationships would not change the analysis presented in the DEIS and FEIS.

Comment *012-029* In general the DEIS fails to assess, and certainly does not quantify, the enormous potential impact on water. The entire section on water is riddled with uncertainties; these are often explicitly called out by DEIS authors, but subsequently ignored in arriving at conclusions with respect to impacts and mitigation:

- Seasonal flow in the remaining springs is uncertain. [p. 3.4-3]
- the aquifer is not well defined near North Bend, and there is some uncertainty regarding the continuity of deep aquifer throughout the valley. [p. 3.4-8]
- The nature of this transition zone and the continuity of the aquifer(s) in the area is uncertain. [p. 3.4-20]
- there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow direction [P. 3.4-20]
- due to the uncertainty of the assumptions [p. 3.4-20]

Other experts share the conclusion that the groundwater flow system in the area is not thoroughly understood. Seeds and Massmann (1999) conclude:

There are large and important uncertainties associated with the groundwater flow system in the vicinity, of the Grouse Ridge site. These uncertainties include recharge rates, groundwater flow directions, and groundwater travel times. (p. 8)

Nothing cited in the DEIS takes into account this assessment.

Comment *019-004*

Throughout the Water and Environmental section the DEIS severely fails to provide accurate data, baseline measurements and consistency. The use of "may be", "could be", "is assumed", "slightly", "modest", "estimates", "expected", "an approximation", "a possibility", "typical" and "limited uncertainty" are but a few examples of this. This is not an acceptable basis for analysis. The omission and disregard for the necessity to provide a comprehensive analysis for the well being of human health/welfare and the environment does not adhere to SEPA guidelines.

Response

Qualitative language is appropriate in technical documents where data is limited or open to interpretation. Where uncertainty exists, conservative assumptions have been used in the analysis.

Comment *019-005*

The ground waters and aquifers are a precious commodity for the Upper Valley and should not be taken lightly or for granted. The fact that locations are not known of all potentially affected water sources and then statements are made that there will be "minimal" or "none" is ludicrous.

Comment *122-001*

There are many potential problems with the development of the Grouse Ridge area into a gravel mining operation with associated processing plants. The length and scope of the DEIS attest to the many environmental and safety issues involved with placing an operation of this magnitude in an established residential area near several streams that may have an effect on salmon habitat and atop or adjacent to what may be a portion of the aquifer that will serve future generations.

Response

Comments acknowledged.

Comment *019-608*

The DEIS did not and the FEIS should conduct water quality field tests, during varying conditions and seasons, of the Middle & South Forks of the Snoqualmie River. These should be conducted throughout all phases. A baseline should be provided and a detailed monitoring program should be provided. Potential Adverse impacts from the project should be identified, including a worst-case scenario.

Comment *019-610*

The DEIS needs to address on-going and long term monitoring of water levels and water volume flows (during all seasons) for the aforementioned.

Response

The DEIS and FEIS recommend long-term groundwater and surface water monitoring as mitigation measures. The surface water monitoring would focus on the springs and streams that originate on the flanks of Grouse Ridge. Water quality impacts to the rivers would be detected in the groundwater beneath both sites and streams on the ridge, before the impacts reach the river. Water quantity would be assessed by measuring stream flow and groundwater levels. Significant impacts to the Middle and South Fork of the Snoqualmie River are considered unlikely. The quantity of water in the river could change as a result of the gravel operation; however, the change in flow would be small relative to the total flow in the river and therefore it is not consider practical to measure these potential changes. The quality of water in the river could also be impacted, but due to dilution and the potential for other projects or processes to impact the river, results of river monitoring would not likely be useful. Therefore, the DEIS

and FEIS recommend monitoring the groundwater and surface water in the immediate vicinity of the project rather than monitoring rivers that are located further away.

3.4.1.1 Surface Water

Comment *012-058*

[DEIS §3.4.1.1; p. 3.4-3] This section asserts, "No significant surface drainage features, such as streams or wetlands, were observed during the reconnaissance on the upper and relatively flat portion of the ridge." Surely this is an error. There is no indication how extensive the so-called "reconnaissance on the upper and relatively flat portion of the ridge" was, when it was conducted nor by whom. How much of the 600 plus acre area has been scrutinized? It is not clear that surface water surveys were conducted throughout the seasons. Local residents know that certain streams that produce intense flows during the spring can be totally dry at other times of the year.

Response

The reconnaissance investigation on October 15, 1999, found no wetlands or surface drainage features in the Upper Site. Since several gravel roads criss-cross the site, all portions of the site were readily accessible and thus surveyed. The field investigation was completed on foot and included visual assessment of vegetation, tactile and visual assessment of soil sampled by a soil corer, and visual assessment of hydrologic regime. No hydrophytic vegetation, hydric soil, wetland hydrology, or any other indicators were detected in this area. The local soil survey mapped two soil types occurring on Grouse Ridge, both of which are considered well-drained soils. The lack of wetlands and streams is not surprising given the topography and soil types present at this site.

Comment *020-835*

The FEIS should conduct water quality field tests, during varying conditions and seasons, of the Middle & South Forks of the Snoqualmie River. These should be conducted with a minimum range of .5 miles above and 1.5 miles below the entry sources adjacent to the project site(s).

Comment *020-836*

The FEIS should conduct water quality field tests, during varying conditions and seasons, of tributaries to the Middle & South Forks of the Snoqualmie River. These should be conducted with a minimum range of .5 miles above and 1.5 miles below the entry sources adjacent to the project site(s).

Comment *020-839*

The FEIS should address the necessity to monitor current water volume flows during all seasons for any tributary source (seasonally or continually) for the Middle and South Forks of the Snoqualmie River for baseline impacts data. The measurements should be at least 0.5 mile above and 1.5 miles below entry points. The FEIS needs to address on going and long term monitoring of water volume flows (during all seasons) for the aforementioned.

Response

There is an existing monitoring network for surface water discharges and quality operated by Ecology and the U.S. Geological Survey (USGS) on the tributaries of the Snoqualmie River. Data from these stations should provide adequate baseline data.

Comment *096-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.1.1 Surface Water, Regional Surface Water, Precipitation, page 3.4-1.

The base rainfall average of 81 inches per year on the subject area of Grouse Ridge is questionable for the following reasons:

1. The Cedar Lake measurement station has, as stated on this page, records dating from 1931 to the present, yet only the five years 1995 - 1999 were used, even though the life of the project is expected to be 25 year's or longer. Since the annual precipitation at Cedar Lake varied between 52 and 138 inches per year from 1931 to now, this is a very significant variance from the 101 to 114 inches per year. Because all of the impacts on the groundwater and flood surges are based on the narrower variance in average rainfall, at least the last 25 years of measurement for Cedar Lake (1975-1999) should be used.

2. Only one year of measurements was used to project that Grouse Ridge receives 80% of the rainfall received at the Cedar Lake station. Using a sample of one period to determine a statistically reliable estimate that spans five periods and therefore can be used to cover 25 periods (years), should not be accepted.

Response Unmodified Cedar Lake precipitation data are used for precipitation analysis presented in the FEIS. Potential impacts due to variation in annual precipitation are also discussed.

Comment *002-001B* The use of precipitation data for the site area from only one year, with the potential that any significant variation from this precipitation value could have major precipitation-related impacts on groundwater infiltration and possibly on storm water management.

Comment *002-003* Information on expected annual precipitation refers to data collected at the closest National Weather Service (NWS) weather station at Cedar Lake, with 5 years of data ranging from 103 to 114 inches, and the long term average of 101 inches since data collection began in 1931. Just one year (1995) of data from Grouse Ridge was available, which totaled 81 inches (Colder, 1996). This value is used for estimating precipitation on the site, and in all water balance calculations based on precipitation, including expected volumes of run-on, run-off, and infiltration to groundwater. This estimated precipitation is 80% of the average Cedar Lake weather station amounts. In support of using this figure, page 3.4-31 states that this is consistent with the estimate of precipitation on East King County annual precipitation maps (USES, 1995).Using a higher precipitation value in the FEIS should be considered, closer or equal to that of the established weather station data. This data is from a site only 4 miles south/southwest of the proposal site, and represents an average of almost 70 years of data. The precipitation amounts at the weather station may be greater than at the project site because the station is at a higher elevation, but at least the data from that station is statistically valid.

Using a higher precipitation value is also supported by the global trend of increasing weather instability, and more frequent occurrences of high rainfall events in the region over the past few years.

Using the established weather station data would increase precipitation estimates by 25%. Higher precipitation amounts may increase water levels and amounts in the perched aquifers and the regional lower aquifer(s) used for groundwater supplies.

Comment *019-011* The FEIS should provide precipitation measurements from the nearest weather station, which is located in North Bend at Exit 34. The FEIS should redress all analysis involving weather to utilize this baseline.

***Comment** 019-013* The FEIS should redress the adverse impacts associated with the using different meteorological measurement sources for the "estimate of 81.2 inches of rainfall" per year on the site vicinity is inaccurate. [DEIS Vol. I, page 3.4-21].

***Comment** 019-014* The DEIS implies that the closest available weather information is from a NOAA precipitation data station at Cedar Lake [DEIS, Vol. I, page 3.4-1] and "the closest source of long-term precipitation data is from Puget Power's Snoqualmie Falls Generating Plant [DEIS Vol. I, page 3.2-1]. The DEIS fails to mention "the Weather Center", operated by Mr. Thomas Dunklee, which is in an office suite at Ken's Truck Town. Further, the DEIS ignores the fact that Mr. Eric Molstad, a North Bend Meteorologist operates a weather station in North Bend and publishes weather statistics on the World Wide Web. The FEIS should require all analysis utilizing weather data be redone with the data from the closest source to the proposed project.

***Comment** 019-016* The DEIS "estimates" that precipitation at Grouse Ridge will be 80% of that at the Cedar Lake weather station based on an vague relationship, Golder (1996) and one year of monitoring at Grouse Ridge [DEIS Vol. 1 page 3.4-31]. The FEIS should provide an estimate based on the entire measurement period and closest available source.

***Comment** 019-017* Weather data is available from the Cedar Lake station from 1931 to the present, [DEIS 3.4-1] yet the DEIS considers weather data from 1995 to the present to estimate [DEIS, Vol. I, Table 3.4 - 1, page 3.4-2], citing that precipitation over the measurement period is "slightly less" than the 5-year average. The FEIS should consider the larger body of data.

***Comment** 020-034* Precipitation quantity was based on only 1 year of monitoring.

***Comment** 020-131* The FEIS should measure precipitation from the nearest weather station, which is located in North Bend at Exit 34.

***Comment** 020-138* The DEIS also "estimates" that precipitation at Grouse Ridge will be 80% of that at the Cedar Lake weather station based on an unexplained relationship developed by Golder (1996) and one year of monitoring at Grouse Ridge [DEIS 3.4-31]. The FEIS should provide an estimate based on the entire measurement period, and should further provide the data from the closest available source - the North Bend weather station operated by Mr. Molstad.

***Comment** 127-119* The DEIS also assumes things like waterfall with averages of somewhere 100 to 80 a year. I want to know what happens in the drought years when we get two years back-to-back of 30 inches of rainfall. Who decides who doesn't get water that year? That is not addressed in this statement.

Response Exit 34 precipitation data not considered to be as reliable as NOAA data and the period of record is significantly shorter. Unmodified Cedar Lake precipitation data is used for the analysis presented in the FEIS. The period of record for the Cedar Lake data is about 70 years. Impacts of above and below average annual precipitation are assessed in the FEIS.

***Comment** 019-032* The DEIS did not and the FEIS should provide data (not an estimate) that the measuring locations account for "over 50% of the spring discharge from the Upper portion of Grouse Ridge."

***Comment** 020-035* Not all of the springs in the area were measured (pg. 3.4 - 33).

Response Estimates are based on field observations of the conditions of weirs and ungaged surface water seeps. Dames & Moore/URS did not have access to springs and seeps that were not on either lease area or King County Property. Measurement of all the springs is not necessary to identify potential impacts and mitigation measures.

Comment *020-076* The FEIS should discuss the reliability of the estimate that the measuring locations account for "over 50% of the spring discharge from the Upper portion of Grouse Ridge." What is the consequence if this estimate is wrong?

Response Contribution of spring flow to the hydrologic systems may be more or less than estimated. Determination of total spring discharge is not necessary to identify potential impacts.

Comment *026-026* Several members of the Middle Fork community have informed us that an additional spring outside the project area is visible year round. We would like to request that King County map this spring and include it in the FEIS. For the general spring location, please reference the annotated figure 8 attached.

Response The spring survey was added to the EIS scope of work. Multiple field reconnaissances did not locate any spring discharges or seeps in the indicated area.

Comment *022D-008* The DEIS identifies Ecology's classification of the Snoqualmie River (Class A) but does not explain that portions of the River were listed on Ecology's section 303(d) list of impaired and threatened water bodies and are subject to total maximum daily load (TMDL) restrictions. Although the specific TMDL parameters (ammonia concentrations, biochemical oxygen demand, and fecal coliform bacteria concentrations) are not expected to be impacted by the proposed project, the DEIS should acknowledge the importance of historical water quality problems in the Snoqualmie River system.

Response Exceedances of water quality standards in the Snoqualmie River appear to be either infrequent events or of a seasonal nature. Excursions outside the criterion at sampling points on the Middle and South Forks of the Snoqualmie River include temperature, dissolved oxygen, and pH.

3.4.1.2 Groundwater

Comment *019-038* The DEIS cites "... the well head protection area is only an approximation, and it is possible that the well (Sallal Water District Well #3) could draw water from beneath the processing area." [DEIS Vol. II, Appendix D, page 34, section 3.2.2.2]. Given this acknowledgement of a "possibility" and the "protection" is an "approximation" the FEIS should require detailed and in-depth analysis of actual mapping and identification of all potentially affected water(s) (including aquifers and ground water) for the entire project and for all alternatives. Comparisons between the alternatives should be provided. Any impacts analysis conducted without this basic information is of no value in determining potential adverse impacts.

Comment *019-043* The DEIS cites "According to Golder (1998), the aquifer is not well defined near North Bend, and there is some uncertainty regarding the continuity of deep aquifer throughout the valley" [DEIS, Vol. I, page 3.4-8]. The FEIS should provide, with certainty, the parameters of the aquifer(s) to address the potential adverse impacts.

***Comment** 019-676*

The DEIS failed to and the FEIS should provide thorough physical and contour mapping for all water sources. To include depths and elevations of all aquifers, ponds, seasonal and perennial streams, springs, rivers, storm water runoff and wetlands. This should be conducted for each phase within each alternative. Comparisons should be provided between the alternatives.

***Comment** 020-067*

The Water and Environmental Health section of the DEIS is full of vague and uncertain terms, and qualifiers, which cannot be relied upon in order to accurately assess the environmental impacts of the proposal. Meaningless terms like, "likely to be close", "primarily", "approximately", "confined to semi-confined", "appear to be", "periodically", "estimated", "may be tapped", "interpreted to be completed", and the like appear repeatedly throughout the chapter. The only conclusion that can be drawn is that the drafters have not identified the true impacts of the proposed project on water and environmental health and are "hedging their bets" in the event that a serious impact appears during construction or operation. As such, this chapter of the DEIS is not an adequate basis upon which to assess the environmental impacts of the proposal and alternatives. In most scientific disciplines, use of the words mentioned above would be considered extremely sloppy and unacceptable, and this document is no exception. The impacts of this proposal on the area's water and environmental health are too important to be assessed with this base level of analysis. Based on this deficiency alone, an adequacy challenge to the DEIS would likely be upheld.

***Comment** 020-140*

The DEIS states, "seasonal flow in the remaining springs (Springs S-7 through S-14) is uncertain" [DEIS 3.4-3]. This is partly because streams were not gauged in drainages where all waters "appeared to re-infiltrate". [DEIS 3. 4-16]. The DEIS further notes that "the hydrologic setting of the Upper Snoqualmie Basin is complex." [DEIS 3.4-7] and that "the aquifer is not well-confined near North bend, and there is some uncertainty regarding the continuity of deep aquifer throughout the valley". [DEIS 3.4-8]. These admissions indicate that the aquifer system is not well understood and requires considerable quantitative analysis before completely understanding the potential adverse impacts from this Project.

***Comment** 020-142*

Regarding the Sallal Water District Well #3, the DEIS notes that the nature of the transition zone and the continuity of the aquifer(s) in the area is uncertain, and that there is "limited uncertainty" regarding the relationship of the aquifers and the groundwater flow direction beneath the western portion of the lower site. [DEIS 3. 4-20]. There is no conclusive data on the probable long and short-term impacts to this water source.

***Comment** 020-834*

The FEIS should provide detailed groundwater contour maps, information and water level data for the project site and adjacent lands that are or may be tributary sources for the Middle or South Forks of the Snoqualmie River. This needs to include horizontal aquifers that cross over or through the project sites property line on to adjacent land(s). Additionally this should be conducted for all four seasons due to differing cycles of growth, migration, breeding times, and habitat requirements of wildlife and plant life (i.e. bird winter/summer migrations, elk fall/spring migrations, spawning and larvae/parasite/insect development).

***Comment** 045-020*

Figure 3.4-6: It is noted on this Figure as well as many others in the DEIS that "Actual subsurface conditions may vary from those depicted." Although there is a professional margin of error acceptable in boring logs, this statement underlies the basic problem that nobody knows for sure where, how deep, and. at what elevations potable ground water exists on this entire site. For example, Washington Trout (August 31, 1993) stated that "Altimeters are known to have a wide range of accuracy relative to the quality of the altimeter. Some altimeters come from the factory with a level of confidence variation of up to 100 feet, others have a confidence level within a foot

(GeoLine Instrument and Supply Co., Inc.)." A variance of 100 feet versus 1 foot is not acceptable when trying to avoid adverse impacts to perched aquifers. The problem of varying data is further indicated in several statements on Page 3.4-17, 2nd para.: Regarding certain wells on the Lower Site, "GR98-1 and GR99-1 appear to penetrate...the deep valley aquifer .... In this area, the.., aquifer does not appear to be confined .... Greater water level fluctuations than measured in the period of record may occur seasonally or during long-term climatic variations." A 25-year operation would definitely be considered "long-term"! Also, the statement from Washington Trout (above) would apply to the possibility of increased ponding due to silt and sediment accumulation that I commented on regarding Page 3.4-3, Lower Site Surface Water.

Comment *045-023*

Page 3.4-20, 1~t para.: This paragraph says the Deep Valley Aquifer "appears to be confined" in the vicinity of Sallal Well No. 3, but "beneath the eastern portion of the Lower Site, the aquifer is unconfined." Yet ":for the purpose of this assessment, it can be assumed that the aquifer beneath the Lower Site is in direct hydraulic connection with the aquifer screened by Sallal Well No. 3." It goes on to say that "there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow direction beneath the western portion of the Lower Site," but that "the monitoring well Cadman, Inc. has proposed to install on the Lower Site would provide additional data in support of a more definitive interpretation of site conditions." This is ludicrous. An "unproven appearance of confined vs. unconfined" is then used as a "scientific assumption" regarding hydraulic connection. And based on that misguided assumption, the Applicant believes that one monitoring well would provide all the additional data needed to show definitive site conditions. That is not a sufficient operating plan, and it is not based on sound scientific judgment.

Comment *045-024*

Page 3.4-20, 2nd para.: States that "the northern portion of the Lower Site is within the wellhead protection area for Sallal Well No. 3... [and] the Wellhead Protection Plan is considered final." "Estimated travel times for groundwater from beneath the Lower Site to reach the well range from less than 6 months up to 3 years." And "due to the uncertainty of the assumptions, it should be considered an approximation of the actual capture zone for the well." This is another example of how widely varied the data about groundwater is, and how no definitive promises can be made regarding the operation of the Project for 25 years, and what cumulative impacts it could have on local potable groundwater. The Applicant would be liable if the operation interfered (inadvertently or not) with the Wellhead Protection Plan.

Comment *045-025*

Figures 3.4-9, 3.4-10: I will not quote all the inconsistent statements regarding the quantity, location, and flow direction of perched aquifers in the Upper Site, and their possible (likely) hydraulic continuity with deeper aquifers on both the Upper and Lower Sites. But if you look at Figure 3.4-9, it again says "'Actual subsurface conditions may vary from those depicted." And the preponderance of "question marks" within the two Figures goes way beyond the accepted level of deviance with regard to scientific models. (The same amount of question marks also appear in related Figures in Volume II of the DEIS.) I believe this is the best job that could have been done, but it reinforces the fact that no amount of wells or surveys can reliably map or even predict all the conditions I mentioned in the first sentence of this comment. And the intrusive, long-term operations of this Project would most likely at some time; have a deleterious effect on the perched aquifer system (as occurred previously at another pit).

Comment *080-001*

Referring to Section 3.4. WATER AND ENVIRONMENTAL HEALTH, the study is not adequate to properly document where the aquifers are located and how they are inter-related. In 1993, Cadman pierced an aquifer in their quarry south of Monroe. The results were disastrous on a local level and the Department of Ecology is now supposed to require extensive documentation of the existence of such aquifers and their locations. In various parts of Section 3.4 statements are made that "...the continuity of

the aquifer(s) in the area is uncertain.", "...there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow...", and "...due to the uncertainty of the assumptions, it should be considered an approximation of the actual capture zone of the well." Given these sweeping generalizations, it is clear that the study of the groundwater issue is inadequate for a project this size and with the potential impact on the local environment. Much more extensive studies must be undertaken before the FEIS is complete or this project is approved.

Response The intent of the DEIS was to use all data available to provide the greatest level of detail. The DEIS qualifies the assumptions and limitations of the various data sources. The degree of uncertainty reflected in the Water section of the DEIS is common in hydrogeologic investigations and does not preclude an assessment of potential impacts. The available data are considered adequate to identify potential impacts and appropriate mitigation measures.

Comment *020-109* The FEIS should address in more detail the claim that groundwater "generally flows" in a westerly direction under the Lower site. The FEIS should provide quantitative data on where the groundwater actually flows.

Response Groundwater appears to maintain westward flow and gradient. Water level data used as the basis for this conclusion were provided in the DEIS. Additional monitoring well(s) recommended as mitigation would aid in confirming flow direction.

Comment *045-013* In addition, the East King County Regional Water Association and Seattle Public Utilities are currently pursuing joint water rights to this aquifer as a potential, regional (inter-County) source of potable water (as mentioned on Page 3.4-8). Although the DEIS (Page 3.4-8) quotes a Golder & Associates study from 1998, that "the aquifer is not well defined near North Bend, and there is some uncertainty regarding the continuity of deep aquifer throughout the valley," there is much more study being done in this area, as well as of the hydraulic continuity of the aquifer and the Snoqualmie River (which could directly affect efforts to maintain the river in a condition to protect endangered salmon species). A 25-year mining project of this magnitude on this site could definitely impact both the valuable aquifer/water resources and the river.

Response The status of King County RWA investigations was reviewed in February 2001 following publication of the DEIS. A recent test well was drilled, but the well is not in the vicinity of the proposed project area.

Comment *079-001* Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.1.2 Groundwater, Groundwater Quality and Use, pages 3.4-12 and 13.

This project must not proceed until Ecology accumulates, lists and considers the cumulative impact of all water rights applications that are on file, as well as the long-term projected water needs of eastern King County that must he filled from the Upper Snoqualmie Basin.

This DEIS takes an unclear position on the ultimate effect of the water consumption of the project on the level of water in the local aquifers. This project, by its own very conservative estimates, will have consumptive usage of 150 thousand gallons of water per day. Yet paragraph 2 on page 3.4-13 states Ecology is "...currently considering a joint water right application ...to withdraw 60 million gallons per day from the Upper Snoqualmie Basin." This water would be used to meet the projected water needs for eastern King County.

The DEIS must take into consideration the total expected requirements for water from the Upper Snoqualmie Basin, and the estimated potential storage and output capacities of the aquifers in the total area, not just the areas designated as the Upper and Lower Sites. Yet the DEIS by its own admission is unclear on the size, location, inflows and outflows of the aquifers in the proposed sites. Further studies must be made and evaluated before this project is allowed to proceed.

Comment *095-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.1.2 Groundwater, Groundwater Quality and Use, pages 3.4-12 and 13.

This project must not proceed until Ecology accumulates, lists and considers the cumulative impact of all water rights applications that are on file, as well as the long-term projected water needs of eastern King County that must be filled from the Upper Snoqualmie Basin.

This DEIS takes an unclear position on the ultimate effect of the water consumption of the project on the level of water in the local aquifers. This project, by its own very conservative estimates, will have consumptive usage of 150 thousand gallons of water per day. Yet paragraph 2 on page 3.4-13 states Ecology is "... currently considering a joint water right application ... to withdraw 60 million gallons per day from the Upper Snoqualmie Basin." This water would be used to meet the projected water needs for eastern King County.

The DEIS must take into consideration the total expected requirements for water from the Upper Snoqualmie Basin, and the estimated potential storage and output capacities of the aquifers in the total area, not just the areas designated as the Upper and Lower Sites. Yet the DEIS by its own admission is unclear on the size, location, inflows and outflows of the aquifers in the proposed sites. Further studies must be made and evaluated before this project is allowed to proceed.

Response

The quantity of water allocated to existing water rights and the domestic wells in the area are included in the FEIS. Ecology would consider potential impacts on other water rights prior to approving water rights for this project. If significant impacts are identified, Ecology has the jurisdiction to either deny the right, or to approve the right with limitations or mitigation requirements, such as seasonal pumping restrictions.

Comment *127-132*

One issue that struck me is that there is very little language about the lower site being classified as a specific aquifer resource. And what I know about that and sensitive areas is not a lot, but I do think that the law requires the best science possible in not only extracting those minerals but also in studying all the impacts. And I personally haven't seen precipitation data. The groundwater flow information is very, very sketchy. Lots of information not there in the water studies that I have seen, and you could possibly include that in your next revision. Appreciate it.

Response

Precipitation data and groundwater flow information are described in the DEIS and FEIS.

Comment *020-087*

The DEIS states, "The quality of the groundwater (beneath Grouse Ridge) has not been tested; however, given the nature of the geologic deposit, the high rate of recharge, and the limited land use development of the Upper Site, excellent water quality is expected." [DEIS 3.4-30]. The FEIS should provide quantitative data to establish a baseline for water quality before any project is approved or implemented.

***Comment** 110-004*

Another water quality concern I have is thermal pollution. If a large (3.8. acre) passive freshwater pond is placed in the site I would assume that the water temperature in this pond would be warmer than its original source (and surrounding tributaries). This would be due to a lack of canopy cover and increase surface area of water exposed to solar radiation. If the water from this pond infiltrated into surrounding tributaries their temperatures could be influenced. Dissolved oxygen in these surrounding tributaries would be reduced in these aquatic systems as a result. This could detrimentally effect the biota living in those tributaries that drain into the Snoqualmie. To monitor for this potential environmental impact temperature baseline data should be collected on a regular basis over the course of a year (at least), especially in the summer when solar radiation levels are highest.

Response

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

***Comment** 012-034*

[DEIS §3.4; p. 3.4-20] The third paragraph states: "Groundwater samples from onsite monitoring wells have not been collected and analyzed to assess groundwater quality beneath the lower site." Sampling must be done, especially since the Lower Site area is where: (1) the mining plan intends to excavate within five feet of known aquifers; (2) the retaining pond will be located and any contamination and/or leakage from the pond could impact groundwater thereunder; (3) asphalt batching will take place, a process that involves heavy metals as a by product. And as noted above (5.5 below, Regional Water Supply), groundwater in these aquifers "is being pursued as a regional water supply source."

There are no discussions or descriptions of a groundwater-monitoring program. This is an important part of any program to mitigate adverse impacts of the mining operations, especially given that the operations will occur in a critical recharge area for a municipal water supply well.

If impacts on groundwater occur, they should be detected through groundwater monitoring proposed for the project before the contaminants have had the opportunity to migrate off site. [DEIS page 3.439, paragraph 5].

Groundwater monitoring is proposed by Cadman, Inc. to assess groundwater flow directions and detect potential impacts on groundwater quality. With properly selected well locations, a program of regular groundwater monitoring would detect any significant impacts before they migrate off site or enter the designated wellhead protection area. [DBS page 3.4-47, paragraph 4].

There is obviously no way to assess the adequacy of a monitoring program if (1) a water quality baseline has not been established and (2) if the proposed monitoring program is not described.

***Comment** 012-188*

To the best of my knowledge, there are no discussions or descriptions of a groundwater monitoring program. There is obviously no way to assess the adequacy of the monitoring program it is not described. It would seem this is an important part of any program to mitigate adverse impacts of the mining operations, especially given that the operations will occur in a critical recharge area for municipal water supply well.

Response

Additional Sallal Well #3 water quality data is included in the FEIS and is considered to be representative of local groundwater conditions. A groundwater monitoring plan is recommended in the mitigation section of the DEIS. The DEIS and FEIS identify

factors that should be considered in developing the plan. The detail of the monitoring plan would be developed by King County and Cadman, Inc. prior to the approval of the grading permit. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

***Comment** 013-002*

When Cadman first announced the mining plan in the spring of 1998, the plan called for the northeast ridgeline of Grouse Ridge to be excavated and lowered by up to 85 feet. In response to residents' complaints and concerns over this element of the plan, Cadman unveiled a new plan at their community presentation in the summer of 1998 that showed no lowering of the ridgeline and that excavation would be set back 100 feet south of the ridgeline. The reasons for this were threefold:

1. To not interfere with the water runoff and springs in the ridge that feed the many wells along the Middle Fork Road.
2. To not cause noise and visual pollution by removing the ridgeline.
3. To maintain an elk migration route along the ridgeline.

The new plan to not excavate and lower the ridgeline was stated on several occasions by Rod Shearer of Cadman, by Dennis Oost of Jones & Jones landscape architects, and by Grant Newport of Weyerhaeuser during tours of the site, meetings, and presentations.

Now, in the summer of 2000, we see that the mining plan has changed: Cadman/Weyerhaeuser have reverted to their first intention of lowering the ridgeline. This about-face is evident in the DEIS (see page 3.10-7, 5th paragraph), and in the new aerial pictures with overlaid site boundaries that were presented at the DEIS comment meeting held at Mt. Si High School in July. The pictures now show the ridge being excavated and brought down by about 85 ft. The representative of Weyerhaeuser's landscape architecture firm, Dames & Moore, confirmed to me and others at this meeting that the ridgeline will come down by up to 85 feet under all of the mining alternatives that involve the upper site. This will cut down into the watershed, springs and creeks that provide the water supply to the Middle Fork Road community. Our wells are already very sensitive to the water flow off Grouse Ridge. For example, during the summer when the rate of flow off the ridge decreases, the water becomes very sulfurous and foul tasting. Cutting down the ridge will no doubt decrease the rate of flow permanently, the disturbance of existing minerals in the watershed will have unforeseen effects, and the inevitable accidents and spillage will no doubt pollute our water supply to some degree. No study of these impacts is given in the DEIS.

***Comment** 013-003*

There is nothing in the DEIS covering these possible adverse impacts to our community. Studies must be made to assess the impact on the potential dangers to the water supplies of the Middle Fork Road community. Or, the previous commitment of not cutting down the ridge and maintaining a 100 ft. setback must be renewed.

Comment 013-004

It is our suspicion that Cadman/Weyerhaeuser attempted to placate the Middle Fork Road community in 1998 with the full intent of returning to their original plan when the time for the DEIS came. And, surely the County must be aware of this change.

***Comment** 052-001*

We are very worried about the future of our well water in light of this project. We and ten other neighbors share a well that is just north of Grouse Ridge. The EIS does not specify how the aquifers on Grouse Ridge are connected to the source of our water. Since this would be a significant (devastating) impact on us and our neighbors if our water source were polluted, we believe that the EIS report is deficient in not giving

Response Comments acknowledged. The Middle Fork wells are not explicitly addressed in DEIS. The FEIS addresses recharge and source of water to these wells. The changes in recharge and runoff expected to be small and therefore, no significant impacts to the water supply wells are anticipated.

Comment *019-031* The DEIS did not and the FEIS should provide actual data (not an estimate) for travel times for groundwater from beneath the Lower site as cited in Vol. I page 3.4-20.

Comment *020-075* The FEIS should contain an actual measurement of travel times for groundwater from beneath the Lower site as opposed to an "estimate". [DEIS 3. 4-20].

Response The Water and Environmental Technical Report provides order of magnitude calculations for groundwater velocity and pumping effect lag times. Site-specific data required for more accurate calculations is not available.

Comment *019-063* The FEIS should address the potential adverse environmental impacts that streams were not measured in drainages that "appeared to re-infiltrate". The FEIS should provide a worst-case scenario and mitigation in the event they don't re-infiltrate.

Response Surface water flow and infiltration from existing springs is an existing condition. If flow from these springs does not reinfiltrate as observed, water will flow down existing drainages to other surface water bodies.

Comment *019-044* The DEIS cites "Most of the wells appear to be screened in Shallow Valley Aquifer." The FEIS should address the worse case scenario if the wells in the vicinity are not screened [DEIS Vol. I, page 3.4-9].

Comment *020-112* The DEIS states, "Most of the wells appear to be screened in Shallow Valley Aquifer." The FEIS should address the worse case scenario if the wells in the vicinity are not screened. [DEIS 3.4-9].

Response The term “screened” regards the depth of completion of a well, not a form of protection of the well. Evaluation of a worst-case scenario is not appropriate.

Comment *019-052* The DEIS did not and the FEIS should address why there are question marks on the map Figure 6, Vol. II, Appendix D Geological Cross Section. This indicates the geological makeup is not known the multiple assumptions regarding silt, sediment, contaminants, water tables, aquifer depths and locations are not valid. The FEIS should provide the potential adverse impacts given this is an unknown and yet is critical to perform an effective analysis. The FEIS should provide a worst-case scenario if these estimates are inaccurate.

Comment *020-103* The FEIS should discuss the adverse environmental impacts associated with the possibility that the alluvium and glacial sediments are not as described on page 3.4-7 of the DEIS. The FEIS should address what is the worst-case scenario if these estimates are inaccurate? What is the significance of the (?) on Figure 6 of DEIS Vol. II. [See Addendum C]. Does this indicate that the geology of the area is unknown.

Response Question marks and dashed lines represent areas of limited or inferred data, and are consistent with standard geologic mapping and reporting methodologies. The DEIS

and FEIS discuss a range of potential impacts that take into consideration the limitation of the available data.

Comment *019-053* The DEIS states, "A summary of "typical" thickness, and lithologic and hydrologic characteristics for each of these units is presented in Figure 4 (See Addendum D). These values are not intended to be site-specific." [DEIS Vol. II, Appendix D, page 8, section 2.2.1.1]. The FEIS should require that site-specific values are provided to enable proper analysis of the potential adverse impacts.

Comment *020-104* The DEIS states, "A summary of "typical" thickness, and lithologic and hydrologic characteristics for each of these units is presented in Figure 4 (See Addendum D). These values are not intended to be site-specific." [DEIS Vol. 11, Appendix D, page 8, section 2.2.1.1]. The FEIS should address what the purpose is of addressing the complex mixtures of soils and other materials in the Project area if the reference material is not site specific?

Response The figure has been modified to include local formation thicknesses in the FEIS based on boring and well logs.

Comment *019-054* The FEIS should provide a worst-case scenario for the possibility that the estimate for the shallow unconfined aquifer in the site vicinity is not "approximately" 100-feet thick [DEIS 3.4-8].

Comment *020-105* The FEIS should discuss the adverse environmental impacts associated with the possibility that the shallow unconfined aquifer in the site vicinity is not "approximately" 100-feet thick. [DEIS 3.4-8]. What is the worst-case scenario if these estimates are inaccurate?

Response The Proposal does not include excavation into the aquifer and will not affect the aquifer thickness. Potential impacts are not directly related to the aquifer thickness.

Comment *019-055* The FEIS should address the worst-case scenario associated with the DEIS statement that, "The shallow recessional material (coarse gravels and sands) in the central portion of the Lower Site does not appear to contain quantities of water indicative of an aquifer and, therefore, the shallow valley aquifer does not appear to be present at this location." [DEIS 3.4-17]. The FEIS should require a thorough analysis to identify if there is an aquifer and if the shallow valley aquifer is present on the Lower Site.

Response The Shallow Aquifer (River Alluvium and Vashon Recessional deposits) does not occur at the site. The top of the Deep Aquifer (Upper Coarse-grained Unit), if present at the site, is located at an elevation below the base of the fine-grained layer encountered in Well GR95-12 and Boring GR98-6 (estimated elevation 575 feet msl).

Comment *019-056* The FEIS should address the adequacy of the mapping of the vertical buffer zones.

Comment *019-057* The FEIS should address the adequacy of the mapping of the perched zones on the Upper site.

Comment *020-110* The FEIS should address the adequacy of the mapping of the vertical buffer zones.

Response The maps in the DEIS were prepared with best available information and are consistent with standard geologic mapping methodologies. The maps and data are considered adequate to assess potential impacts and identify mitigation measures. Ongoing water level monitoring was performed through March 2001 to refine understanding of water levels and avoid encounters with saturated conditions.

Comment *019-367* The DEIS did not and the FEIS should require that all aquifers and groundwater sources be fully mapped and identified for protection.

Comment *019-606* "Groundwater in the study area discharges as seepage to springs and streams, transpiration by plants, groundwater outflow down valley and withdrawals from wells. [DEIS vol. II, appendix. D, page 9, Discharge]. If accurate information is not available on the water levels how can one determine if there is going to be a serious adverse environmental impact? The FEIS should require the entire project site (not just excavation) be mapped to avoid serious adverse impacts to the public drinking water sources.

Response Investigations were conducted by Cadman, Inc. and King County to characterize aquifers and groundwater sources. The investigation results were presented in the DEIS. The DEIS and FEIS recommend additional characterization and monitoring to mitigate for potential impacts.

Comment *142-021* E-151 King County should protect the quality and quantity of ground water County wide by:

d. Refining regulations to protect critical aquifer recharge areas and wellhead protection areas

Response Comment acknowledged. As indicated in the Water and Environmental Health section of the DEIS, use of infiltration ponds would manage stormwater runoff to maintain the natural pattern of recharge and no significant impacts to groundwater quantity and quality would be anticipated. Please refer to the Water chapter of this FEIS for detail.

Comment *020-031* The EKCWRA/Seattle Public Utilities water rights application for 60 million gallons/day is mentioned in one paragraph.

Response The application was included as part of a discussion of other potential users in the area. This potential future use does not reflect existing conditions.

Comment *020-106* The DEIS states, "Although there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow direction beneath the western portion of the Lower Site, the monitoring well (See Addendum E) Cadman Inc. has proposed to install on the Lower Site would provide additional data in support of a more definitive interpretation of site conditions." [DEIS 3.4-20]. The FEIS should define "limited uncertainty"? Does this mean that analysts are unsure and that Cadman will obtain the confirming data? Who will monitor the well data and ensure that it is accurate and reliable? The FEIS should address whether this data should be obtained prior to obtaining a Gravel Permit and if an independent monitor should perform this monitoring.

Response The addition of one or more monitoring wells to better define groundwater flow is recommended in the FEIS. The FEIS recommends monitoring prior to construction and excavation activities. Monitoring would most likely be performed by the applicant or their representatives.

Comment *020-032* Groundwater quality was not tested (pg 3.4 - 30).

Response Additional Sallal Well #3 data is included in FEIS as representative of local groundwater conditions. A groundwater monitoring plan is recommended in the mitigation section of the DEIS and FEIS.

Comment *020-074* The FEIS should address the "assumption" that the effective porosity for the formation underlying the Upper site is not 30%. [DEIS 3.4-21]. Thereby, affecting the statement that, "... estimates 69% of the precipitation recharges the underlying aquifers." [DEIS 3. 4-9].

Response The FEIS uses geotechnical data to define the range of porosity at the site. The FEIS clarifies the text with respect to sample porosities, observed water level changes, and assumptions regarding recharge.

Comment *020-027* "The aquifer is not well defined near North Bend and there is come uncertainty regarding the continuity of deep aquifer throughout the Valley" (pg 3.4 - 8).

Response Monitor wells were recommended as part of the monitoring program in positions to best define the aquifer and flow direction.

Comment *020-111* The FEIS should address the adequacy of the mapping of the perched zones on the Upper site.

Response Maps of the perched zone were prepared with best available information and are consistent with geologic mapping methodologies. The maps are considered adequate to assess potential impacts.

Comment *020-028* The aquifer under the lower site is not confined and the nature of the transition zone is uncertain (pg. 3.4 - 20).

Response The degree of uncertainty expressed by this statement is common in hydrogeologic investigations and does not preclude an assessment of potential impacts. Additional monitoring wells were recommended as part of the monitoring program in positions to best define the aquifer and flow direction.

Comment *020-108* The FEIS should address the worst-case scenario associated with the DEIS statement that, "The shallow recessional material (coarse gravels and sands) in the central portion of the Lower Site does not appear to contain quantities of water indicative of an aquifer and, therefore, the shallow valley aquifer does not appear to be present at this location." [DEIS 3.4-17]. The FEIS should quantify the "appear" either it contains water or it doesn't. The FEIS should identify exactly which studies were done to indicate that the shallow valley aquifer is not present on the Lower Site.

Response The elevation and geologic materials at the Lower Site are not consistent with that of the shallow aquifer. The shallowest piezometer (GR95-12) does not show a seasonal water level response consistent with that expected of an aquifer.

Comment *019-612* The DEIS did not and the FEIS should identify the horizontal aquifer that cross over and beneath the site.

Response The DEIS and FEIS describe the aquifers in the site vicinity and beneath the Upper and Lower Sites. The descriptions are based on site-specific data, regional studies and logs for wells in the site vicinity.

3.4.1.3 Water Budget

Comment *012-031* Estimates of groundwater recharge and surface runoff are based on average annual precipitation rates measured at Cedar Lake. The annual average precipitation at the Grouse Ridge sites is assumed to be equal to 80% of the annual average precipitation at Cedar Lake. This 80% estimate is based on measurements collected during a single year as reported in a 1996 report prepared by Golder Associates 1996 (Volume I, page 3.4-1). There is no explicit consideration of the uncertainty in this percentage. Furthermore, there is no consideration of the critical years - only the "average year" at Cedar Lake is considered. The average precipitation at Cedar Lake is 101 inches, but the standard deviation is 17 inches. The annual precipitation at Cedar Lake has exceeded 120 inches for 14 years of the last 68 years, which is the period of record. If the precipitation at the site is 90% of the Cedar Lake precipitation (a reasonable assumption given the sparseness of the data used to develop the estimate of 80%), then one could reasonably expect that the annual precipitation at the site could exceed 108 inches one year out of five. The annual precipitation at Cedar Lake has been less than 85 inches for 13 of the last 68 years. If the precipitation at the Grouse Ridge site is actually 70% of the Cedar Lake value, then one could reasonably expect that the annual precipitation at the site may be less than 60 inches one year out of five. The water balances presented in the EIS are based on an estimated precipitation of 81 inches per year (80% of 101 inches). This represents a "best guess" scenario. Reasonably possible scenarios include 108 inches per year on the high side and 60 inches per year on the low side. These scenarios are likely to occur but are not considered in the draft EIS. Use of the 81 inches per year average invalidates much of DEIS 3.4; all water analyses based on this figure need to be redone.

Comment *012-032* The annual amount of groundwater recharge is estimated to be 69% of the annual precipitation. This is based on a USGS report that compared streamflow and precipitation (USGS, 1995). The data that were used for this comparison were collected at sites receiving less than 60 inches of annual precipitation and at sites with glacial outwash at the ground surface. Given the uncertainties in this comparison, the amount of groundwater recharge could reasonably be between 80% or 60% of the precipitation. With 108 inches of precipitation, and 80% groundwater recharge, the infiltration at the site would be 86 inches, as compared with 56 inches assumed in the draft EIS. Similarly, with 60 inches of precipitation and 60% groundwater recharge, the infiltration at the site would be 36 inches. Again, these reasonably possible scenarios should be considered in evaluating the potential environmental impacts of the proposed gravel mining operation. Uncertainty and sensitivity analyses are accepted engineering practice and should be included in these types of evaluations.

Comment *012-039* [DEIS §3.4] The amounts of ground water and surface water that may be affected by the mining operations have been under-estimated; in some instances these under-

estimates are gross. The water balances that are presented in Section 3.4 do not consider groundwater inflow into the excavations, they include non-conservative estimates of surface water run-on, and they are based on uncertain and potentially non-conservative estimates of precipitation and infiltration.

As an example, the cross section shown for the lower site shown on Figure 3.4-6 (Volume I) suggests there could be significant inflow to the excavation from the east. This may occur along the bedrock or along lower-permeability layers similar to what is suggested in the boring log for well GR98-4. The conceptual model shown on Figure 3.4-8 (Volume I) indicates a trench will be used to intercept this groundwater. No estimates have been made of the amount of groundwater that may be collected at this trench. This component has not been considered in any of the water balances.

Comment *012-178*

One of the principal weaknesses of the draft EIS is the focus that it places on expected or "best guess" scenarios and conditions. Uncertainties are not explicitly considered. The sensitivities of calculations and estimates are not presented. A more reliable approach for developing the EIS would be to identify reasonably possible scenarios, and not only single, "best guess" scenarios. Options should be described for mitigating adverse impacts for those reasonably possible scenarios that are most critical in terms of environmental effects. As example, estimates of groundwater recharge and surface runoff are based on average annual precipitation rates measured at Cedar Lake. The annual average precipitation at the Grouse Ridge site is assumed to equal 80% of the annual average precipitation at Cedar Lake. This 80% estimate is based on measurements collected during a single year as reported in a 1995 report prepared by Golder Associated (Volume 1, page 3.4-1). There is not explicit consideration of the uncertainly in this percentage. Furthermore, there is no consideration of the critical years- only the "average year" at Cedar Lake is considered. The average precipitation at Cedar Lake is 101 inches, but the standard deviation is 17 inches. The annual precipitation at Cedar Lake has exceeded 120 inches for 14 years of the last 68 years, which is the period of record. If the precipitation at the site is 90% of the Cedar Lake precipitation (a reasonable assumption given the sparseness of data used to develop the estimate of 80%), then one could reasonable expect that the annual precipitation at the site could exceed 108 inches one year out of five. The annual precipitation at Cedar Lake has been less than 85 inches for 13 of the last 68 years. If the precipitation at the Grouse Ridge site is actually 70% of the Cedar Lake value, then one could reasonable expect that the annual precipitation at the site may be less that 60 inches one year out of five. The water balances presented in the EIS are based on an estimated precipitation of 81 inches per year (80% of 101). This represents a "best guess" scenario. Reasonably possible scenarios include 108 inches per year on the high side and 60 inches per year on the low side. These scenarios are likely to occur but are not considered in the draft EIS.

Comment *012-179*

A second example, the annual amount of ground water recharge is estimated to be 69% of annual precipitation. This is based on a USGS report that compared streamflow and precipitation (USGS, 1995). The data that were used for this comparison were collected at sites receiving less that 60 inches of annual precipitation and at sites with glacial outwash at the ground surface. Given the uncertainties in this comparison, the amount of groundwater recharge could reasonably be 80% or 60% of the precipitation. With 108 inches of precipitation, and 80% groundwater recharge, the infiltration at the site would be 36 Inches. Again, these reasonable possible scenarios should be considered in evaluating the potential environmental impacts of the proposed gravel mining operations. Uncertainty and sensitivity analysis are accepted engineering practice and should be included in these types of evaluations.

***Comment** 020-139*

It is extremely important to note that the DEIS completely omits any reference of microclimates in the area in spite of the fact that topography and meteorological conditions would seem to be perfect to create microclimates.

***Comment** 045-027*

Page 3.4-30 et al., 3.4.1.3: It is not sufficient to base a "generalized" water budget for both the Upper and Lower Sites on only "conceptual models" and "available data." Nor is it prudent to "focus only on areas that would be disturbed as part of the gravel operation," because it is obvious that many areas outside those disturbed could be adversely affected. It is also shortsighted to assume that the only change in groundwater quantity is "due to recharge" without considering inflow and outflow and "excluding changes in storage." This section is full of vague words in the data collection sections (would likely be, probably, may be, if this is the case, etc.), and then uses definitive words to describe the conclusions and proposed operations (will be, would be, the only way, etc.). This is not a reliable way to create a viable plan with optimum results.

***Comment** 078-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.1.1 Surface Water, Regional Surface Water, Precipitation, page 3.4-1.

The base rainfall average of 81 inches per year on the subject area of Grouse Ridge is questionable for the following reasons:

1. The Cedar Lake measurement station has, as stated on this page, records dating from 1931 to the present, yet only the five years 1995 - 1999 were used, even though the life of the project is expected to be 25 years or longer. Since the annual precipitation at Cedar Lake varied between 52 and 138 inches per year from 1931 to now, this is a very significant variance from the 101 to 114 inches per year. Because all of the impacts on the groundwater and flood surges are based on the narrower variance in average rainfall, at least the last 25 years of measurement for Cedar Lake (1975-1999) should be used.

2. Only one year of measurements was used to project that Grouse Ridge receives 80% of the rainfall received at the Cedar Lake station. Using a sample of one period to determine a statistically reliable estimate that spans five periods and therefore can he used to cover 25 periods (years), should not be accepted.

Because of the significant impact rainfall has on the entire groundwater and aquifer issues that must be resolved before this project is allowed to proceed, more accurate statistics must be determined and then all the calculations in the DEIS must be redone.

Response

A revised water budget description is included in the FEIS. Precipitation data from Cedar Lake have been utilized for revised calculations. The assessment of impacts considers above average and below average precipitation and a range of potential impacts. The FEIS recognizes that local variabilities of precipitation may result from elevation and terrain variations in the vicinity. The water budget does consider changes to inflow (i.e., runon at the Lower Site) and outflow (pumping at the Lower Site) that are a direct result of the project. Potential changes in the water budget for the disturbed areas are used to assess potential impacts outside the disturbed areas (i.e., spring, streams, water supply wells).

***Comment** 115-039*

p. 3.4-31 It is easy to talk about water budgets on the site prior to construction. What will happen when all the equipment and machinery are in place? Runoff will increase considerably, so to dismiss it as is done in the DEIS is not a correct

Response Runoff remains within the footprint of the excavation. Overall drainage patterns are expected to be similar to existing conditions, with potential for increased aquifer recharge.

Comment *115-040* p. 3.4-32. "Portions of the Lower Site that have been previously mined and are lightly vegetated may be considered similar to pasture." Not likely. Pasture is much more likely to contain large amounts of organic material that encourage grasses and browse vegetation. Mining sites are more likely to contain large expanses of noxious weeds, thereby the evapotranspiration rate will likely be different.

Response Pasture assumption was used to estimate the amount of the amount of evapotranspiration, not specifically the type of plants present at the site. This is considered to be a reasonable assumption based on the available studies.

Comment *012-043* It should be noted that the run-on estimates are based on annual average values. There are no discussions of peak flows that might occur during individual events. The fresh water pond that is proposed on the lower site (Volume I, page 3.4-36, paragraph 2) would be developed and maintained through a surface water diversion and may also have regulatory issues associated with it. There is no significant runoff from the site onto adjacent property. [DEIS page 3.4-3, paragraph 2]Based on this analysis, the average annual volume of run-on is estimated to be about 42 acre-feet or 1,800,000 ft^3. [DEIS page 3.431, paragraph 3]

Comment *012-185* The EIS indicated that infiltration ponds will be used for stormwater control. No estimates have been made concerning the size of these ponds, or even if they are feasible. For example, infiltration ponds mush be designed to completely drain ponded runoff within 24 hours following the occurrence of the 10-year, 24-design storm and within 48 hours of the 100-year, 24-hour storm (WDOS, 2000). The size of the pond that would be required to meet this requirement depends upon the infiltration rate at the site. The infiltration rates can be dramatically decreased by turbid water. At the upper site, the expectation is that turbidity will be removed by filtration (Volume 1, page 3.4-44, paragraph 2). This will reduce the infiltration rate at the site, perhaps dramatically.

Response The conceptual size and function of an infiltration pond for the Lower Site is included in the FEIS. The analysis includes an assessment of the likelihood of flooding at the Lower Site. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *012-045* The water balance developed for the site assumes no groundwater inflow. Recharge from precipitation is assumed to be the only source of water. The cross section shown on Figure 3.4-6 suggests there could be significant inflow to the excavation from the east. This may occur along lower-permeability layers similar to what is suggested in the boring log for well GR98-4. The depth to bedrock would also be an important consideration for estimating groundwater inflow to the site. The groundwater inflow may be of the same order of magnitude as the recharge from precipitation.

Comment *012-182* The water balance developed for the site assumes no groundwater inflow. Recharge from precipitation is assumed the only source of water. The cross section shown on Figure 3.4-6 suggest there could be significant inflow to the excavation from the east. This may occur along lower-permeability layers similar to what is suggested in the boring log well GR98-4. The depth to bedrock would also be an important

consideration for estimating groundwater inflow to the site. The groundwater inflow may be of the same order of magnitude as the recharge from precipitation. Figure 3.4-8 identifies groundwater seepage interception trenches. These trenches will be operated to keep the water level at least five feet beneath the ground surface (Volume I, Page 3.4-41, paragraph 3). This is not included in any water balance. Estimates of the inflows to these trenches have not been developed.

Response The water balance is for existing conditions and assumes no net change in storage for groundwater underflow. There is no reason to believe that inflow would change as a result of the project, so inflow would not have an effect on the overall water balance.

Comment *012-046* Figure 3.4-8 identifies groundwater seepage interception trenches. These trenches will be operated to keep the water level at least five feet beneath the ground surface (Volume I, page 3.4-41, paragraph 3). This is not included in any water balance. Estimates of the inflows to these trenches have not been developed. Groundwater inflow and outflow are not considered in the water budget because there are no onsite groundwater discharge points or withdrawals, and thus the only change in the quantity of groundwater beneath the Lower Site, (excluding changes in storage) is due to recharge [DEIS page 3.4-31, paragraph 1].

Response The water balance analysis is for existing conditions prior to excavation. Once the trench is operational, the water removed from the trench would be infiltrated back into the aquifer in the infiltration pond located on the west side of the Lower Site. This diversion of water would result in little or no change to the water budget.

Comment *012-047* Topographic maps suggest areas to the east may contribute run-off to the Upper site. This might be in the form of shallow groundwater flow along perching layers. The water balance does not include any of this surface water or shallow groundwater run-on. There are no offsite drainage basins that contribute runoff to the Upper site. [DEIS page 3.4-3, paragraph 41]

Comment *012-183* Topographic maps suggest areas to the east may contribute run-off to the Upper site. This might be in the form of shallow groundwater flow along perching layers. The water balance does not include any of this surface water or shallow groundwater run-on.

Response No surface water run-on is expected at the Upper Site because the ridge is a local high point with a topographic 'saddle' between the ridge and Mailbox Peak. Groundwater elevation contours of the perched zones do not indicate inflow from offsite. See perched groundwater elevation contour figures.

Comment *012-040* Similarly, the conceptual model for the upper site shown on Figure 3.4-13 indicates groundwater inflow to the excavation. No estimates have been made of the amount of groundwater that may be collected from this inflow and this component has not been considered in any of the water balances.

Comment *012-048* Significant amounts of groundwater may flow into the excavations at the upper site along lower-permeability layers that have been identified in boring logs. Depending upon the continuity and distribution of these layers, a relatively large area may contribute groundwater inflow to the excavations. This water has not been considered in the water balances." Water perched on these silt layers migrates laterally through the sand and gravel overlying the silt, flows to the edge of the layers, and then continues a downward infiltration through the surrounding sand and gravel." [DEIS p.

3.4-22, paragraph 1]"For the Upper site, the quantity of recharge is also considered to be equal to the amount of groundwater that leaves the Upper site." [DEIS p. 3.4-32, paragraph 3]

Comment *012-184* Significant amounts of groundwater may flow into the excavations at the upper site along lower-permeability layers that have been identified in boring logs. Depending upon the continuity and distribution of these layers, a relatively large area may contribute groundwater inflow to the excavations. This water has not been considered in the water balances.

Response The water in the shallow perched layers is considered to be stored water and was not included in the water budget. A reliable volume of water in these perched layers could not be calculated. The release of this water from storage has the potential to raise such levels in the underlying perched zones and increase spring discharge. These changes are expected to be relatively small because only a few boreholes encountered these shallow perched layers.

Comment *019-012* The FEIS should redress the "assumption" that the effective porosity for the formation underlying the Upper site is not 30% [DEIS Vol. I, page 3.4-21] and the statement that, "... estimates 69% of the precipitation recharges the underlying aquifers." [DEIS Vol. I, page 3.4-9].

Response Data from the physical testing of soil samples was used to define range of porosity. The text in the FEIS has been clarified with respect to observed water level changes and assumptions regarding recharge.

Comment *020-033* Runoff was only measured with "field observations" (pg. 3.4 - 30)

Response Runoff from the disturbed areas was not observed and therefore was assumed to be zero. Run-on was calculated using King County RTS model.

3.4.2 Environmental Impacts

Comment *058-002* If Cadman, or their ilk, were subjected to the same set of policies as I was in my quest to only build a home they would never be granted approval. Why? Because their operations will affect water quality not only in the river where the precious salmonids reside but also well water throughout the region. You know, the water that us mere humans need for our survival. Also, with my home 70 feet from the river, can any official in DDES guarantee me I won't have a flooding problem due to increased water runoff or rechanneling? Will slope stability be adversely affected so that my home will be suddenly 30 feet from the river?

Response Comments acknowledged. King County determined that an EIS is required for the Cadman proposal. No permit decision will be made until after the FEIS is published. Runoff at the Upper and Lower Sites is interior into the excavations. Changes to surface water flow due to changes in spring discharge from the Upper Site is not expected to cause flooding or erosion.

Comment *020-065* "Ground water quality protection in Washington State is based upon the concept of antidegradation, which forms the foundation for each of the state's ground water

protection program(s). Antidegradation has been enunciated as policy in Washington State's ground water standards (See Addendum A and B). This policy states:"

Existing and future beneficial uses shall be maintained and protected, and degradation of ground water quality that would interfere with or become injurious to beneficial uses shall not be allowed."

Degradation shall not be allowed of high quality ground waters constituting an outstanding national or state resource, such as waters of national parks and wildlife refuges, and waters of exceptional recreational or ecological significance."

Whenever ground waters are of a higher quality than the criteria assigned for said waters, the existing water quality shall be protected, and contaminants that will reduce the existing quality thereof shall not be allowed to enter such waters, except in those instances where it can be demonstrated that: (i) An overriding consideration of the public interest will be served; and (ii) All contaminants proposed for entry into said ground waters shall be provided with all known, available, and reasonable methods of prevention, control, and treatment prior to entry."

The antidegradation policy combined with the state's ground water protection goals dictate that, at a minimum, all ground water should be protected as a potential source of drinking (potable) water. Not all ground water is presently used as a drinking water source. However, the potential for future use of ground water resources not currently utilized for drinking water purposes requires protection. This concept forms the basis of requiring determination and protection of those areas on both a state and local governmental level." [Gravel mining" Environmental Laws & Issues by Advocates for Instream Flow, 1999].

This policy certainly questions the validity of the Proponent's interests as compared to those of the citizens of the State of Washington and especially those residents of the Upper Snoqualmie Valley. Why would King County risk the degradation of an aquifer(s) that currently supplies quality drinking water to untold numbers of individuals on the eastside? Why would King County risk the degradation of an aquifer(s) that will ultimately supply 60 million gallons of water a year to the greater Seattle area? King County's ultimate responsibility is to the public safety and welfare and not that of private corporations. The principle question is - has the public been adequately served in the preparation of the Dames and Moore DEIS?

The DEIS chapter on Water and Environmental Health raises more questions than it answers. Although it is by far the lengthiest chapter in the DEIS, it is also the most speculative, internally inconsistent and technically flawed. As such, it is not a clear, accurate or reliable discussion of the environmental impacts of the proposal and their significance.

Response Comment acknowledged. Format changes have been made to improve the clarity of the FEIS.

Comment *013-001* Our well system services nine properties along the Middle Fork Road directly beneath the northeast ridgeline of Grouse Ridge. There are another thirty or so properties along the same road that have other community well systems and individual wells. The water that feeds these wells is from the drainage off the northeast face of Grouse Ridge. We believe that the current mining plan will create a situation that is bound to have an adverse impact to the water supply and value of these properties.

Response The Water chapter of the FEIS includes a more detailed discussion of the hydrogeologic conditions and potential impacts to wells along Middle Fork Road.

Comment *019-679* The DEIS failed to provide accurate and comprehensive data, as required by SEPA, to permit adequate analysis of the water impacts. Analysis that included language of "could be", "unlikely", "might be", "may impact", "if impacts are detected, corrective action will be taken" and "slightly" are subjective and left open to individual interpretation. This is an unacceptable approach to maintaining and controlling water quality.

Response Qualified data and qualitative language is appropriate in technical documents where data is limited or open to interpretation. Recommended mitigation measures take into account the limited data and potential range of impacts.

Comment *019-680* The DEIS failed to and the FEIS should provide a thorough Sediment/silt infiltration analysis for the entire project area for each phase within each alternative over the life of project.

Comment *022D-006* Also related to the seeps on the upper site, the combination of the increase in exposed fine sediments during mining and the potential short-circuiting of subsurface hydrology may result in increased turbid flows to the seeps and associated streams. The porous soils and extensive amount of disturbance proposed on the site present a risk of turbid runoff infiltrating the soils and reaching the downstream systems. Although the DEIS describes general stormwater control procedures, the level of detail (and clarity) is not sufficient to demonstrate that impacts to surface waters (through the seeps) will be avoided. The DEIS states that filtration through the ridge materials "is expected to be sufficient to remove turbidity" though no support for this conclusion is offered.

Comment *045-031* Page 3.4-38, Water Quality: Describe in more detail how potential contaminants would/could be transported from groundwater to surface water. The statement that sandy and silty zones within ridge materials are "expected to be sufficient to remove turbidity before groundwater is discharged to the springs provided that the excavation does not extend into perched zones that are in direct hydraulic connection with the springs" is not very reassuring considering the past record of the Applicant.

Comment *088-002* Evidence not speculation is needed when the integrity of the groundwater is at stake. Simply expecting something to be sufficient, as indicated in the DEIS, is not adequate for a final decision.

The DEIS indicates that the turbidity could impact groundwater quality. A through study of the Grouse Ridge proposed gravel site on the impact of the gravel operation on the groundwater and turbidity needs to be done before final decisions can be made.

A complete study including the relationship of groundwater resources within the area is requested in order to establish facts on the impact to groundwater. Any connection of groundwater in the Upper or Lower Site to an aquifer used for domestic water supply needs to be identified.

Response The FEIS includes a revised geotechnical analysis and a colloidal particle filter assessment. The potential impacts to aquifers used for domestic water supply are also discussed.

Comment *020-092* The FEIS should provide projections of the specific local effects of gravel extraction on bed elevations and the stability of rivers, streams, and tributorial banks and bars.

Response There would be no contribution of sediment to rivers. Changes in streamflow are expected to be minimal and would not result in significant changes to the river.

Comment *023-034* Using the average slope of 20%, with some areas far exceeding this average slope, the grading scars could be significant. Without the benefit of a simple slope analysis and accurate topographic mapping, we are concerned that visual impacts are based on an incomplete preliminary picture of what may actually be constructed within this westward-oriented development that is highly susceptible to torrential rains and associated erosion.

Response A discussion of the erosion control measures to be implemented along the maintenance road are included in the FEIS. The Aesthetic, Light, and Glare chapter of the FEIS includes an assessment of the visual impact of the conveyor and maintenance road.

Comment *024A-025* On p. 2-16, the DEIS states that the passive fresh water pond would be lined to eliminate infiltration Why is there a desire to eliminate infiltration. Is there a potential of groundwater contamination. Other ponds are being developed on the sites both as settling ponds and as stormwater storage. Are these ponds also lined Please clarify this issue It would seem critical for the County and public to know precisely how and with what any of these ponds will be lined in order to gauge its effectiveness in ensuring that groundwater supplies are not contaminated.

Comment *024A-031* What will the depth of the pond? This should be stated in the project description.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *045-014* During the Appeal of the Applicant's pit near Carnation, the City of Carnation stated that "the applicant should be asked to demonstrate that the proposed activities at the Ben Jones pit will have no hydrologic consequences to the City's water source. We believe the stakes are too high to ignore the potential, however remote, that mining operations could adversely affect the water supply of Carnation and our water customers in unincorporated King County" (Letter from City Administrator to Hearing Examiner, August 4, 1993). Please consider the much larger impact the North Bend site would have on a much larger regional aquifer.

Response Comment acknowledged. The site is not located in the vicinity of the Carnation water source. Potential impacts to the regional aquifers in the site vicinity are addressed in the FEIS.

Comment *045-022* Figure 3.4-8: Within the acceptable margin of error on hydrogeologic models, these (and other diagrammatic figures in the DEIS) should be drawn to scale. These are some of the most important figures in the DEIS, and the fact that they are not drawn to scale is further evidence that even the experts can't determine for sure where the "possible high water table" would be with regard to "present ground surface" and "ground surface following excavation."

Comment *045-026* Figure 3.4-13: Should be drawn to scale with best available data.

Response These cross sections represent conceptual subsurface conditions for illustration of groundwater/surface water interactions. These figures were provided as a simplified representation of hydrologic system for readers; please see scaled cross-sections in the Water chapter and in Appendix E in the FEIS. These figures show the actual water levels as measured in wells.

Comment *045-028* In addition, the water budget needs to be broken down. The consumptive use is only an estimate. How much water would be used, and how often, for vehicle washing, aggregate washing, steam cleaning, site & road washing, dust management, etc.? These quantities need to be compared to existing and seasonal availability of groundwater and pond sources, and the effect of seasonal drawdown needs to be scientifically modeled (with extensive locally-collected data, not just a computer model).

Response The quantity of water consumed is described in the Proposal and Alternatives chapter of the FEIS. The quantity required is similar to other gravel operations. The FEIS uses Sallal Well #3 well data, Cadman water use calculations and source volumes to estimate drawdown effects from a theoretical pumping well at the site (see Water and Environmental Health Technical Report). The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *075-001* What will be the level of increased sedimentation of the rivers especially the South Fork if the exit 39 alternatives were used? Will steep slopes and closeness of the site to the Exit 38 site to the South Fork put the South Fork at risk? It has already suffered great changes and damage due to the construction of 1-90 and the related straightening of the South Fork plus the increased activity in the area above Twin Falls. Will more increased activity at Exit 38 and resulting increased sedimentation in rivers cause more flooding -faster and high water flow - putting homes and lives along the river at risk? Will the South Fork be affected in such a way that there will be more loss of banks on home sites along the South Fork between the Edgewick Road Bridge and Twin Falls State Park?

Some mention is made of effects of construction and operation on the river in alternatives 3 and 4, but only pertaining to wildlife and not residents living along the river below the upper site.

Comment *119-003* Increased sediment added to the South Fork of the Snoqualmie river. Currently, every flooding event brings higher gravel bars to the South Fork. Since dredging is prohibited due to the impact on the fish, any additional dirt or rocks which are added to the river from the mining operation increase the flooding danger to the valley.

Response Sediment issues during road improvements will be controlled using standard construction BMPs, such as siltation fences and hay bale berms, thus preventing sedimentation into the South Fork of the Snoqualmie. Site operations will not contribute sediment into the drainages. Stormwater associated with the project remains within the property boundaries.

Comment *106-001* Because of the location of the ground water table in the proposed area I feel that alternative 1 is the only course of action.

Response The FEIS evaluates the alternatives; but does not make a recommendation.

Comment *110-001* There are some major environmental concerns that I have that (to the best of my knowledge) are not addressed by the DEIS for the proposed North Bend Gravel Operation. These concerns are particularly over the effects of this operation on the water quality of nearby tributaries that feed into the South Fork (lower site) and the Middle Fork (upper site) of the Snoqualmie River.

Response As described in the DEIS, water quality impacts are not expected at the South or Middle Forks of the Snoqualmie River.

Comment *110-002* First of all it was not stated in the DEIS how much suspended sediment is expected to be flushed into surrounding waterways, especially during storm events (which are common throughout the year in this area). Along these lines no mention was given to the cumulative effects of fines flushed from local tributaries into the South Fork of the Snoqualmie River. If fines are indeed flushed in to surrounding tributaries leading into the South Fork what impact would these increased sediment loads have on the surrounding aquatic community, particularly trout species?

Response Stormwater runoff would not be discharged from the site. Stormwater would be contained onsite and infiltrated back to groundwater. Sediment would not be discharged to the surrounding waterways.

Comment *020-042* If groundwater quantity or quality changes, "this could affect the rivers" (which are Class A and AA).

Response The DEIS and FEIS recommend that groundwater and surface water monitoring plans be included as part of the permitting process. With proper implementation, these plans would detect and correct impacts before the rivers would be affected. Review and approval of monitoring plans, including analytes and monitoring frequency, would be part of the permitting process.

Comment *020-037* The areal distribution of recharge could change significantly (pg. 3.4 - 39).

Comment *020-041* Water recharge to the perched aquifers could be affected (pg. 3.4 - 39).

Response Comments noted. The DEIS acknowledges that recharge would be affected.

Comment *012-041* The mining and subsequent use of the Lower Site for concrete and asphalt processing and petroleum storage is an area of major concern not adequately addressed in the DEIS. Seeds and Massmann (1999) point out the fragile nature of this area: The lower site is currently more vulnerable to groundwater contamination from surface activities than the upper site. This vulnerability, which is due to the absence of significant clay layers, will increase if the depth to groundwater is reduced through mining actives.

Response Gravel mining often occurs in areas where groundwater is considered to be susceptible to surface impacts or in aquifer recharge areas due to the coarse nature of the soils and lack of fine-grained confining units. Gravel mining can also decrease the distance between the ground surface and aquifers. These actions can increase the risk to aquifer water quality. The project design along with recommended mitigation measures are intended to reduce these risks.

***Comment** 012-057*

[DEIS §3.5; p. 3.5-15] The section on Aquatic and Riparian Resources mentions "fresh water storage pond." Since this pond will be used to recapture water used in vehicle washing, it is not really a "fresh-water" feature. What exactly will be the chemical composition of particulates that settle on the pond bottom, such as those produced by truck washing? How will dissolved particles be disposed of during the operational period and at the time of final reclamation?

***Comment** 012-129*

DEIS §3.5; p. 3.5-15] The section on Aquatic and Riparian Resources mentions a "fresh water storage pond." Since this pond will be used to recapture water used in vehicle washing, it is not really a "fresh-water" feature. Is it in fact safe for bird and amphibians that will inevitably use it? Does the concentration of dissolved particles constitute a hazard for wildlife? What residues will accumulate in the pond(s)?

Response

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. The proposal includes settling ponds and infiltration ponds. Water would be pre-treated prior to introduction to infiltration ponds. Particulates would be removed as part of the pre-treatment.

***Comment** 037-006*

Potential pollution of the aquifer. The county is depending on this natural resource for the future. Why would they even consider risking possible catastrophe? Look at what happened in Monroe. What's to prevent that from happening here? Nothing.

***Comment** 098-005*

Water. Would you risk your family/pets getting cancer from the water they drink? We wont.

***Comment** 102-001*

We would like to add this to what has already been said. Don't think that you are immune from this pollution of the aquifers. It all floats downhill and pollutes also the water supply of Seattle and the Eastside! Thank you for your consideration.

***Comment** 105-005*

I seem to remember a major aquifer problem with a mining project in Monroe that was assured at the beginning that it would not be a problem.

***Comment** 126-003*

Allowing this mine to proceed on top of an aquifer slated to be a potential source for the region's drinking water is reckless and irresponsible.

***Comment** 127-068*

Operations, may have an effect on salmon habitat, and is housed adjacent to what may be the aquifer that will serve future generations.

***Comment** 127-171*

42328 Southeast 108th Street in North Bend. And the concern that comes to my mind most quickly is the aquifer and how accidents can happen. And I think of my four-year old and I say to him you can't play with a knife because accidents can happen. So I think of that in the big picture with the gravel mine.

***Comment** 138-002*

Water is a valuable source and if the Aquifer is destroyed that's it. It can't be restored with money.

***Comment** 139-004*

Water Supply. I have no faith that Cadman will be responsible managers of our water supply.

Response

Comments acknowledged.

Comment *020-079* The FEIS should address the adverse environmental impacts associated with drainage caused by the construction of all roads, including but not limited to all access roads as well as the conveyor system, pipeline, and maintenance road.

Response Impacts associated with roads on the site are limited to stormwater issues. Appropriate drainage controls would be designed and constructed in accordance with the King County Surface Water Design Manual.

Comment *012-086* It is a major oversight that the DEIS fails to cite any of the three documents referenced here in the text or References sections nor, more importantly, adequately assess the short- and long-term risks of mining above the aquifers in the region.

Response The DEIS references Mead, 1995 (as Thurston County, 1995). Other documents regarding aquifer breaching were reviewed but not included because of different hydrogeologic conditions.

Comment *012-088* SEPA 1998 (p. 10) notes that an EIS Summary "should reflect SEPA's substantive policies and focus on any significant irreversible or irretrievable commitments of natural resources that would be likely to harm long-term environmental productivity, taking into account cumulative impacts." Thus impacts on ground water in the proposed mine area would have repercussions far beyond the limited scope discussed in the DEIS.

Response The discussion of cumulative impacts to groundwater conditions in the FEIS has been revised.

Comment *020-086* How exactly is an "encounter" considered an "adequate" vertical separation? How is the underlying groundwater protected in the event of a spill without an adequate buffer zone? Especially, when the DEIS states, "In areas where the buffer zone is limited in thickness or absent, impacts on groundwater quality could occur."

Response An encounter would be prevented at the Lower Site by the interceptor trench. In the event of groundwater inflow into the Upper Site from one of the primary perched aquifers, the area would be bermed and operations removed or halted in that location to prevent impacts.

Comment *012-082* Also, does the estimate of daily water consumption (150,000 gpd) [DEIS p. 3.4-47] include the evaporation from the freshwater pond referenced on [DEIS p. 3.4-48]?

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-069* The FEIS should address the adverse environmental impacts associated with the probability that substantially more or less than 56 inches of precipitation recharges groundwater below the Lower site. [DEIS 3. 4-21]

Comment *020-073* The FEIS should address the adverse environmental impacts associated with the possibility that the estimate of 81.2 inches of rainfall per year on the site vicinity is inaccurate. [DEIS 3.4-21]

Response Impacts of higher and lower precipitation are assessed in the FEIS Water chapter.

Comment *045-008* The Salmon Recovery Update Newsletter, Summer 2000, Snohomish County Public Works, regarding the Snohomish/Snoqualmie Watershed states that "King County's salmon recovery strategy places a high priority on protecting habitat areas rather than trying to recreate them later .... Target basins in the Snoqualmie Watershed include the Middle Fork of the Snoqualmie River .... King County is now using guidance from the Snohomish Basic Salmonid Recovery Technical Committee which prioritizes.., habitat that is hydrologically connected to the reaches that Chinook use and which helps to sustain normal habitat conditions (e.g., an area that supplies cool groundwater and helps to maintain water temperatures needed for salmon survival)." The fact that King County is working toward protecting these hydrologically connected waters should be kept in mind when reviewing any and all of the sections dealing with water issues in this DEIS.

Comment *048-008* Last I would like to address the Excavation of the Lower Site. This work is over one of the largest aquifers in the state. I would like to think sand, gravel, dirt and rocks as a filter, a very large filter and a very important filter. Cadman would like to reduce that filter from what it is now, to less than 20 ft. I must remind you that the water that we receive into our homes though our local water associations and privet wells is untreated and unfiltered though any human devices. Even the remote possibility of the intervention of this high quality natural resource is totally unacceptable.

Response Comment acknowledged.

Comment *020-046* On the upper site, if contaminants reach the perched aquifers, they will discharge into the River quicker.

Response Discharge timing from the Upper Site springs may be affected by excavation activities. The volume of water discharged from the springs is estimated to be about 10 percent of surface waters draining from the north side of the Upper Site and adjacent areas. Water quality impacts are not expected. However, monitoring of both discharge volume and water quality of springs is recommended as part of the monitoring program.

Comment *019-092* Describe affects of imported particulate matter which comes from the road surface, from the Interstate 90 surface, contaminants on trucks from other sites, materials attached to undercarriages of trucks (not normally contained within the water system) on the water quality in the event of contamination of the surface water or storm water within the "Access" area adjacent to the Grouse Ridge Project.
* The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

Comment *020-179* Describe affects of imported particulate matter which comes from the road surface, from the Interstate 90 surface, contaminants on trucks from other sites, materials attached to undercarriages of trucks (not normally contained within the water system) on the water quality in the event of contamination of the surface water or stormwater within the "Access" area adjacent to the Grouse Ridge Project.
* The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

Response Trucks would be washed prior to leaving the site and the water would be managed using engineered systems. Trucks entering the site would not be expected to contribute a significant particulate or contaminant load to the site or surrounding area.

Comment *019-079* Describe the measures, which will be required for the prevention of sediments and granular material from being infused into the surface water and stormwater contained on the Grouse Ridge Project.
* This item was vaguely addressed in Vol. II, pg. 44 of the DEIS. Baseline data, maximum acceptable levels, or parameters were not provided. A "Worst Case" scenario and mitigations were not provided.

Comment *020-165* Describe the measures, which will be required for the prevention of sediments and granular material from being infused into the surface water and stormwater contained on the Grouse Ridge Project.
* This item was vaguely addressed in Vol. II, pg. 44 of the DEIS. Baseline data, maximum acceptable levels, or parameters were not provided. A "Worst Case" scenario and mitigations were not provided.

Response Engineered storm water collection systems would be designed to remove and store sediment from surface water runoff prior to infiltration. The facilities would be designed in accordance with the King County Surface Water Design Manual.

Comment *020-222* The FEIS should address if DNR expertise was utilized to help planners and managers meet long-term water quality and flow-needs, to comment on rehabilitation of surface-mined land, and to determine the relationship between land use and water quality and flow. [United States Department of Agriculture, Forest Service FS-20]

Comment *020-223* The FEIS should address if DNR expertise was utilized to examine relationships between atmospheric deposition and forest health and watershed conditions. These studies would assist the understanding of how watersheds function and how the environment influences forest health and growth. [United States Department of Agriculture, Forest Service FS-20, page 24].

Response Washington Department of Natural Resources staff commented on the DEIS. DNR was not involved in development of the DEIS for these issues.

Comment *020-158* Identify the Stormwater Pollution Prevention Plan (SWPPP) for the ongoing mining, reclamation, conveyor system, crushing and sorting, concrete processing, asphalt processing and the onsite transportation of materials on the Grouse Ridge Project.
*The DEIS failed to address the conveyor system, crushing and sorting, concrete

Response The SWPPP is prepared as part of the National Pollution Discharge Elimination System permit issued by the Washington Department of Ecology and required prior to construction. The SWPPP is a detailed design plan which is not required for an EIS. Surface Water Pollution Prevention Plan for mining and processing would be developed as part of permit application process.

Comment *020-162* Describe affects of Light Hydrocarbons (petrochemical, tire particulate, fuels, oils and lubricants) on the water quality in the event of contamination of the surface water or storm water of the Grouse Ridge Project.

*The DEIS did not address this item. A "Worst Case" analysis was not provided for each Alternative.

Comment *020-164*

Describe the affects and contamination preventative measures of water-soluble properties on the water quality in the event a "spill" should occur.
*The DEIS only addressed "Fuel Spill Migration" Vol. II, pg. 28. All other hazardous and/or contaminants were not addressed for each Alternative. A" Worst Case" scenario was not provided.

Response

All probable contaminants and measures to prevent contamination are addressed in the FEIS Environmental Health chapter. Mitigation measures outlined in the Environmental Health section address this issue. Offsite releases to surface waters are not expected. On-site surface water issues will be addressed in the Surface Water Pollution Prevention Plan that would be developed as part of permit application process and other applicable permit documents.

Comment *020-170*

Identify all possible points of pollution or contamination of surface water or stormwater, which could possibly occur in the "Access" area as a direct or indirect result of the project.
*The DEIS did not address this item. A "Worst Case" scenario was not provided for all Alternatives.

Comment *020-176*

Describe affects and preventative measures for Light Hydrocarbons (petrochemical, tire particulate, fuels, oils and lubricants) on the water quality in the event of contamination of the surface water or storm water within the "Access" area adjacent to the Grouse Ridge Project.
The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

Comment *020-177*

Describe the affects and preventative measures for water-soluble properties on the water quality in the event a "spill" should occur within the "Access" area as a result of the Grouse Ridge project.
*The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

Response

Onsite points of contamination are addressed in the Environmental Health chapter of the FEIS. Significant offsite impacts in the “Access” area are not anticipated and would be mitigated by the onsite truck-washing facility and compliance with King County Surface Water Design Manual. Potential contaminants from road and access modifications will be addressed in the permitting and design of road improvements.

Comment *020-531*

The DEIS states, "A special pressurized washing area should be constructed onsite to clean hauling trucks and wheels prior to leaving the project site to minimize air pollution and the spilling of rocks and dust particles on area roadways." [DEIS Vol. II, Appendix L, page 3-25, section 3.5.1.2]. The FEIS should address how the Project will contain and treat by-product water from the washing facility. How and where will trucks queue to wait for pressurized washing?

Response

The trucks will queue onsite for washing. Project will contain/treat by-product water from washing facility through the settling ponds. Oil-water separators are proposed to be included as part of the reclamation system according to the proponent. Trucks would queue along the Lower Site access road.

Comment *020-736*

The FEIS should address in detail the drainage control to prevent contamination of public water and health concerns. The DEIS should address conditions to recycle this by product water and what will be required to protect the public and environment from harmful substances.

Response

This will be addressed within the drainage plan which will be submitted as part of the permitting process. All probable contaminants and measures to prevent contamination are addressed in the Environmental Health chapter.

Comment *045-074*

Consider what could happen to the River of State-Wide Significance and its tributary streams that flow through the Open Space areas you have acquired. The salmon could disappear, the waters could no longer be used for fishing, swimming, inner-tubing or canoeing. And what about the large groundwater resources that will be needed for local and regional growth in the area? They could be irreparably damaged and become unusable as a local resource. My comments throughout the DEIS attest to the fact that the surface and groundwaters in the entire area cannot be guaranteed to be protected.

Response

Water quality and quantity impact analysis is included in the EIS. Monitoring and mitigation actions are recommended to protect the surface water and groundwater resources in the area.

Comment *069-002*

The quality of the water I drink could be gravely impacted. The Bio solids and mining operation both present impacts on quality and perhaps even quantity of water available.

Response

Water quality and quantity impact analysis is included in the EIS. Mitigation measures are proposed to maintain water quality and adequate water supply.

Comment *070-004*

The manner in which your Department has conducted this DEIS, during the time period concerned, represents a violation(s) of the US Clean Water Act, as amended, as well as the US Resource Conservation and Recovery Act, as amended, plus "WAC 173-201A", particularly as it concerns such concepts/definitions as "due diligence", "hazardous waste", and "contaminants". The DEIS also appears to perfectly ignore the April 1996 "Implementation Guidance for Ground Water Quality Standards", as written by the state of Washington's Department of Ecology, as well as any of the "technical materials" available through the US Environmental Protection Agency's ("Region 10") "Water Quality Temperature Guidance Project".

Response

All probable contaminants and measures to prevent contamination are addressed in the FEIS Environmental Health chapter. Design and monitoring requirements would be in compliance with the applicable regulations.

Comment *071-010*

(7) explanation of how any biosoils will be managed in the reclamation process and review by a qualified research micro-biologist to ensure we are not trading mining for a toxic sludge dump.

Response

Rates of application and monitoring of the use of GroCo would be conducted by Ecology.

Comment *107-004*

I am very concerned about the affect of this operation on water quality. It is my understanding that the mining will be near one of the major water sources that seems preposterous.

Comment *142-023*

E-152 King County should protect ground water recharge quantity by providing methods that infiltrate runoff where sit conditions permit, except where potential ground water contamination cannot be prevented by pollution source controls and storm water pretreatment. How can control the potential and assuredly pollution caused by all the equipment causing diesel, hydraulic fluid, and who knows what else a gravel processing plant would generate getting into the ground water and eventually into the aquifers. The DEIS says at high water tables the surface level of the mine is only 5 feet away.

Response

As described in the Environmental Health chapter of the FEIS, significant impacts to water quality are considered unlikely. The DEIS and FEIS make general recommendations regarding water quality monitoring. Monitoring plans would be included as part of the permitting process. Review and approval of monitoring plans, including analytes and monitoring frequency, would be part of the permitting process.

Comment *014-008*

Use of Exit 38 would introduce many opportunities for non-point sources of pollution along the four miles of roadway paralleling the S. Fork Snoqualmie River, and/or at the many stream crossings along the Fire Training Center road. This threat would be difficult to manage if Exit 38 were utilized, but if Exit 34 is used no streams are crossed and containment facilities can be managed more easily to safely control potential pollution sources.

Response

More opportunities for non-point sources of pollution would exist if Exit 38 and the Fire Training Center Road (SE Grouse Ridge Road) were utilized, as opposed to Exit 34, with an increased potential for impact to fisheries resources. However, it is unlikely that these potential impacts would be significant.

Comment *019-098*

32. Identify and describe how the aforementioned improvements will comply with the provisions of the Washington State Department of Natural Resources, Washington State Department of Ecology, Washington State Department of Fish & Wildlife, Washington State Department of Transportation, Puget Sound Water Quality Management Plan and King County Water Quality Management Plan requirements.

Response

No water discharge will occur from the Upper or Lower Sites. Appropriate BMPs and standards and guidelines will be used for road widening along the SE Grouse Ridge Road as referenced in the King County Surface Water Design Manual.

Comment *015-002*

Locate Lower Site operations outside of the Sallal Wellhead Protection Area. Lower Site operations, to the extent practicable, must be located in the southern portion of the Lower Site to minimize potential impacts to the Sallal well. Sallal expressed this concern to Cadman early in their design process and the designs provided by Cadman for the DEIS indicate a relocation of their Lower Site operations to the southern portion of the Lower Site property. Final approval and permitting of the proposed gravel operation must require operations at the Lower Site be conducted outside and to the south of the Sallal Wellhead Protection Area.

Response The site layout presented in the FEIS reflects the Sallal Water District's concerns. Site structures and activities will primarily be located in the southern portion of the Lower Site.

Comment *012-074* The DEIS notes that the Lower Site may impact at least one municipal water supply; thus any water right for the proposed mine must be denied. See also section 5.4 below, "Aquifer Continuity; Aquifer Dewatering."

Response The DEIS and FEIS identify the water right as a requirement of the proposal. The Washington State Department of Ecology is the agency responsible for issuing the water right.

Comment *023-035* Recommendation(s): A preliminary stormwater detention plan should be developed using accurate topographic mapping. The plan should be complimented with erosion control methods and drawings for same. Limits of clearing should be illustrated with the preliminary detention plan. All of this information should be included in a new visual impact analysis that shows impacts from all view sheds affected by the project. If a 'switchback' maintenance road or conveyor belt assembly is further developed in response to our comments, similar stormwater detention plans should receive the benefit of a new visual impact analysis.

Response The conceptual stormwater control system and erosion control methods for this project are described in the Water chapter. A switchback maintenance road is not necessary for the purpose of reducing stormwater runoff velocities. Appropriate BMPs would be constructed to protect against scour and erosion in this ditch.

Comment *012-089* Paragraph (j) of RCW 78.44.091 further stipulates that where mining is contemplated within critical aquifer recharge areas, special protection areas as defined by chapter 90.48 RCW and implementing rules, public water supply watersheds, sole source aquifers, wellhead protection areas, and designated aquifer protection areas as set forth in chapter 36.36 RCW, a thoroughly documented hydrogeologic analysis of the reclamation plan may be required. The Grouse Ridge area meets several of these standards; it is: (1) part of a public water supply watershed, (2) a sole source aquifer for some residences, and (3) adjacent to and perhaps includes part of a wellhead protection area. Given that the Lower Site provides water for over 30 private and at least one municipal water supply and is adjacent to the Sallal Water wellhead protection area, such a hydro-geologic analysis must be completed before the project may go forward.

Response Comment acknowledged. If a hydrogeologic analysis is required, it would be completed after the recommendation plan is completed.

Comment *012-013* The basis of the entire Grouse Ridge mine proposal is the 1998 Memorandum of Understanding between King County, the State Department of Natural Resources, Weyerhaeuser and Mountains to Sound Greenway Trust. That agreement clearly involves the "irreversible and irretrievable commitment of natural resources that would be likely to harm long-term environmental productivity"--in this case the entire aquifer system under both the Lower and Upper Sites of the proposed project area. The DEIS fails to address ground-water issues in this context and thus fails to meet SEPA standards.

Comment *012-014*

The DEIS (1) fails to cite key water planning documents that specifically note that the North Bend Aquifer has been designated as "a potential regional water supply source" (King County 1996b, p. 48); and (2) inadequately studies the "long-term environmental productivity" of waters supplying Sallal Water wells (this issue is mentioned and left without further comment or mitigation in [DEIS page 3.4-47]).

Response

The King County (1996b) document was reviewed, and the DEIS addresses the groundwater issues listed in the document with respect to sand and gravel mining. "Long-term environmental productivity" is addressed as a water supply/water rights issue and within the context of the prevention/monitoring program.

Comment *066-002*

My biggest concern is the potential of penetration of the extremely valuable aquifer. I think that geologic technology is available that could be used to precisely define the aquifer at any point in time. However, that level of effort would take a very strong, determined commitment by Cadman. The cost of such a program is probably inconsistent with low value mining such as gravel (as compared to oil, gold etc). Nothing in their plans hints at their willingness to commit to that costly level.

Response

Comment acknowledged.

Comment *117-002*

I have no argument that the sand and gravel to be mined by Cadman Inc. is an important resource to our economy and way of Life, Unfortunately, this raw material necessary for our current dependence on conventional air and road transportation lies "adjacent to an even more valuable resource for our regional population. The Snoqualmie Aquifer is a resource of major significance to the region as a future water supply, it would be beyond folly for King County to allow any activities that would jeopardize this resource. Gravel mining can and does coexist with diligent aquifer protection and King County owes the citizen of the region and our descendants that kind of protection. I believe this document should address how the applicant proposes to assure the present and future residents of King County that their operation, will not harm this irreplaceable resource.

Response

The applicant's proposal is described in Chapter 2. Recommended mitigation measures developed to provide additional protection of the aquifer are presented in Chapter 6 of the FEIS.

Comment *056-002*

While not professional trained on aquifers, I do feel they would be in jeopardy. As a citizen, this concerns me and expect the elected officials to protect this delicate resource.

Response

Groundwater monitoring and other mitigation measures described in the FEIS to protect the water resources would be initiated during the design and permitting of the project.

Comment *068-003*

How about an unplanned accident that causes spills into an aquifer that eventually can serve Tacoma and Seattle residents? Please review Cadmans history of doing the things they say they will use the unplanned problems that occur. The DEIS study on impact must go deeper so that the public can understand it better. 25 years is too long a time to say "sorry we made a mistake". It will affect too many lives.

Response Accidental spills would be addressed in accordance with a spill response plan. Groundwater monitoring would be conducted to assess potential impacts and corrective actions would be taken as needed.

Comment *127-003* We are also concerned because North Bend is a beautiful place. It really is. It is natural, wonderful to behold, but we are concerned that there is going to be a lot of pollution generated by this operation. Not only from the diesel trucks but also by the facility that will be operating there.

Comment *127-126* I think I have one other. A little town in Nevada. Polluted Mine Site Cleanup Will Take Years The Feds Say. You know, the Olympic Pipeline went through one of these EIS processes and it was a disaster.

Response Pollution is addressed in several chapters in the FEIS.

Comment *136-005* Health issues.

Response The DEIS did not identify any health issues related to the proposal. It is considered unlikely that health-based standards would be exceeded at the property boundary.

Comment *113-005* And is under thousands of pounds of pressure. When a hydraulic fitting comes loose, it could leak oil over a wide area without the operator knowing it. When a hose blows out, it could leak 30 or 40 gallons in less than a minute. The reason this much can be lost so quickly is that it is under so much pressure and would only be noticed when the operator experiences a loss of pressure or on visual examination. In the case of a blown hose, much hydraulic oil is lost quickly, but in the case of a leak, the same amount of oil may be lost over a longer period of time. Any heavy equipment operator would be able to validate that these situations are commonplace and to a large extent unpredictable. Cadman wants to mine within a few feet of the aquifer and there is no way that they can prevent or even monitor all of the spills that are bound to happen, not only from their own equipment, but from the contractors they hire.

Response Comment acknowledged.

Comment *020-247* The FEIS should analyze and identify all hyporheic zones.

Response Comment noted.

Comment *020-248* The FEIS should address potential contaminants from the mining equipment and how they will be monitored and collected to prevent infiltration into the Lower Site soils and/or collection in the settling ponds.

Response Hazardous material spills are discussed in the FEIS Environmental Health chapter.

Comment *020-043* A 55 - gallon release of contaminants is only being considered, even though up to 44,000 gallons of fuel could be stored onsite

Comment *020-094* The FEIS should address the adverse environmental impacts associated with the proposal to store up to 44,000 gallons of fuel onsite and its potential impact to aquifers.

Comment *020-095* The FEIS should reconcile the above statements with, "... given the limited potential for a significant release of contaminants (sic) and the substantial buffer zone (sic) beneath most of the site, the potential for significant impacts on groundwater quality is considered low." {DEIS 3. 4-42].

Comment *020-097* The FEIS should address the adequacy of the proposed Spill Prevention and Emergency Response Plan based on the assumption that "the quantity of contaminants released is not expected to exceed 55 gallons." [DEIS 3.4-39]. While other sections indicate that up to 44,000 gallons may be stored onsite. [See Transportation]

Comment *020-249* The FEIS should address potential contaminants from truck traffic, and mining equipment and how they will be monitored and collected to prevent infiltration into the Upper Site soils.

Comment *020-504* The DEIS has grossly understated or ignored the amounts of diesel fuel and petroleum products that will be stored at the Lower Site or that will be contained within project vehicles, support equipment or gravel, concrete, and asphalt trucks. No accurate quantitative data has been presented on the realistic amounts of fuel, the potential for a hazardous spill, the prevention policies, or the mitigation procedures for responding to such an event either in this section or in the Water and Environmental Health section.

Comment *020-542* The DEIS states, "... the quantity of the contaminants released is not expected to exceed 55 gallons." [DEIS Vol. I, page 3.4-39, section 3.4.2.2]. This comment is questionable assuming the following:

- 70' project truck x number of trucks
- Diesel for vehicles
- Asphalt Processing Plant
- 2" storage for Asphalt
- Field Service and Lubrication Platform
- 200-300 gallon diesel fuel
- 14,000 gallon storage tank
- 10,000 gallon storage tank
- 15 -20,000 gallon storage see below (Addendum I)

Comment *020-722* The FEIS should require the applicant to draft a response plan and install all facilities sufficient to handle a potential spill of 44,000 gallons of contaminants.

Response Spills are discussed in the FEIS Environmental Health chapter. The rationale for evaluating a 55-gallon spill is described in this chapter.

Comment *012-128* Given the size of the planned retaining pond, it falls under regulations contained in King County Cede section C9.04.030, "Drainage review." This section of King County C describes a series of core requirements (detailed further in the Surface Water Design Manual). These documents describe regulations dealing with sediment control, flow control facilities, discharge rates, suspended solids management, removal of zinc and phosphorous, etc. The DEIS is mute on the types of particulate matter and effluents that might be associated with the retaining pond; thus it is impossible to determine if the proposal will meet King County Code requirements.

Response Drainage and ponds would be designed according to the SWDM. Detailed engineering design is not required for an EIS. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-151* Identify all possible points of origin of pollution or contamination of surface water or stormwater, which could possibly occur on the Grouse Ridge. Describe in detail the treatment plan for processing wastewater, which is the result of processing of raw materials.

Response Potential impacts to groundwater and surface water quality are addressed in the Water and Environmental Health chapters in the FEIS. Processed water is addressed in the Water chapter.

Comment *001-003* There is also the potential for localized affects as the distribution of recharge could change significantly and runoff would focus recharge in new or different areas. One or more springs could decline or cease while another may increase substantially in flow, which could cause a blowout or landslide.

Response Changes to spring discharge may occur due to increased recharge and reduced lag time between seasonal precipitation and discharge. Potential increases to flow are not expected to create an erosion or landslide hazard. Spring discharge monitoring is recommended to confirm that erosion is not occurring.

Comment *020-107* The FEIS should discuss the significance that the "deep confined to semi-confined aquifer" is not well defined [DEIS 3.4-8]. What is the consequence if this is one aquifer that becomes contaminated? What is the consequence if this were multiple aquifers and the primary one becomes contaminated?

Response The FEIS recommends the installation of one or more monitoring wells to better define the deep aquifer and groundwater flow at the Lower Site. Timing of groundwater quality monitoring would be performed to detect potential groundwater impacts prior to migration off site. If impacts are detected, the site owner/operator is responsible for the cost of cleanup or restoration which could include groundwater remediation, drinking water treatment and/or the replacement of drinking water wells and/or supplies.

Comment *115-004* Chapter 2, p. 2-4: "The closest rivers" seem too close in proximity to the project to not be affected. Recently, the North Fork of Issaquah Creek, a stream with salmonoides, has dried up. Possible causes include development, a nearby gravel operation, and possible aquifer drawdowns. I can't imagine the same scenario wouldn't occur in this situation.

Response Comment acknowledged. Potential impacts to streams are discussed in Chapter 6 of the FEIS.

3.4.2.1 Construction Impacts

***Comment** 019-033*

The DEIS cites "Construction activities are considered to be too short in duration to impact groundwater." [DEIS Vol. II, Appendix D, page 19, section 3.1]. This is of no value for analysis, as there is no time length defined for any of the "Construction" phases for any of the alternatives for the life of the project. One cannot assess if there could be an adverse impact without this information.

***Comment** 019-034*

The FEIS did not and the FEIS should redress the contradictory statements of the aforementioned and then this statement "The volume of storm water runoff from the Lower and Upper Site may be impacted during construction of the facility. When the volume of storm water runoff is altered, impacts on the existing environment can occur. For example, an increase in runoff from the site can cause flooding of the downstream system, which may not have the capacity to accept an increase in flow. Likewise, a decrease in runoff from the site may deprive an environment that depends on this water source to survive." [DEIS Vol. II, Appendix D, page 20, section 3.1.2.1]. Storm water directly impacts groundwater.

***Comment** 019-035*

The DEIS cites "As the Lower and Upper Sites are developed during construction and the natural ground cover is removed, storm water falling on the site would run off at a higher rate. In addition, the exposed ground surface would be more susceptible to erosion and sedimentation. [DEIS Vol. II, Appendix D, page 20, section 3.1.2.1]. The FEIS should provide a worst-case scenario and mitigations for erosion and sedimentation.

***Comment** 020-143*

Regarding the groundwater beneath Grouse Ridge, the DEIS notes that the "quality of the groundwater has not been tested.., but that excellent water quality is expected.'" [DEIS 3. 4-30]. The DEIS further notes that construction impacts associated with groundwater, water supply and environmental health were not identified because construction activities are considered too short in duration to affect groundwater resources. [DE[S 3.4-33]. However, this is a project that will be built over eleven (11) phases, with an uncertain termination date. With this in mind, the construction-related impacts cannot be considered short - term. The same can be said about the DEIS's claim that the impacts of construction activities on runoff volume are considered minimal. [DEIS 3.4-34]

***Comment** 045-029*

Page 3.4-33, 3.4.2.1: The statement that "construction activities are considered to be too short in duration to affect groundwater resources" is untrue and misleading. Phase 1 and Phase 2 activities are machinery-intensive, including bulldozers, trucks, and road paving materials and equipment which could cause sedimentation and erosion. Although the Applicant plans to use mitigation measures for surface water runoff; that does not preclude chemicals (e.g., hydraulic fluids, oil, gasoline, petroleum hydrocarbons) from entering the groundwater. The number of large machines and vehicles, and the high-intensity of work being done every day, does not bode well for complete groundwater protection. I did not find any reference to how long (months, years?) each early Phase of setting up the operation would take, how manly large machines and vehicles would be used on a daily basis, and for how many hour,;. And there is no mention in the early Phases of a spill protection plan onsite.

***Comment** 115-041*

p. 3.4-33 3.4.2.1 Construction impacts "Construction-related impacts associated with groundwater, water supply, and environmental health were not identified." WHY NOT??? Casually dismissing construction activities and their short duration is just unbelievable! The whole section on environmental impacts is incomplete and needs to be re-done.

***Comment** 127-096*

Under the water and environmental health section, under construction impacts, you say in one section that temporary increase in sedimentation and erosion during construction

activity on the groundwater, you say no impact. I take issue and say any sedimentation is going to affect the groundwater in some respect.

Response Construction activities are limited to clearing the site and building structures and roads. Impacts related to clearing the site would be similar to site uses under the no action alternative (e.g., logging). Other construction impacts cannot easily be separated from operation impacts because they would be concurrent and are therefore discussed within the context of operation impacts.

Comment *019-037* The FEIS should address the full spectrum of adverse environmental impacts caused by the construction of all roads (including access or maintenance roads) as well as the conveyor system, pipeline, and maintenance road in relation to drainage.

Response Impacts along onsite roadways would be limited to stormwater design issues. Paved areas on the lower site would be limited to the access road, maintenance area, and concrete and asphalt processing areas, which would have appropriate designed stormwater and drainage features.

Comment *019-370* The DEIS did not and the FEIS should provide preventative measures where truck washing will occur to prevent contamination to groundwater, springs, surface water, wells and aquifers.

Comment *019-371* The DEIS did not and the FEIS should provide indicate where impervious surfaces will be required for groundwater protection for each phase within each Alternative. Comparisons between each should be provided.

Response As described in the DEIS and FEIS, impervious surfaces would be used in areas where hazardous substances are used and stored and the truck wash would be self-contained. Aquifer, groundwater, surface water, spring, and well protection are addressed in the Water chapter of the FEIS.

Comment *019-086* Determine the amount of storm water, which will be discharged from the "Access" area adjacent to the Grouse Ridge site. The DEIS did not address this item. Current measurements are not provided nor project/estimated measurements. A "Worst Case" Scenario was not provided.

Comment *020-173* Determine the amount of stormwater, which will be discharged from the "Access" area adjacent to the Grouse Ridge site. The DEIS did not address this item. Current measurements are not provided nor project/estimated measurements. A "Worst Case" Scenario was not provided.

Response Stormwater volumes would be calculated and appropriate stormwater control design measures will be incorporated in accordance with King County requirements.

Comment *020-121* The FEIS should address the statement "As the Lower and Upper Sites are developed during construction and the natural ground cover is removed, stormwater falling on the site would run off at a higher rate. In addition, the exposed ground surface would be more susceptible to erosion and sedimentation. [DEIS Vol. 11, Appendix D, page 20, section 3.1.2.1]. What is the worst-case scenario with erosion and sedimentation? What exact methods will be used to mitigate erosion and sedimentation from occurring?

Response Erosion and sedimentation would be controlled with engineering and operational controls. Localized erosion and sediment movement are controllable and do not pose a significant impact, as runoff remains within the excavated areas of the site and would be routed to onsite control facilities, including settling and infiltration ponds. Maintenance of erosion and sedimentation control structures would be required over the life of the project. Specific controls and criteria for the site would be addressed in permits and executed by Cadman during operation.

3.4.2.2 Operation Impacts

Comment *019-383* We strongly believe that the DEIS has ignored the potential adverse impacts amounts of diesel fuel and petroleum products that will be stored at the Lower Site or that will be contained within project vehicles, support equipment or gravel, concrete, and asphalt trucks. No accurate quantitative data has been presented on the realistic amounts of fuel, the potential for a hazardous spill, the prevention policies, or the mitigation procedures for responding to such an event either in this section or in the Water and Environmental Health sections.

Response The quantity of fuel storage was described in Section 2 of the DEIS. The potential impacts and recommended mitigation measures related to hazardous materials usage and storage are described in the Environmental Health Chapter of the FEIS.

Comment *019-620* Both the Center for Disease Control and the EPA (USA Today, July 14, 2000) are raising major concerns regarding the airborne transmission of diseases such as e.coli and hepatitis from the use of bio-solids. These potential health concerns demand extensive study and review.

Comment *019-633* The FEIS should contain analysis of the latest CDC and EPA warning about diseases that could be carried by airborne dust as a result of using bio-solids sludge as backfill.

Comment *020-475* Both the Center for Disease Control and the EPA (USA Today, July 14, 2000) are raising major concerns regarding the airborne transmission of diseases such as e.coli and hepatitis from the use of bio-solids. These potential health concerns demand extensive study and review.

Comment *020-484* The FEIS should contain analysis of the latest CDC and EPA warning about diseases that could be carried by airborne dust as a result of using bio-solids sludge as backfill.

Response The warnings regarding disease transmission relate to the use of Class B biosolids by field workers (occupational exposure), not the general public. The biosolids compost product proposed for use during reclamation does not contain Class B biosolids. The product is comprised of Class A biosolids and sawdust. NIOSH states "that Class A biosolids are a sewage sludge that has undergone treatment by processes that further reduce pathogen concentrations resulting in an end product that is virtually pathogen-free. Class A biosolids do not contain pathogens in sufficient quantity to warrant restricted access or special precautions and may be applied the same as commercial fertilizer" (http://www.cdc.gov/niosh/hid10.html).

Comment *019-075* Describe the process and requirements for treating and / or containing leachate, which may occur.
* This item was not addressed

Comment *020-161* Describe the process and requirements for treating and/or containing leachate, which may occur.

Response The mining operation is not expected to produce any leachate. Offsite releases to surface waters are not expected. Onsite surface water issues will be addressed in the Surface Water Pollution Prevention Plan that would be developed as part of permit application process and other applicable permit documents. These issues are discussed in the Environmental Health chapter (Chapter 13) of the FEIS.

Comment *020-735* The FEIS should address where truck washing will occur, the nature of the facilities that will be installed to ensure that there is no impact to the area's water supply.

Response Truck washing facilities would be near the western boundary of the Lower Site, near the entrance road. The truck cleaning facility would be designed to minimize the tracking of soil, sand and gravel on public roads. Impacts of site water demand during project operations are discussed in the Water chapter of the FEIS.

Comment *045-021* Page 3.4-17, 4th para.: Considering groundwater recharge on "an annualized basis... [as] an estimated continuous average recharge" does not take into account the Applicant's need for and use of high quantities of water daily during the off-season when low water tables are present. Also, how would the large., extra drawdown of groundwater during low table-level months affect wells (and possibly depth and temperature of river for endangered salmon species)?

Response Seasonal impacts due to groundwater withdrawal may be greater during periods of low water table and limited surface water availability. Water rights, if granted, may have a seasonal low-flow restriction.

Comment *016-001* The proposal presents grave risks to the aquifer from excavations and industrial operations, especially at the lower site. The aquifer must be fully protected with a substantial margin of safety, to prevent any degradation of quality from petroleum products, other chemicals, or the disturbance of the natural subsurface flow. The thin layer between the floor of the pit and the top of the aquifer is not adequate. No excavation at the lower site should be allowed to penetrate the subsurface flow, even at high water table levels. Once contaminated, the aquifer cannot be cleaned. Prevention is the only acceptable method to deal with this water, and that means risks must approach zero.

Comment *019-050* "Interception and filtration of turbid water by the sandy and silty zones occurring within the ridge materials are expected to be sufficient to remove turbidity before groundwater is discharged to the springs provided that the excavation does not extend into perched zones that are indirect hydraulic connection with the springs." [DEIS Vol. l, page 3.4-38] and "Based on these measured water levels, there would be no buffer zone with the perched aquifers on a seasonal basis in certain areas of the excavation." [DEIS Vol. I, page 3.4-41]. These are a direct contradiction of each other. The FEIS should require actual data of these conditions before presenting the FEIS.

Comment *045-035* Page 3.4-40, Buffer Zone: The whole discussion of buffer zones above groundwater is inadequate and confusing. The DEIS says there is "no data indicating a regional aquifer is present within the upper 200 feet of deposits beneath Grouse Ridge." Yet a "20-foot buffer zone [is proposed] between the base of the excavation and the regional aquifer." At the Lower Site, a 20 foot buffer zone is proposed between mining activities and groundwater. Yet this 20-foot buffer zone would "not be maintained throughout the

year" and "the water table could be encountered during excavation.., during.., high seasonal groundwater levels." And, how does the Applicant know that the "proposed groundwater seepage interception trench would maintain a minimum 5-foot buffer.. "?

Response Restrictions to excavation depth at the Upper and Lower Sites are already proposed as mitigation in the DEIS. The buffer zone is greater than 20 feet thick across the majority of the Lower Site. However, there are areas in the eastern portion of the Lower Site where the buffer zone may be less than 10 feet thick on a seasonal basis. Groundwater level monitoring and the groundwater interception trench are designed to maintain buffer zone across the Lower Site.

Groundwater within the shallow perching zone of the Upper Site may seasonally intercept the central excavation base. If groundwater intercepts the base of the excavation, activities in that area would cease. Equipment and materials would be removed, and the area would be bermed to prevent contamination of the groundwater. Based on water level records, the remainder of the Upper Site is expected to have an approximately 15 foot separation between the proposed excavation base and groundwater.

Comment *016-003* The impact of pumping of additional water from the aquifer for gravel operations is also a serious concern that must be addressed in Cadman's water rights application. The EIS must address degradation to both quantity and quality of a main water source targeted to serve the east county. The current lack of water rights would require transporting excavated material to other locations, aggravating problems in those communities.

Comment *115-034* p. 3.4-3 Usage per water rights - How is Cadman planning on getting water rights, when area water districts are looking at a 50 year waiting period to have their water rights applications reviewed by DOE? Or is some sort of special sweet deal being planned by Cadman and King County to ram this through?

Comment *119-002* The possibility that Cadman will puncture the aquifer when building the plants as they did in Duval. We are worried that we will end up in a situation where we have no water.

Comment *127-099* In my estimation it looks to me like during their peak seasonal flow for the groundwater, it is higher than what they could excavate at. So does that mean there are going do be open, standing ponds of water up there during operations?

Comment *127-141* We have a real hard time getting water rights, and I will be very curious to see how the water rights issue is going to be resolved. I tell our customers conserve, conserve, conserve every chance you get. Don't do this. Don't run your sprinklers during the day. And to hear that millions of gallons of water will be running through the Cadman mine, I feel like what I am saying to our customers is a lie, you know. And I think they run into the same situation here. Water resources are very, very

Response The FEIS acknowledges that there is a large backlog of water rights applications filed with the Ecology, and that a multi-year waiting period prior to a decision may be expected. Impact to local water levels and available water quantities will be addressed in Cadman's water rights application(s) to Ecology. If pumping impacts are observed on any of these bodies, Ecology has the jurisdiction to either deny the right, or to approve the right with limitations or mitigation requirements, such as seasonal pumping restrictions. In the event that Ecology does not grand a water right, Cadman has indicated that the site would be operated as a 'pit run' only operation. Dry

Screening and vibratory wheel washing could be used as alternatives to water for the washing process. Additional Sallal Well #3 data will be included in FEIS as representative of local groundwater conditions. A groundwater monitoring plan is recommended in the mitigation section of the DEIS.

Comment *019-080*

Describe the procedures and requirements for "truck washing" (undercarriage and tires/wheels) that will be imposed upon incoming trucks loaded with "reclamation material" prior to entry into the "Exit 34" corridor.
* The DEIS did not address this item for each Alternative.

Comment *020-166*

Describe the procedures and requirements for "truck washing" (undercarriage and tires/wheels) that will be imposed upon incoming trucks loaded with "reclamation material" prior to entry into the "Exit 34" corridor.
* The DEIS did not address this item for each Alternative

Response

Trucks importing material to the site would be washed or otherwise have debris removed prior to departure from their loading sites, in accordance with those sites' NPDES permits, as applicable.

Comment *020-117*

The FEIS should address the exact number and location of all settling ponds, as well as describing their source of water. If "encounters" with aquifers are to be the source of water than the FEIS should include the appropriate water rights permit for aquifer access.

Response

The water supply (a combination of surface water and groundwater) is discussed in the Water chapter of the FEIS. The number and location of settling ponds would be determined at the design phase of the project. A detailed design is not required for an EIS.

Comment *045-037*

Page 3.4-45, 1st para.: The Applicant's promise that "Recharge would increase as vegetation and topsoil are removed and would then decrease as reclamation and revegetation occurs" depends upon the speed and quality of reclamation. The Applicant is notorious for poor (or partial, if any) reclamation at other pit operations. The Ben Jones Pit just outside Carnation was closed in 1994 as a result of the above mentioned Appeal of its UUP. Initial tiered grading was done to lessen erosion, but gravel slides still occur. A meager attempt at hydroponic (sprayed) seeding was done, but was washed away by rain, and no other planting was ever done, including reforestation required by the State DNR. With the continuous, non-stop excavation of the proposed Project proceeding for 25 years, the reclamation and revegetation during various phases is not assured.

Response

Comment noted.

Comment *045-039*

The locations of the proposed ponds are not given. One pond seems to be located on King County Open Space. And there seem to be questions about some of the Lower Site property already having been deeded to the County. If these problems are being addressed, they should be part of the DEIS public process, not administrative.

Response

The infiltration pond on the Lower Site would be located on the west side of the mine pit. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the

west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. Part of the Lower Site has not been deeded to King County.

Comment *045-038* Page 3.4-45, 5m para.: Describe in more detail "various engineering controls.., to control water storage and surface water elevations in the freshwater storage pond."

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-477* The FEIS should address the water access and quantities needed to suppress dust control.

Response The applicant estimates dust control will use 45,000 gallons per day for six months each year, or 5,625,000 gallons per year. Rain would keep dust under control the remainder of the year.

Comment *020-478* The FEIS should address if "gray water" is to be used for dust control. If so, how will contaminants be removed so as not to recycle into the ground water or into water run off?

Response Gray water would not be used for dust control.

Comment *001-009* However, the document doesn't address a need to obtain water rights for the use of surface water. To date Ecology has only received an application for ground water rights with quantities that appear to represent what Cadman calculates as make-up water (the quantity not returned to the pond for recycling).

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. Under the revised proposal, a surface water right would not be required.

Comment *019-081* Determine the amount of storm water, which will be discharged from the Grouse Ridge site. The DEIS did not address the projected/estimated amounts for each Alternative. The impact to streams, springs, rivers and groundwater was not adequately addressed. A "Worst Case" scenario was not provided for each Alternative.

Comment *020-167* Determine the amount of stormwater, which will be discharged from the Grouse Ridge site. The DEIS did not address the projected/estimated amounts for each Alternative. The impact to streams, springs, rivers and groundwater was not adequately addressed. A "Worst Case" scenario was not provided for each Alternative.

Response Stormwater will be discharged through the onsite infiltration facilities. Runoff volumes for the Lower Site have been calculated as part of the FEIS. A range of potential impacts to surface water and groundwater due to changes in recharge are discussed in the FEIS.

Comment *019-084* Identify all possible points of pollution or contamination of surface water or storm water, which could possibly occur in the "Access" area as a direct or indirect result of the project. The DEIS did not address this item. A "Worst Case" scenario was not provided for all Alternatives.

Response Impact from trucks leaving the site would be minimized by the proposed truck washing. Potential contaminants from road and access modifications would be addressed in the permitting and design of road improvements.

Comment *019-085* Identify the King County, State of Washington or Federal Agency, which will be responsible for compliance, inspections, improvements and mitigation measures in the "Access" area. The DEIS did not address this item.

Comment *019-088* Describe the enforcement provisions and measures which will be implemented in the event of any violations which may occur relating to water quality, storm water discharge quality or other issues related to surface water management or storm water management in the "Access" area which will be required as mitigation measures resulting from the Grouse Ridge Project. The DEIS did not address this item. Current measurements are not provided nor project/estimated measurements. A "Worst Case" Scenario was not provided.

Comment *020-172* Identify the King County, State of Washington or Federal Agency, which will be responsible for compliance, inspections, improvements and mitigation measures in the "Access" area.

Comment *020-175* Describe the enforcement provisions and measures which will be implemented in the event of any violations which may occur relating to water quality, storm water discharge quality or other issues related to surface water management or stormwater management in the "Access" area which will be required as mitigation measures resulting from the Grouse Ridge Project.

Response The EIS is intended to be a planning document that can be used to assess the impact of alternatives. Enforcement responsibilities are not generally described in an EIS.

Comment *019-087* Describe the specific criteria, which will be established for the monitoring of the discharge water for water quality, during the entire operation of the Grouse Ridge Project in the "Access" area. The DEIS did not address this item. Current measurements are not provided nor project/estimated measurements. A "Worst Case" Scenario was not provided.

Comment *020-174* Describe the specific criteria, which will be established for the monitoring of the discharge water for water quality, during the entire operation of the Grouse Ridge Project in the "Access" area.

Response Stormwater discharge and quality monitoring requirements would be in accordance with King County stormwater requirements and the conditions of other applicable permits.

Comment *019-089* Describe affects and preventative measures for Light Hydrocarbons (petrochemical, tire particulate, fuels, oils and lubricants) on the water quality in the event of contamination of the surface water or storm water within the "Access" area adjacent to

the Grouse Ridge Project. The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

***Comment** 019-090* Describe the affects and preventative measures for water-soluble properties on the water quality in the event a "spill" should occur within the "Access" area as a result of the Grouse Ridge project. The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

***Comment** 019-091* Describe affects and preventative measures of sediments and granular material on the water quality in the event of contamination of the surface water or storm water within the "Access" area adjacent to the Grouse Ridge Project. The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

***Comment** 020-178* Describe affects and preventative measures of sediments and granular material on the water quality in the event of contamination of the surface water or stormwater within the "Access" area adjacent to the Grouse Ridge Project. The DEIS failed to address this item. A "Worst Case" scenario for all Alternatives was not provided.

Response Prevention of contamination or impacts within the access areas would be addressed by truck washing before site departure.

***Comment** 019-093* Indicate if the storm water flows directly or indirectly into or over adjacent properties, through ditches or right-of-way "to waters of the State". The DEIS did not address this item for each Alternative.

***Comment** 020-180* Indicate if the stormwater flows directly or indirectly into or over adjacent properties, through ditches or right-of-way "'to waters of the State".

Response Stormwater runoff from the Upper and Lower Sites resulting from the project would not flow to 'Waters of the State.' Stormwater would infiltrate on site.

***Comment** 001-010* Water availability conditions in the Snohomish/Snoqualmie River basin make water right approvals very difficult. The fact that instream flows for the Snohomish/ Snoqualmie Rivers are not consistently being met, not only affects the ability to make favorable decisions on proposed surface water uses but also ground water withdrawals that would capture water destined to contribute to the base flow of the surface water system.

***Comment** 012-053* If Cadman is proposing an appropriation of water that is not "water budget neutral," the project's water rights cannot be approved by Ecology. WAC 173-507-060 establishes that future fights shall not be granted in the Snoqualmie basin that conflict with the instream flows set forth in the rule. WAC 173-507-040 establishes that ground water appropriations are bound by the instream flow rules if a hydraulic connection between the target aquifer and the protected stream reach exists. In this case, the DEIS acknowledges hydraulic continuity with the Middle and South Forks of the Snoqualmie.

***Comment** 012-069* [DEIS p. 3.4-48] states that "[Washington State Department of] Ecology approval would be required to obtain the required groundwater and surface water rights."

Water rights have not been obtained for the project. According to Paschal (2000), because water supply for the project poses potential significant adverse impacts to the environment, it is premature to evaluate those environmental impacts before a fixed

water supply plan is in place. The DEIS is inadequate because of the uncertainty associated with water supply. Further, the land use decisions that rely on the EIS cannot be made absent final approvals for water supply from the Department of Ecology.

***Comment** 020-141* EKRWA/Seattle Water Department water rights application. The EKRWA/Seattle Water Department water rights application for 60 million gallons per day is only mentioned, but the implications of this application and its adverse impacts on water availability in the aquifer are not discussed. [DEIS 3.4-13]

***Comment** 020-258* The FEIS should identify the DOE permit(s) that allow the passive pumping of groundwater to fill the Proposal's fresh water pond. [DEIS 3.1-5, 3.1-6].

***Comment** 020-290* The DEIS states that "a passive fresh water pond on the Lower Site would be used to store pumped groundwater and stormwater. Water would be pumped from the pond for use in the operation." [DEIS 3.1-5]. The DEIS needs to qualify how pumping groundwater is a passive activity. It also needs to identify the necessary DOE permits that allow this "passive" action of groundwater. It needs to identify what it will be used for operationally.

***Comment** 020-471* Section 4.1 Volume 2 indicates that the key to mitigation of particulate matter will be the use of large volumes of non-recaptured water. Since Cadman has not received approval for this extensive water use Alternatives 2 and 3 should not be considered as viable alternatives until such time as this water right is secured.

***Comment** 020-489* Since large amounts of water will be needed to provide adequate particulate emission reduction, Alternatives 2 and 3 should be precluded until Cadman has water rights. Without water rights the project cannot be assumed to have the capability of providing the necessary water demanded by the proposal.

***Comment** 022D-011* Water quantity and water rights issues.

As stated in the DEIS, the long-term operations of the mine would require large amounts of water. The proposed water supply system would include a surface water impoundment and a well on the Lower Site. While the DEIS acknowledges that the impoundment and well would require water rights permit approvals from the Department of Ecology, it does not discuss backup plans for water supply in the event that Ecology does not grant these permit approvals. Given the current slow rate of Ecology's water rights approval process, resulting partly from an increased focus on secondary environmental impacts of water withdrawals, we are concerned that the mining operation may draw upon other sources of water to begin operation sooner. Environmental impacts could occur in association with connection to these other sources. The EIS must address every potential water supply scenario in greater detail.

***Comment** 045-009* Page 3.4-3, top para.: The fact that the Applicant has not yet been assured Water Rights for this entire project should be considered here.

***Comment** 045-016* If the EKRWA and SPU hope to withdraw 50 million gallons per day, and the Applicant intends to withdraw (consume) approximately 150,000 million gallons per day (and probably more during early construction and setup phases), is there assurance that the Applicant's additional water right application would even be approved by DOE?

***Comment** 045-043* It is understood that there will be recharge to offset part of this, but that's a tremendous amount of water that could be used to serve thousands of local and regional homes and

businesses. And since there is no absolute guarantee of recharge amounts, lack of contamination, or non-breaching of aquifers, it seems a very unwise choice to grant all that water to one Project based on questionable data.

***Comment** 045-046*

Page 3.4-61, 1st bullet: Due to the variance in water levels, within aquifers and among wells drawing from the same or different aquifers, there is no single well site in the area that could extract the proposed quantity of water, at all times of the year for 25 years, without possibly affecting other wells.

***Comment** 055-003*

What is position "in line" does the mine activity have on water rights? What assurances does the DEIS offer that this position will not be altered due to fiscal or political issues? Secondly, what right does any entity, especially the government have to consume large amounts of water in the sole pursuit of profit?

***Comment** 060-002*

In paragraph 4 of the same section and page indicated water would be piped within the conveyor alignment to carry processed water. Nowhere in the DEIS does it indicate the applicant has received a certificate of water availability. I am referring to the certificated that is similar to the one I needed before the DDES would even consider my application for residential building permit (my home).

I feel it is imperative that the DEIS indicate where the applicant is going to obtain water to process gravel.

***Comment** 071-011*

explanation of how water rights will be granted given current restrictions on citizens and businesses in the North Bend area. Again due to the serious flows in the DEIS, it currently does not support mining at all, and even with revisions, it is doubtful that Cadmans full-scale proposal should be implemented.

***Comment** 085-001*

The proposal advanced by Cadman Inc. is for Alternative 2, an Upper Site and a Lower Site. The Lower Site will be used to process gravel from the Upper Site following an initial excavation and mining of the Lower Site. Use of the Lower Site depends, in part, upon receiving "water rights" from the state Department of Ecology. During a tour of the site on June 19, 2000, with the Sierra Club, et al, a representative of Cadman told the group that if Ecology fails to grant water fights, the Lower Site cannot be used to process gravel. This information does not appear in the DEIS, nor does the alternative to use of the Lower Site in the event Ecology does not grant water rights. A disclosure of this information and alternatives should be included in the FEIS.

***Comment** 117-003*

My second concern is more mundane and involves procedural issues lifts document assumes that a water fight will be gamed the operation. Should that permit be denied or delayed alternative processing options will most likely be sought. These alternatives were not identified in the document and would have significant impacts on other communities should they become necessary. Processing gravel mined at other Cadman plants where water rights exist such as Issaquah or Redmond would entail transporting gravel to either of these plants then transporting cement products from there. These options are significant and the potential for a denial or delay of permit great enough for them to be considered.

***Comment** 122-004*

The DEIS states that the sources of water for gravel mining operations are from a well and a surface water pond and that water rights for the groundwater and surface water would have to be obtained from the Department of Ecology. In part due to habitat protection the granting of new water rights by the Department of Ecology is minimal, witness the problems of the City of North Bend. I am concerned that this proposed operation would be granted these rights in lieu of what could be issued for potable water consumption. It is also disturbing that the DEIS indicates in 3.4 p 48, that there is a potential for the drawdown of the aquifer by the proposed Cadman well, thereby

affecting existing wells like the Sallal No 3 well. Potable water sources should be protected. The possible effects that a well drilled for an industrial application may have on a nearby potable water source should preclude the consideration of the issuance of water fights to this industrial request.

Comment *127-073*

The DEIS states that the sources of water for gravel mining operations are from a well and the surface water pond, and that water rights for the groundwater and surface water would have to be obtained from the Department of Ecology. In part due to the habitat protection, the granting of new water rights by the Department of Ecology is minimal. Witness problems of the City of North Bend. I am concerned that this proposed operation would be granted those rights in lieu of what could be issues for potable water consumption.

It is all but certain that the DEIS indicates in 3.4, page 48, that there is a potential for drawdown in the aquifer by the proposed Cadman well, thereby affecting the existing well by the Sallal No. 3 well. It seems to me that this possibility would preclude the issuance of water rights.

Comment *127-074*

It is all but certain that the DEIS indicated in 3.4, page 48, that there is a potential for drawdown in the aquifer by the proposed Cadman well, thereby affecting the existing well by the Sallal No. 3 well. It seems to me that this possibility would preclude the issuance of water rights.

Comment *127-098*

Underwater environmental health, how are they -- the issue is really never dealt with how the pumping of the water resources is going to affect the groundwater, especially the water that is proposed to be pumped either from Sallal or from their own proposed well, which isn't spoken of in this report.

Comment *127-128*

One, on these issues I am more worried and I have personal things with the water rights and the water and the creeks and the stuff that are in Grouse Ridge, making sure that corporate America is held up to the same accountability with actions around these and that these and our government officials are held to the same actions that we individual landowners, homeowners, are held to.

Comment *130-001*

While Option 4 posses the least concern it still taps water from the aquifer. My concern on this is the amount of water required could severely damage the area's water.

Comment *141-003*

The DEIS and the SEPA process may not be the right form to debate water rights and water law. The project requires, however, a massive amount of consumptive use water over a long period of time. The DEIS ignores, by avoidance, availability and ability to obtain water rights for this operation. It makes the project tenuous at best. Water rights are not guaranteed.

Response

The DEIS and FEIS identify the quantity of water required for the project, potential impacts to water resources related to water use, and present recommended mitigation measures. Impact to local water levels and available water quantities would be further evaluated by Ecology in response to Cadman's water rights application(s). If impacts are identified, Ecology has the jurisdiction to either deny the right, or to approve the right with limitations or mitigation requirements, such as seasonal pumping restrictions. In the event that Ecology does not grant a water right, Cadman has indicated that the site would be operated as a 'pit run' only operation. Dry Screening and vibratory wheel washing could be used as alternatives to water for the washing process. If a water right is not approved, King County may require supplemental environmental analysis of potential project impacts.

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-144*

The DEIS omits an important fact about the contribution of the ephemeral streams [DEIS 3.4-36] to the "passive" freshwater storage pond, when it notes only that groundwater, well and surface water runoff would provide water" to the pond. [DEIS 3.4-35]

Response

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *020-183*

Identify and describe how the offsite improvements required as mitigation measures, related to King County roads, utilities, storm water conveyance systems, water retention, detention and bio-filtration systems required for the development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Endangered Species Act. The DEIS did not address this item for each Alternative.

Response

The DEIS did not identify significant impacts to endangered species that could not be mitigated. Mitigation requirements would be specified in project permits.

Comment *020-200*

The FEIS should explain where parking facilities will be located and if they are impervious surfaces, if so, how will water runoff be monitored and contained?

Response

There are approximately 8 acres of impervious surface at the Lower Site. Runoff from the impervious surfaces would be monitored in accordance with the drainage and stormwater discharge permits.

Comment *020-244*

The FEIS should address the monitoring plans for the water pipelines to insure that leakage does not infiltrate the steep slopes area of the corridor.

Response

The proponent is aware of the sensitivity of slopes and would adequately monitor operations.

Comment *001-011*

Cadman should also be aware that a permit decision might not occur within the time schedule for site development and water use. The current backlog of pending water right applications and limited staffing contributes to very long waiting periods.

Response

The FEIS acknowledges that there is a large backlog of water rights applications filed with Ecology, and that a multi-year waiting period prior to a decision may be expected.

Comment *020-272*

The FEIS should address if “pulp liquor” will be used for dust control, if so, what does it contain, what is its leaching effect, and what are the short and long terms effects to humans if it reaches the aquifer? *[See Addendum C]*

Comment *020-273* The FEIS should address if "pulp liquor" will be used for dust control or any other uses. What methods will be used to prevent its tracking to adjacent streets and ultimately into water run-off. how will this be monitored for compliance?

Response Pulp liquor will not be used for dust control according to proponent.

Comment *020-297* The DEIS ignored what measures will be taken to divert stormwater off disturbed areas and control flood impacts.

Response Stormwater control would be designed in accordance with the King County Stormwater Design Manual and is addressed in the FEIS.

Comment *045-007* Page 3.4-2, bottom 2 para.: This is the only place where just a brief mention is made of the supreme Class A and Class AA classifications of the Snoqualmie River & its Forks. Carnation's Shoreline Master Program took special care to protect the Snoqualmie and Tolt Rivers, both having been designated as ":shorelines (and rivers) of state-wide significance" (Carnation Shoreline Master Program, May 1998). The potential to compromise the status of the river (and all that would entail) should be given careful weight & consideration on the approval of this Project.

Response Comment acknowledged.

Comment *001-014* A companion order will require a groundwater monitoring network to ensure the buffer zone committed to by Cadman provides adequate vertical separation. In the event of a chemical, lubricant or fuel spill, the operator must have sufficient time to get the spill cleaned up before the contaminants seep down to the underlying water table. The draft EIS includes a study of potential travel times for migration of a fuel spill through the buffer zone. The results show that, after 30 days, a spill of LNAPL - light, non-aqueous phase liquid - (e.g., gasoline or diesel fuel) would migrate to a depth of only 1.5 feet. Given that such a spill would be cleaned up under the site's Spill Prevention and Emergency Response Plan within 24 hours, the planned buffer of 20 feet should provide good protection of groundwater. Performing active mining operations with a buffer of less than five feet should not be considered.

Comment *019-022* The DEIS cites "The proposed groundwater seepage interception trench would maintain a minimum 5-foot buffer zone beneath the easternmost portion of the Lower Site during ongoing site operations." [DEIS Vol. II, Appendix D, page 27, section 3.2.2.2] and "In areas where the buffer zone is limited in thickness or absent, impacts on groundwater quality could occur." [DEIS 3.4-42]. The FEIS should indicate how a minimum 5-foot buffer zone is going to be maintained while admitting that an "encounter" will occur? This is an unacceptable way of protecting the water.

Comment *019-023* "Based on these measured water levels, there would be no buffer zone with the perched aquifers on a seasonal basis in certain areas of the excavation." [DEIS3.4-41].

The FEIS should not permit any breaching or encounters due to the fact that the breadth and depth and connection between other aquifers has not been identified or mapped.

Comment *019-028* The DEIS states, "Higher groundwater levels would be expected beneath the easternmost portion of the excavation. In this area, the 20-foot buffer zone would not be maintained throughout the year under average rainfall and aquifer recharge

conditions. In addition, the potential exists that the water table could be encountered during excavation if the excavation occurred during the period of high seasonal groundwater levels." [DEIS Vol. II, Appendix D, page 27, section 3.2.2.2]. The DEIS did not and the FEIS should address a worst-case scenario if the rainfall is not "average" and the recharge is not "average". The FEIS needs to provide how the mine would not encounter the water table if mining is to occur year round for 25 years.

Comment *020-147*

"Groundwater Seepage Interception Trench."

The DEIS suggests that a "'groundwater seepage interception trench" would maintain the 5-foot minimum buffer on the eastern side of the Lower site, without explaining just what is accomplished by a "groundwater seepage interception trench." On its face, this appears to be an oxymoron - if groundwater has seeped into a trench, then the 5-foot buffer between the excavation and the aquifer has been penetrated. The FEIS should discuss the environmental impacts of trenching groundwater in this manner. [DEIS 3.4-]

Comment *020-275*

The FEIS should set limits of below ground surface extraction and establish a significant buffer between all perched aquifers.

Comment *127-064*

E-A-S-T-B-U-R-N, at 47427 Southeast 160th. I have so many concerns, but I will just start with the tour I took the other day on the lower site. And the hydrologist for Cadman pointed out Figure 3.4-8 entitled the post excavation conditions, and the fact that the possible high water table will be intercepted in the winter.

Now I don't know about hydrologists, but for me this raises about 58 red flags. This is in the area where there will be trucks and there will be the asphalt plant, proposed asphalt plant. For our water table to be intercepted by anything is unacceptable. To be within five feet is unacceptable. To be within ten feet is unacceptable.

I can't build anything on to my house within 115 feet of the river. I am not sure I understand how Cadman can come within five feet in high water conditions of the -- or actually in it, in the high water table. How that works in King County's mind, I am not sure.

Response

As described in the DEIS, only in the easternmost portion of the Lower Site is the water table within 20 feet of the proposed excavation base. Recommended groundwater level monitoring, combined with seasonal restrictions on excavation and the proposed groundwater interception trench should maintain a minimum 5-foot buffer zone across the Lower Site. Operations should cease and equipment be removed in areas where the buffer zone cannot be maintained.

Comment *045-030*

Page 3.4-35, 3.4.2.2: The use and control of surface water is vague. I understand that the location of specific ditches, trenches and ponds may change slightly as the work is done, but "a phased drainage plan'" can and should be done at the beginning of the Project. There should be a topographical Figure showing where each protection item is planned. The DEIS only states that all of this would be "addressed during the design stage." What does that mean--we'll figure it out later, do it as it becomes necessary, or avoid it if possible? That's not good enough; changes can be made later if necessary, but that does not preclude doing a phased drainage plan now. In addition, what constitutes "temporary piping"? Describe the construction and use of "check dams." Other than settling ponds at the west end, "there are no other details for drainage-control facilities at the Upper Site... in the conceptual layout." Again, that is totally insufficient planning for surface water protection.

Response Detailed engineering designs are not required for an EIS (WAC 197-11-055). A phased drainage plan, which shows the stormwater management facilities and the erosion control BMPs would be prepared at the beginning of the project (which is during the design stage).

Comment *001-015* The draft EIS indicates that the buffer zone beneath the central portion of the Lower Site would be 30 to 40 ft in thickness, probably increasing to as much 100 ft on the western side of the site. The average buffer beneath the entire lower section is greater than 20 feet but because of the steepened gradient the water travel along bedrock, it is not possible to keep a consistent buffer throughout the lower portion.

Comment *001-016* The draft EIS data also indicates that locally steepened water gradients at the extreme eastern end of the site, during the highest seasonal water levels, may reduce the buffer zone to 15 feet or less in this area, for a few months at most. This buffer is only between steepened water gradients not between the pit floor and the aquifer.

Comment *002-001A* The proximity of the proposed mine depth to the uppermost groundwater aquifers, coupled with uncertain aquifer height variations based on seasonal precipitation, location of infiltration ponds, and use of both surface and ground waters.

Comment *002-002* Figure 3.4-8 presents the post-excavation conditions at the lower site. The proposal calls for mining to a depth that reaches within 5 feet of the estimated high water table. The hydrogeologic model proposes a groundwater seepage interception trench on the Lower Site. During the scoping process and initial plans presented by Cadman, Inc. for the Lower Site, an elevation buffer of at least 20 feet was to be maintained at all times above the shallow aquifer. It seems the present plan has deviated from the initial proposal. The anticipated risk associated with the proposed decrease in the separation distance from the aquifer needs to be explained more.

Comment *019-018* The DEIS cites "The buffer zone is a term used to describe the vertical distance between the base of the proposed excavations at the Lower Site and Upper Sites and the seasonal high groundwater level in the underlying regional aquifer(s). The proponent incorporated a buffer zone in to their mining plan to provide protection of groundwater. The purpose of the buffer zone is to provide an adequate vertical separation so if there is a spill of chemicals, lubricants or fuels on site, the operator can respond to the spill in accordance with the Spill Prevention and Emergency Response Plan before the underlying groundwater becomes impacted. In addition, during reclamation, the buffer zone provides separation from the water table needed for development of roots for trees that would be planted at the site. Without a sufficient buffer zone, groundwater quality could be easily impacted and reforestation during site reclamation would be more difficult." [DEIS Vol. II, Appendix D, page 27, section 3.2.2.2].

Response The buffer zone is greater than 20 feet thick across the majority of the site. However, there are areas in the eastern portion of the Lower Site where the buffer zone may be less than 10 feet thick on a seasonal basis. A groundwater interceptor trench was proposed to maintain a minimum 5-foot buffer zone in the easternmost portion of the Lower Site.

Comment *012-081* Dust suppression and related water use for aggregate on the conveyor system is not explicitly addressed.

Comment *064-012* Paved roads should also be kept moist when traveled to mitigate fugitive dust(1). How much water will be required? Where will this water come from? How will it change the

water needs of the project?(1) FOCUS: Major Air Pollutants--Particulate Matter. Washington Department of Ecology, Public No. FA-92-29, October 1998.

Comment *064-013*

All storage piles should be consolidated to minimize vehicle travel. During handling of material, water should be applied to storage piles(2). How much water will be required? Where will this water come from? How will it change the water needs of the project?(2) FOCUS: Major Air Pollutants--Particulate Matter. Washington Department of Ecology, Public No. FA-92-121, October 1994.

Response

The source of water for the project and water use requirements are provided in the description of the proposal in the FEIS and include dust control.

Comment *073-252*

Fish Aesthetic Impacts - In reference to WAC 173-183-620, habitat index: will the FEIS forecast the amount of stream degradation from natural conditions of stream flow from implementation of the proposed project, given 2,000 feet of stream will likely be filled in?

Response

Infilling of streams is not proposed for any of the alternatives evaluated in the EIS.

Comment *077-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.2.2 Operation Impacts, Alternative 2, page 3.4-48, and all subsequent pages that refer to the comments listed under "Water Supply"

Paragraph 3 states, "Due to evaporation from the freshwater pond, interception of surface water runoff's expected to provide less than half the required water for the project. Therefore, groundwater would be the primary source of water. The extraction of groundwater has the potential to decrease water levels in the aquifers in the site vicinity there is the potential for draw down of the aquifer that could interfere with other wells."

Paragraph 4 then states, "`The rate of enhanced aquifer recharge at the Lower Site is expected to be negligible due the construction of the freshwater pond.... Therefore, there would be a net decrease in the amount of groundwater beneath the Lower Site. On a regional basis, this net decrease in quantity of water in the aquifer system would be offset by enhanced recharge on the Upper Site." (Italics added for emphasis and clarity of discussion.)

There is insufficient data in the study to support this conclusion. There are numerous statements in DEIS to the effect that the true scope, breadth and working of the aquifer in the affected region are not clearly known. As an example, see page 3.4-20, para. 1, sentence 3, "The nature of this transition zone and the continuity of the aquifer(s) in the area is uncertain." For the writers of this document to make the sweeping conclusion referenced above without being able to statistically support it shows the inadequacy of the Draft and the potential errors of their findings.

Comment *092-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.2.2 Operation Impacts, Alternative 2, page 3.4-48, and all subsequent pages that refer to the comments listed under "Water Supply."

Paragraph 3 states, "Due to evaporation from the freshwater pond, interception of surface water runoff is expected to provide less than half the required water for the project. Therefore, groundwater would be the primary source of water. The extraction of groundwater has the potential to decrease water levels in the aquifers in the site

vicinity there is the potential for drawdown of the aquifer that could interfere with other wells."

Paragraph 4 then states, "The rate of enhanced aquifer recharge at the Lower Site is expected to be negligible due the construction of the freshwater pond.... Therefore, there would be a net decrease in the amount of groundwater beneath the Lower Site. On a regional basis, this net decrease in quantity of water in the aquifer system would be offset by enhanced recharge on the Upper Site. "(Italics added for emphasis and clarity of discussion.)

There is insufficient data in the study to support this conclusion. There are numerous statements in DEIS to the effect that the true scope, breadth and working of the aquifers in the affected region are not clearly known. As an example, see page 3.4-20, para. 1, sentence 3, "The nature of this transition zone and the continuity of the aquifer(s) in the area is uncertain." For the writers of this document to make the sweeping conclusion referenced above without being able to statistically support it shows the inadequacy of the Draft and the potential errors of their findings.

Response There may not be a direct groundwater connection between aquifers beneath the Upper Site and Lower Site due to the bedrock high on the east side of the Lower Site. However, recharge to the Upper Site contributes water to aquifers in the Middle and South Fork drainage basins.

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. The water budget has been revised to reflect the removal of the pond.

Comment *088-001* Section 3.4--44 Paragraph 2 - Specifically what document or report is being referenced when stating that "In general, turbidity within groundwater has not been found to be a significant impact where gravel mining does not intercept the groundwater table.'"? Was this document/report done or a site with the same natural characteristics and in a region with a community water supply?

Response The reference for the turbidity study (Thurston County, 1995) is cited in the FEIS.

Comment *088-003* According to the DEIS the potential for significant groundwater quality impacts beneath the Upper Site is considered low. By what standards is this being measured?

Response In the context of SEPA, “significant” means a reasonable likelihood of more than a moderate impact on environmental quality (WAC 197-11-030).

Comment *001-017* Excavation in the easternmost portion of the Lower Site should be limited to periods when it can be reasonably demonstrated based on the water levels in the existing wells that a buffer zone of at least 10 feet is present.

Response Restrictions to excavation depth based on groundwater levels were proposed as mitigation in the DEIS.

Comment *122-002*

One of my greatest concerns is with the safety of the existing water supply being drawn from the proposed Lower operation area as well as the threat to the aquifer in that area. The mitigating measures list the establishment of buffer zones and how they will serve to prevent problems, yet in Section 3.4, p8 it is stated that "the aquifer is not well defined and that there is some uncertainty as to the continuity of the aquifer". With that being the case how much of mitigating can a buffer zone with a distinct width be? There is not enough information in the DEIS to determine whether this is an adequate measure to mitigate the possible damage.

Response

Depth to aquifer below Lower Site is known based on water level measurements in wells and borings. One or more additional monitoring wells were recommended as part of the monitoring plan.

Comment *001-018*

Regular inspections and maintenance should be performed to ensure that the groundwater seepage interception trench is functioning properly.

Response

Inspection of the trench was included in the DEIS as mitigation.

Comment *127-097*

And also under the operational impacts, you say that there is a potential contamination of groundwater caused by, continuing on, biosolids for reclamation, but nowhere under the mitigation is there much language about that. I know that the experts think they can control it, but maybe one of the additional mitigation measures for that could be for the county or for Cadman to fork over some money to solve the septic system problem in this community by installing some water treatment facilities.

Response

GroCo doesn't propose a threat to groundwater if applied according to manufacturer/distributor specifications regarding appropriate application rates and methods. Areas of biosolids applications would be dependent upon reclamation plan and actual excavation limits. Application and monitoring would be addressed in reclamation plan with respect to applicable regulations.

Comment *011-012*

The DEIS raises a number of other environmental concerns, including increased surface water runoff, potential erosion and slope instability, potential groundwater degradation, and environmental health concerns associated with the use of biosolids. It is unclear whether these impacts will affect the proposed school site because site specific analyses of the school site have not been included in the DEIS. The District urges the County to incorporate site specific analyses of impacts to the school in the FEIS.

Response

Impacts due to changes in stormwater runoff, erosion or slope stability, groundwater quality or biosolids are not expected to affect areas outside of the project boundaries. Other potential impacts to the areas surrounding the project site, such as traffic, noise and air quality, are addressed in the FEIS.

Comment *001-002*

Upper site - The upper site sits atop a topographical and ground water divide between the Middle Fork Snoqualmie River and the South Fork Snoqualmie River. Springs emerge from perched aquifers along both sides of the divide. Ecology supports the plan to infiltrate surface runoff as opposed to retention and release to a stream. However, the travel time for infiltrating water to reach the springs will likely decrease because of the removal of about 100 feet of sand and gravel from the ridge. The net result is expected to be more rapid response in the spring flow rates to precipitation and wider fluctuations in the average daily or monthly flow rates in the springs and streams.

Response A qualitative lag time analysis is included in the Water and Environmental Health Technical Report in the FEIS to assess impacts from removal of soils on the Upper Site.

Comment *001-019* A shallow piezometer should be installed adjacent to the trench and monitored periodically during the winter and early spring to confirm that the groundwater interception trench is functioning properly.

Comment *019-019* The FEIS should address how excavation will be monitored during above average rainfall or above average aquifer recharge to prevent an "encounter" or breach.

Response Installation and periodic monitoring of a piezometer are recommended in the DEIS and FEIS as mitigation measures.

Comment *039-003* What about muddying the waters of the Snoqualmie? No Impact?

Response Comment acknowledged. Under the proposal, there would be no stormwater runoff leaving the Lower or Upper Sites.

Comment *012-006* failure to cite King County documents warning about the risks of mining sand and gravel over aquifers (King County 1996b) (see section 5.4 below, "Aquifer Continuity; Aquifer Dewatering")

Comment *019-065* The 1999 Comprehensive Plan, Chapter Seven, Natural Environment provides a map indicating "Areas Highly Susceptible to Ground Water Contamination - 1999". The lower project site is indicated as an area that is susceptible. The DEIS did not and the FEIS should indicate why this was omitted and not included in consideration of Adverse Environmental Impacts.

Comment *142-022* Look at the map created by King County (I've attached a copy) showing areas highly susceptible to ground water contamination. This site is fight on top of "Highly susceptible" The aquifers in this area have been tested as some of the largest in the state. Who wants to be known as the people that contaminated them? Cadman? King County?

Response The King County document was reviewed and is included as a reference in the FEIS. Gravel mining often occurs in areas where groundwater is considered to be susceptible to surface impacts or in aquifer recharge areas, due to the coarse nature of the soils and lack of fine-grained confining units. Gravel mining can also decrease the distance between the ground surface and aquifers. These actions can increase the risk to aquifer water quality.

Comment *012-077* The DEIS does not adequately address the volume nor type of water use. [DEIS §2.2.4.1; p. 3.447-48] refers to water use of approximately 2,600,000 gallons per day. What specific uses is this estimate based on? Where is the documentation to support this estimate? How much for truck washing, rinsing gravel, dust suppression on roads, etc. Without a detailed breakdown, there is no way to assess the accuracy of the gross number or the assumed consumptive use figure of 150,000 gallons per day.

Comment *020-490* The DEIS failed to address water resources, to include both quantities needed and their source.

Comment *076-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.2.2 Operation Impacts, Alternative 2, pages 3.4-47 and 48, and all subsequent pages that refer to the comments listed under "Water Supply."

Cadman, Inc. estimates the mining operations will require approximately 2.6 million gallons of water per day, with an estimated consumptive usage of 6%.

What studies support these estimates of the volume of water to be used and the consumptive usage? No where in the DEIS are there any data that supports this statement. As the impact on the water supply in the North Bend area are of critical concern, certainly the estimates of Cadman cannot be taken without supporting statistics that confirm the accuracy of these figures.

Until we know for sure what the expected required volume of water and consumptive usage are, this project must not proceed.

Comment *091-001*

Referring to Section 3.4 WATER AND ENVIRONMENTAL HEALTH, subsection 3.4.2.2 Operation Impacts, Alternative 2, pages 3.4-47 and 48, and all subsequent pages that refer to the comments listed under "Water Supply"

Cadman, Inc. estimates the mining operations will require approximately 2.6 million gallons of water per day, with an estimated consumptive usage of 6%.

What studies support these estimates of the volume of water to be used and the consumptive usage? No where in the DEIS are there any data that supports this statement. As the impact on the water supply in the North Bend area are of critical concern, certainly the estimates of Cadman cannot be taken without supporting statistics that confirm the accuracy of these figures.

Until we know for sure what the expected required volume of water and consumptive usage are, this project must not proceed.

Response

Water use estimates were provided by Cadman, Inc., and reflect operational experience from other similar sites. The estimated uses were as follows: (1) processing (ready-mix) -18,000 gallons per day (gpd); gravel washing/evaporative losses – 98,000 gpd; truck washing/evaporative losses – 5,600 gpd; dust control – 45,000 gpd. The estimates are believed to be representative and reasonable for the purposes of the evaluation.

Comment *022D-005*

The potential impacts to the multiple groundwater seeps bordering the upper site may be understated and deserve further investigation and/or mitigation measures. Specifically, the DEIS acknowledges that the proposed gravel operations are expected to result in greater quantities of water, reduced flow travel times, and more variable flow volumes to the nearby springs compared to existing conditions. However, the document does not describe whether increased flow rates and volumes in these small systems could result in increased erosion and water quality impacts in the downstream waters. Additional analysis should be conducted to assess the potential for inadvertent impacts on springs in the upper site area. The proposal to concentrate infiltration of surface runoff in specific areas (i.e., at the infiltration pond locations), rather than over dispersed areas as occurs at present, may result in short-circuiting of the existing subsurface hydrology and emergence of unexpected high flows in nearby seeps or springs. The potential impacts could be significant given the problems that occurred under a similar scenario at the Issaquah Highlands development in Issaquah, Washington. Infiltration was used to manage site runoff at Issaquah Highlands and the

temporary infiltration system unintentionally directed water towards an underground channel that fed a nearby seep. The excess water directed to the seep caused extensive downstream channel erosion and water quality problems (Herrera 1999).

Response The contribution of spring discharge is limited with respect to the total flow in the small drainage basins on the north and south sides of the ridge. Potential increases in flow are not expected to have a significant surface water quantity or quality impact.

Comment *012-035* [DEIS §3.4; p. 3.4-39 and 3.11-6] The last paragraph states "the quantity of the contaminants released is not expected to exceed 55 gallons." What is this assumption based on? Can only one 55 gallon drum leak or be accidentally pierced? How much diesel fuel is stored in the tanks of operating equipment? Accidents where the entire contents of fuel tanks of onsite vehicles have been spilled or leaked are not uncommon (see Humphrey 1998). What if one of those has a persistent leak over months or years? How much leakage of petroleum products occurs as part of normal operation? The DEIS should include extensive samplings of water and soils at existing Cadman operations to determine a true expected contamination rate. Page 3.11-6 also refers to 14,000 and 15,000- to 20,000 gallon diesel fuel storage tanks. The DEIS does not address the impact of major or catastrophic damage to these tanks.

The predictions regarding contaminant migration rates defy logic and common sense. It is reasonable to estimate that a spill of diesel fuel would penetrate 1.5 feet in closer to 30 minutes than 30 days.

Results of the model run indicate that the diesel fuel reaches a depth of approximately 1.5 feet (0.43 meter) bgs 30 days from the spill (Figure 3.4-16). [DEIS page 3.4-42, paragraph 1]

Comment *019-039* The FEIS should address the adverse impacts associated with the potential release of contaminants into the groundwater from both the Upper and Lower sites.

Comment *019-040* The FEIS should provide a worst-case scenario for the above item.

Response A larger spill was determined to be unlikely and speculative based on the design plan for double-walled ASTs within concrete-bermed containment. This analysis represents a more probable event of drum or vehicle fuel tank spillage.

Comment *012-036* What methodology and assumptions were used to arrive at the improbable 30-day figure?

Comment *012-189* The predictions regarding contaminants migration rates defy logic and common sense. I would guess that a spill of diesel fuel would penetrate 1.5 feet in closer to 30 minutes than 30 days."

Results of the model run indicated that the diesel reaches a depth of approximately 1.5 feet 90.43 meters) bgs 30 days from the still (Figure 3.4-16)." Page 3.4-42, paragraph 1.

Response The model applied was the Hydrocarbon Spill Simulation Model (HSSM), an EPA-approved analytical model, using site-specific soils data from geotechnical testing.

Comment *012-038* Nor does the DEIS address potential contaminants from trucks transporting petroleum products onto the site, many or all of which might be subcontractors over whom the Proponent has little control.

Response Incidental spills from vehicles would be addressed by the spill prevention plan.

Comment *012-042* The surface water inflow to the lower site is estimated in the DEIS to be 0.06 cfs. This is from calculations that were developed assuming 60 inches of precipitation per year. It was also assumed that 32 acres would contribute surface water run-on to the lower site. The uncertainties in annual precipitation suggest that 110 inches may be a reasonably likely scenario and the topographic maps suggest that the area contributing surface water run-on may be on the order of 80 acres. For 80 acres and 110 inches of precipitation, the surface water inflow could be on the order of 0.3 cfs.

Comment *012-180* This surface water inflow to the lower site is estimated in the EIS to be 0.06 cfs. This is from calculations that were developed assuming 60 inches of precipitation per year. It was also assumed the 32 acres will contribute surface water run-on to the lower site. The uncertainties in annual precipitation suggest that 110 inches may be reasonably likely scenario and the topographic maps suggest that the area contributing surface water run-on may be on the order of 80 acres. For 80 acres and 110 inches of precipitation, the surface water inflow could be on the order of 0.3 cfs.

Comment *012-181* It should be noted that the run-on estimated are based on annual average values. There are no discussions on peak flows that might occur during individual events. The fresh water pond than is proposed on the lower site (Volume 1, page 3.4-36, paragraph 2) would be developed and maintained through a surface water diversion and may also have regulatory issues associated with it.

Response The FEIS presents revised run-on calculations based on a range of precipitation. The acreage used is based on catchment area for the Lower Site. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *012-044* Finally, the DEIS does not discuss runoff during periods of very heavy rainfall levels in a single 24-hour period. It is not uncommon for the region to experience 24-hour rainfall in excess of five inches. Runoff modeling and impacts need to address these real-world scenarios.

Comment *012-049* The EIS indicates that infiltration ponds will be used for stormwater control. No estimates have been made concerning the size of these ponds, or even if they are feasible. For example, infiltration ponds must be designed to completely drain ponded runoff within 24 hours following the occurrence of the 10-year, 24-hour design storm and within 48 hours of the 100-year, 24-hour storm (Washington State Department of Ecology 2000). The size of the pond that would be required to meet this requirement depends upon the infiltration rate at the site. The infiltration rates can be dramatically decreased by turbid water. At the upper site, the expectation is that turbidity will be removed by filtration (Volume I, page 3.4-44, paragraph 2). This will reduce the infiltration rate at the site, perhaps dramatically.

Lower site:
The porous nature of the ground surface and reconnaissance observations suggest that most stormwater received by the site infiltrates through underlying sands and gravels, rather than leaving the site as surface water runoff. [DEIS page 3.4-3, paragraph 2]

Upper site:
All excavations on the Upper Site would be contained within a dosed depression. Stormwater collected in the active mining areas would be contained within the active segment and allowed to infiltrate to groundwater. [DEIS p. 3.4-36, paragraph 3]" However, minor ponding of stormwater was observed in low spots, where fine-grained sediments have accumulated." [DEIS p. 3.4-3, paragraph 4]"The onsite stormwater runoff that does not infiltrate directly into the soil would be collected and conveyed to infiltration ponds." [DEIS p. 3.4-37, paragraph 1]"Interception and filtration of turbid water by the sandy and silty zones occurring within the ridge materials are expected to be sufficient to remove turbidity before groundwater is discharged to the springs provided that the excavation does not extend into perched zones that are in direct hydraulic connection with springs." [DEIS p. 3.4-38, paragraph 6]

Response Drainage facility design would be in accordance with the King County Surface Water Design Manual. The potential runoff and sizing of infiltration systems based on periods of heavy rain are addressed in the FEIS (see Water and Environmental Technical Report). Pre-settling of the solids would occur before stormwater enters the infiltration pond. Maintenance of the pre-settling basin include accumulated sediment removal and disposal.

Comment *012-054* Finally, in 1995 and 1996, the Department of Ecology denied numerous ground water right applications in the Snoqualmie River basin because of potential impairment to the river, pursuant to these instream flow protection regulations. It is an operating assumption of the Department that the aquifers of the Snoqualmie basin are hydraulically connected to surface waters and that pumping does in fact influence the stream flow in those rivers. The Snoqualmie River is, at least seasonally, closed to new water rights. This information should be acknowledged and evaluated in the DEIS.

Response The basin is not closed to new rights (WAC173-507-040, 060). However, withdrawals from the river and wells in the basin may be restricted during periods when the river does not meet minimum flow requirements.

Comment *001-005* Lower Site - The water table surface slopes from east to west; therefore it is at a higher elevation on the eastern side of the site. At the eastern end of the site the proposed excavation level lies below the water table when the annual water level fluctuation is at its annual high. On site flooding during this period is a potential result, together with a risk of draining of the aquifer by water exiting the site via the surface to cause erosion and flash flows in an adjacent stream. To reduce the likelihood of flooding, Ecology advises against excavating below the annual high water table and recommends continuous maintenance to actively maintain and prevent fines from clogging up the infiltration pond on the western portion of the site.

Response Flooding concern is not justified based on preliminary runoff and infiltration calculations described in the FEIS. The infiltration trench within the Lower Site would prevent inflow of groundwater into the site. Maintenance would be necessary to optimize pond function. This would be included as part of the drainage design and operations and maintenance plan.

Comment *012-162* What lubricants will be used on the conveyor belt? What are baseline numbers for ordinary leakage through ordinary wear and tear?. What is the rate of incidence of broken hydraulic lines and how long can such breaks or leaks go undetected and what volume of petroleum products will be lost due to these effects? How will leaks and waste beneath the conveyor be monitored, controlled and cleaned up?

Response The conveyor will be lubricated on a periodic basis with appropriate lubricants in conformance with operational specifications. Any lubricant spills or releases will be contained and cleaned up under the site spill prevention plan.

Comment *014-004* We point out that page S-7 of the DEIS incorrectly states that "the use of biosolids for reclamation" could cause potential groundwater contamination, when in fact a compost material called GroCo will be used as a soil amendment for the mine reclamation efforts. GroCo is a safe, Class A, commercially available composted biosolids product that is mixed into depleted and deficient soils as an amendment to add organic matter and nutrients that greatly improve soil revegetation. The DEIS discussion of this subject on p 3.4-48 and 3.4-49 appears to confuse the provisions concerning use of uncomposted biosolids materials (applied as a soil fertilizer), with the use of GroCo (used as a soil amendment). The nitrogen, nitrate and metals levels in GroCo are significantly less than those found in uncomposted biosolids, which require specific agronomic rates of application. Thus, we believe it erroneous to state that the use of GroCo in reclamation efforts poses a threat to groundwater contamination and suggest that this be corrected in the FEIS.

Comment *019-051* The FEIS should provide updated information for the safety of public health and welfare regarding the safety of using Class "A" biosolids and/or GroCo applications in such close and unknown proximity to aquifers and other water sources. Class "B" and its application standards have recently been identified by the CDC to be a major health hazard. Until conclusive data has been provided the FEIS should put restrictions on its usage to protect the public. The FEIS should provide mitigations and also provide a worst-case scenario for usage of GroCo.

Comment *019-677* The DEIS did not and the FEIS should provide exact location(s) of biosolids application and it's proximity to ALL water sources (including vertical and horizontal distances). This should be conducted for each phase within each alternative. Comparisons should be provided between the alternatives.

Comment *115-048* p. 3.4-48 Environmental Health What about heavy metals associated with municipal sewage sludge? Please elaborate further here.

Response GroCo doesn't propose a threat to groundwater if applied according to manufacturer/distributor specifications regarding appropriate application rates and methods. Areas of biosolids applications would be dependent upon reclamation plan and actual excavation limits. Application and monitoring would be addressed in reclamation plan with respect to applicable regulations. The DEIS discusses a potential worst-case scenario (i.e., groundwater impacts) and proposed mitigation measures for the application of biosolids.

Comment *015-001* Secondary containment structures and spill response procedures. Secondary containment structures must be used for the storage of all liquid products (fuel, oils, asphalt and concrete additives). Fuel facilities, if constructed, would feature double wall tanks and secondary containment structures. All fuel, waste oil and asphalt storage tanks must be constructed above ground. Spill response equipment must be maintained at the Lower Site and spill response crews must be adequately trained in the proper use of the equipment. The Sallal Water Association requests that it review rite Spill Prevention Control and Countermeasure Plan (SPCC Plan) and must be included on the Spill Notification List so that it will be notified as part of the routine notification procedure for any spills occurring at the Upper or Lower Site.

Comment *019-082* Describe the public notification process and format for the report of information which will be provided to the public in the event of incidents which may occur from time to time, such as; discharge of pollutant materials, spills of chemicals or petroleum products or other noncompliance issues which may occur during the 25-year operation of the Grouse Ridge Project. The DEIS did not address this item for each Alternative.

Response Fuel storage tanks are proposed to be double walled and within a concrete containment berm. Smaller containers of fuel, petroleum products, or hazardous materials will be stored within secondary containment. Review and approval of spill prevention and control plans, including spill response and notification procedures, are part of the permitting process. Existing regulations would require the applicant to report significant releases of hazardous substance to appropriate regulatory agencies.

Comment *019-021* The FEIS should identify the potential risks for contamination to groundwater and aquifers in such an event.

Comment *019-029* The FEIS should explain in sufficient detail why groundwater quality is expected to remain "good" beneath the Lower site in light of the fact that it is probable that the aquifer (and the well) will be breached and/or contaminated.

Comment *020-096* The FEIS should explain in sufficient detail why groundwater quality is expected to remain "good" beneath the Lower site in light of the fact that it is probable that the aquifer (and the well) will be breached and/or contaminated.

Response The FEIS includes mitigations to avoid an encounter with the aquifer. Maintenance of the buffer zone as well as appropriate hazardous materials handling and storage practices, an approved spill responses plan, and periodic monitoring of these design services and mitigation measures should be sufficient to protect the groundwater resources.

Comment *019-678* The DEIS failed to and the FEIS should provide worst case scenarios, cumulative impacts and mitigations for breaching, contaminating or polluting all water sources caused directly or indirectly by the project.

Response The proposed project would only breach limited perched aquifers on the Upper Site which could result in less groundwater storage and changes in spring flow. If groundwater quality became impaired, cleanup actions would be required and alternative water supplies could be required.

Comment *115-038* p. 3.4-21 Groundwater occurrence - What will happen to the perched layers when Cadman starts carving things up? Where will all of that water go? Will freed water end up affecting flows and dumping a lot of silt into the Middle and South Forks? More detail please.

Response Removal of discontinuous perching layers may cause drainage of water into this excavation and subsequent infiltration through the floor of the excavation. Transport of fine-grained materials will be limited by the silty and sandy materials underlying the excavation floor, according to geotechnical analyses and literature review.

Comment *020-123*

The FEIS should address the worst case scenario associated with the fact that the "seasonal flow in the remaining springs (on the Upper site) would be impacted by the project.

The potential effects on the springs include reduced lay time between precipitation and maximum discharge, as well as increased or decreased rates of discharge. The effects of those changes are temporal changes of contribution from the springs to tributaries of the river. Increased spring flow could cause erosion and during low flow periods, springs could dry up. However, these worst-case scenarios are not expected and monitoring would be performed so that corrective action could be taken in the event of significant impacts.

Comment *020-126*

The FEIS should address the adverse environmental impacts to all tributaries, streams, springs, and/or wetlands associated with the penetration of the aquifers on the Lower site.

Comment *115-044*

p. 3.4-38 Water Quality: Simply assuming that the sandy and silty zones occurring within the ridge materials will be sufficient to remove turbidity as well as fuel and lubricants is a casual dismissal of the real impacts. Also, I don't know how a significant spill can only have a low potential to affect groundwater, that sentence needs to be clarified.

Response

Potential spills at the site will be responded to and remediated according to the Spill Response Plan. Spill response should be on a timely basis to remove released hazardous materials before they infiltrate to groundwater.

Comment *019-024*

The FEIS should address the adverse environmental impacts to all tributaries, streams, springs, and/or wetlands associated with the penetration of the perched aquifers on the Upper site.

Comment *019-025*

The FEIS should address the adverse environmental impacts to all tributaries, streams, springs, and/or wetlands associated with the penetration of the aquifers on the Lower site. The Snoqualmie River is a Class A water source and the Middle and South Forks are Class AA Rivers. These rivers could be affected if the groundwater beneath the site changes [DEIS 3.4-39]. The FEIS should provide worst-case scenarios and mitigation for the proposal and each Alternative.

Response

Potential changes to water quantity and quality in the vicinity of the Upper and Lower Sites are addressed in the FEIS. Control or prevention of these impacts would be addressed through maintaining an adequate buffer zone, materials handling plans, spill response, remediation, and monitoring.

Comment *001-006*

A consequence of removing 50 feet of silt, sand and gravel, would likely be quicker recharge of the regional aquifer. Recharge to the aquifers will increase in the wet season and decrease in the dry season. This may or may not be a problem, depending on the travel time through the aquifer to its discharge to a river or stream. Generally, recharge through unsaturated sediments occurs on the order of months, depending on thickness and permeability. This lag effect is good in that winter storms may not discharge to a stream until summer. If the recharge time is shortened, then ground water discharge to a stream would be earlier and by late summer the storage in the aquifer may be lower than under natural conditions resulting in reduced summer instream flows.

Response Potential changes to recharge quantities and the timing of discharge are discussed in the DEIS and FEIS.

Comment *019-030* The FEIS should redress the potential adverse impacts of any storm event in excess of a 25-year storm that occurs on the property, given the fact that only 25-year facilities are contemplated. [DFIS Vol. I, page 3.4 - 37] and the DEIS contemplates 25-year storm water facilities [DEIS Vol. I, page 3.4-36]. The DEIS then cites 10-year facilities [DEIS Vol. I, page 3.4-37]. These inconsistencies require the storm facilities analysis to be completely redone.

Comment *020-119* On page 3.4 - 36, the DEIS contemplates 25-year stormwater facilities. However, on the next page, it seems to contemplate 10-year facilities. The FEIS needs to clarify whether 10 or 25-year stormwater facilities are planned, and the worst-case scenario if the pond(s) overflow.

Response The FEIS indicates that the facility will comply with the requirements of the King County Surface Water Design Manual. The facilities referred to on page 3.4-36 of the DEIS are the stormwater conveyance structures (culverts and ditches). Per the King County Surface Water Design Manual, these facilities are designed to pass the 25-year storm. The facilities referred to on page 3.4-37 are the storm water flow control facilities, which must be designed to hold the discharge rate to that of the pre-developed 10-year, 24-hour event.

Comment *019-059* The DEIS did not and the FEIS should the exact number, location, water source and use for all ponds and adverse impacts for all phases and all alternatives. The FEIS should provide the differences and comparisons between the alternatives.

Response A detailed stormwater drainage plan is required as part of permitting and would be completed in accordance with the King County Surface Water Design Manual. Detailed engineering designs are not required for an EIS (WAC 197-11-055).

Comment *019-060* The FEIS should address the potential adverse impacts if the infiltration pond located west of the processing facilities released infiltrated water into the aquifer

Comment *020-118* The FEIS should address the potential that the infiltration pond located west of the processing facilities could release infiltrated water into the aquifer

Response Infiltration ponds are intended to infiltrate treated water into aquifer as recharge. The potential impacts of infiltrating water into the aquifer are described in the DEIS and FEIS.

Comment *001-008* The document indicates that the mining operation will use approximately 2.6 million gallons per day of water of which an estimated 150,000 gallons per day will not return to the recycling process. Based on the estimated daily and yearly water use, the project as described needs a surface water right as well as a ground water right. The surface water codes, per chapter 90.03 of the Revised Codes of Washington State (RCW), provide no exemption for use of surface water even if the use is considered non-consumptive.

Response The DEIS indicated that a surface water right was required. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an

underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. Under the revised proposal, a surface water right would not be required.

Comment *019-064* The DEIS did not and the FEIS should address what water source would be utilized in the event of a fire or major disaster.

Response Fire water supply would be provided by the water stored in the underground vault on the Lower site.

Comment *019-072* Identify the Storm water Pollution Prevention Plan (SWPPP) for the ongoing mining, reclamation, conveyor system, crushing and sorting, concrete processing, asphalt processing and the onsite transportation of materials on the Grouse Ridge Project.
* The DEIS failed to address the conveyor system, crushing and sorting, concrete processing and onsite transportation items.

Response Surface Water Pollution Prevention Plan for mining and processing would be developed as part of permit application process.

Comment *019-073* Describe the onsite surface water management requirements, which will be imposed for the material transportation (conveyor belt and its related steep slope portions), and the maintenance road for the conveyor belt (and its related the steep slopes portions) for the Grouse Ridge Project.
* This item was not addressed

Comment *019-074* Describe the onsite surface water management requirements that will be imposed for the 1) crushing and separating operation 2) concrete processing operation and 3) asphalt processing operation.

Comment *020-132* The FEIS should address the adverse environmental impacts associated with drainage caused by the construction of all roads, including but not limited to all access roads as well as the conveyor system, pipeline, and "maintenance road".

Response Drainage facility design would be in accordance with the King County Surface Water Design Manual. Management requirements would be defined by the Gravel Operation NPDES permit obtained by Cadman, Inc. The EIS process does not define or impose conditions for the operation.

Comment *019-076* Describe affects of Light Hydrocarbons (petrochemical, tire particulate, fuels, oils and lubricants) on the water quality in the event of contamination of the surface water or storm water of the Grouse Ridge Project.
* The DEIS did not address this item. A "Worst Case" analysis was not provided for each Alternative.

Comment *019-077* Describe the preventative measures of Light Hydrocarbon contamination of the surface water or storm water.
* The DEIS did not address this item for each Alternative.

Comment *019-078* Describe the affects and contamination preventative measures of water-soluble properties on the water quality in the event a "spill" should occur.
* The DEIS only addressed "Fuel Spill Migration" Vol. I1, pg. 28. All other hazardous

and/or contaminants were not addressed for each Alternative. A" Worst Case" scenario was not provided.

Response Offsite releases to surface waters are not expected. Onsite surface water issues would be addressed in the Surface Water Pollution Prevention Plan that would be developed as part of permit application process and other applicable permit documents. These issues are discussed in the Environmental Health chapter (Chapter 13) of the FEIS.

Comment *019-636* The DEIS failed to address water resources, to include both quantities needed and their source.

Response The quantity of water required and the source of the water is described on pages 3.4-47 and 3.4-48 of the DEIS.

Comment *127-124* Just two more quick notes. Again I am not the scientist here, but I do a good deal of reading. I have done a lot of it in this last two and a half years. I want to clarify that I don't think the gravel mining folks are evil people or Weyerhaeuser people, but mining, like many industries, is inherently a dangerous, accident prone profession. Let me cite a couple of examples quickly. Here is one from a little town just outside of Indianapolis. River Spill Caused By Gravel Firm, and the article goes on to talk about how the company accidentally dumped -- how many -- several thousand cubic yards of dirt into the adjacent river. There could have been something else in the dirt.

Response The example cited is not applicable to this project. Mining will not occur in or around streams.

Comment *020-715* The DEIS further states that the applicants will be applying for a water right only for the "duration of the project", however, the duration of the project is uncertain.

Response The project proposal states that the length of the project is expected to be approximately 25 years, depending on market demand for the gravel products. (Section 1.1, first paragraph). Project estimates are based on a 25-year operational plan.

Comment *020-716* The DEIS further states that although they are applying for a water right for 79 gallons per minute, peak instantaneous water use could reach as high as 300 gallons per minute. To make up for this shortfall, the applicant suggests that enough water from the "passive" storage pond would be "available instantly to meet peak demands". The DEIS does not discuss the frequency, duration or timing of any situations in which water would be taken from the "passive" pond, nor does it discuss the impacts of this practice on the remainder of the operation and the ground and surface water.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. A specific water use schedule is not available; however, greater water withdrawals may be expected in the summer, and decreased water withdrawals may be expected in the winter. Withdrawals of water from the vault are not expected to impact site operations, groundwater, or surface water.

Comment *020-732* The FEIS should identify the location of the septic system in relation to groundwater, springs, surface water, wells and aquifers, and should require that any septic facilities be installed in a manner that ensures that there are no impacts to these facilities.

Response Septic system location has not been defined at this time. The septic system must meet requirements of the Public Health - Seattle and King County agency. Septic system design would be addressed during the design phase of the Project. The septic system would be designed in compliance with applicable regulations. Aquifer, groundwater, surface water, spring, and well protection are addressed in Chapter 6 (Water) of the FEIS.

Comment *012-072* The Washington State water code establishes the rule that existing water rights must be protected. See RCW 90.03.010 (first in time is first in right), 90.03.280 (applications may not be granted if impairment to existing rights), and 90.44.040 (ground water available for appropriation, but subject to existing rights). Meaningful environmental analysis would fully assess the impacts to the Sallal Water district and its wells.

Comment *015-006* Sallal has received written assurance from Cadman (see attached letter, dated Nov. 23, 1998) that it is committed to protecting the groundwater quality and quantity. Specifically, Cadman stated, "In the unlikely event that a ground-water well is adversely affected by Cadman's mineral extraction or related operations, Cadman will upgrade the existing system or provide an alternate water supply." Should this project be granted the required permits, Sallal requests that King County impose such mitigation measures as part of the permit conditions, which would provide that the ground water resource will be protected. Sallal also requests that a Contingency Water Supply Plan be developed and provided to Sallal for its concurrence prior to operations at the site. The Contingency Water Supply Plan must detail the procedure and estimated schedule for provision of an interim water supply and replacement of the water source in the event the well is impacted as a result of the North Bend Gravel Operation. This Contingency Water Supply Plan is a prudent approach for the protection of human health and would help to facilitate coordination and planning by both parties (Sallal and Cadman).

Response Mitigation measures, if followed, would minimize the possibility of impacts on wells. A new mitigation measure recommends that Cadman, Inc. develop an alternate water supply plan if the current water supply is compromised by the gravel operation in the FEIS Sallal Water District.

Comment *020-113* The DEIS states, "The average annual pumping rate for the well at the Lower Site is estimated to be 70 gpm or less (36.8 million gallon per year). At this rate there is a potential for drawdown of the aquifer that could interfere with other wells. If the water supply well was screened in a different aquifer than the wells in the surrounding area, this potential interference could be minimized." [DEIS 3.4-48]. The FEIS should address if the water supply will be actually screened and provide quantitative data to that affect. What will be the worst-case scenario if the water supply is not screened?

Response Cadman's proposal does not include details regarding the depth of the screen for the proposed well. The DEIS and FEIS recommend siting the water supply well location to minimize or eliminate impacts to other wells.

Comment *115-047* p. 3.4-40 Buffer Zone - You said earlier that the wellhead protection area of Sallal Well No. 3 is in the lower site. Explain to me how you plan on putting a buffer zone in this area without re-drawing the boundaries of the lower site. A 20 foot buffer isn't going to

do a damn thing. The whole fuel spill mitigated section needs to be strengthened considerably.

Response The FEIS recommends development of an alternative water supply plan to replace Sallal Well No. 3 in the event the gravel operation impacts water quality or quantity. Groundwater level monitoring and the groundwater interception trench are designed to maintain a minimum 5-foot buffer zone across the Lower Site.

Comment *022D-001* The DEIS is unclear about the proposed methods of treatment for stormwater runoff from disturbed project areas. In one section (3.4, page 36) the DEIS states that "all disturbed areas would be drained to settling ponds where suspended solids would settle out." On the following page, under the Surface Water Quality heading, the DEIS states that "onsite stormwater runoff that does not infiltrate directly into the soil would be collected and conveyed to infiltration ponds" with subsequent discussion of best management practices (BMPs) to reduce sediment loading to the ponds. Subsequently, on page 58 (also section 3.4), the DEIS states that "to protect groundwater quality and minimize potential introduction of turbid water into groundwater beneath the Lower and Upper Sites, stormwater infiltration ponds should be designed in accordance with the King County SWDM [Surface Water Design Manual] to filter out suspended silt and clay."

Comment *022D-002* The majority of the water resources portions of the document imply that treatment for suspended solids will be achieved through infiltration ponds. It is unclear whether settling ponds are proposed for treatment of runoff from all of the site or from a portion of the site, and whether they would be used in combination with infiltration facilities. Related to this issue is the matter of stormwater control requirements that will be imposed by the Washington Department of Ecology (Ecology) under the National Pollutant Discharge Elimination System (NPDES) general permit for sand and gravel operations. This general permit typically requires separation of process wastewater from other (less contaminated) stormwater on a site, for separate types of treatment. The DEIS does not mention the specific NPDES requirements for process wastewater that may affect proposed drainage plans. The discussion of proposed stormwater settling ponds and/or infiltration facilities needs to include more specific information related to NPDES permit compliance to clarify whether process wastewater and other stormwater will be separated or mixed.

Comment *022D-003* Specific to the proposed use of infiltration facilities for runoff discharges, we have several concerns, two of which are discussed in this section and another of which is discussed under the next section. The King County SWDM (1998) stipulates that pretreatment (i.e., settling of suspended solids) must occur before flows are discharged to ground water via infiltration. This pretreatment is intended to reduce the potential for clogging of the soil surface in the infiltration area. The DEIS seems to imply that the infiltration basin soils would filter out the suspended sediment particles to prevent discharge of those sediments to ground water. If the infiltration facilities are designed without pre-settling ponds there may be a propensity for clogging that renders the facilities useless. Revisions to the DEIS to clarify the proposed stormwater systems (as called for above) should address pre-settling facilities for infiltration systems.

Comment *022D-004* In addition, it is unclear whether the proposed infiltration systems are for treatment of runoff or simply for disposal of runoff. If they are intended for treatment of contaminated runoff, they will not likely function to adequately treat that runoff. The King County SWDM (1998) requires treatment of runoff using one of several conventional BMPs (such as a wet pond, biofiltration swale, or sand filter) prior to discharge via infiltration because the soils in infiltration areas usually do not exhibit characteristics that promote successful filtering of contaminants. The King County

SWDM grants an exemption to the conventional pretreatment BMP requirements (which are not necessarily the same as the simple pre-settling requirements noted above) if certain soil characteristics are present. Those soil characteristics are not commonly found in the Puget Sound area, particularly near gravel mine sites. Thus, the King County exemption from use of a conventional water quality treatment BMP will not be applicable to the proposed infiltration facilities. In summary, if the runoff that is routed to infiltration facilities needs to be treated prior to discharge to ground water, the EIS must include details on existing soil characteristics (measured infiltration rates and other physical and chemical properties) supporting the King County treatment exemption or else additional BMPs will be needed in the drainage plans.

Response Pretreatment of discharged waters is required. The water chapter of the FEIS clarifies proposed method of treatment for stormwater from disturbed project areas. NPDES compliance issues are discussed with regard to the separation of process wastewater and stormwater.

Comment *115-043* P 3.4-38 2"d paragraph. I spent a lot of time hauling gravel from the Cadman site in Redmond. Most of the vehicles I saw leaving the site were not washed prior to leaving. They pick up their gravel and leave. Be realistic.

Response The proposed washing efforts are aimed at reducing tracking of soil off the site on truck tires. Truck washing is proposed at the site and would be a requirement of the NPDES permit issued by Ecology and it is Cadman's intent to comply with this permit.

Comment *012-071* The DEIS states that, as a general operating principle, the quantity and quality of underlying aquifers would be protected [DEIS p. 2-18]. Based on Paschal (2000), this principle is contradicted by assumptions contained in the DEIS, in particular the impacts of the project on the down gradient public water supply well of the Sallal water district. The DEIS does acknowledge potential impacts, e.g., where it states that "the use of groundwater as the source for the Proposal is expected to decrease the quantity of water in the aquifer beneath the Lower Site." [DEIS p. 3.4-40]. The analysis, however, is inadequate.

Response Groundwater use at the site will require a water right issued by the Department of Ecology. If impacts on senior water rights or users are observed during the application and permitting process, Ecology can deny the right or approve it with mitigations.

Comment *012-177* My overall impression of the evaluations related to water in the EIS is that the amounts of groundwater that may be affected by the mining operations have been under-estimated; in some instances these under-estimates are gross. The water balances that are presented in Section 3.4 do not consider groundwater inflow into the excavations, they include non-conservative estimates of precipitation and infiltration. s an example, the cross section shown for the lower site shown of Figure 3.6-4 (Volume 1) suggests there could be significant inflow to the excavation from the east. This may occur along the bedrock or along lower-permeability layers similar to what is suggested in the boring log for well GR98-4. The conceptual model shown on figure 3.4-8 (Volume 1) indicates a trench will be used to intercept this groundwater. No estimates have been made of the amount of groundwater that may be collected at this trench. This component has not been considered in any of the water balances. Similarly, the conceptual model for the upper site shown on Figure 3.4-13 indicated groundwater inflow to the excavation. No estimates have been made of the amount of groundwater that may be collected from this inflow and this component has not been considered in any of the water balances.

Response The water balance presented in Section 3.4.1.3 of the DEIS is for existing conditions and thus does not address changes due to the alternative. The water balance has been revised to describe a wider range of precipitation conditions. The other conditions described in the comment would not have a significant effect on the overall water balance (i.e., they are not a new sources or withdrawal of groundwater) and were not considered. For example, water collected in the trench would be reinfiltrated on the Lower Site with little effect on overall groundwater quality.

Comment *020-854* The FEIS should discuss in detail the environmental impacts associated with the fact that Upper site excavation will modify discharge from perched aquifers and will impact the stream flowing south of the Fire Training Academy, which is a fish bearing stream

Response Discharge coming from the Upper Site springs may be affected by excavation activities. The volume of water discharged from the springs is approximately 10 percent of surface waters draining from the north side of the Upper Site and adjacent areas. Water quality impacts are not expected. However, monitoring of both discharge volume and water quality of springs is recommended. None of the streams crossed by the Fire Training Center Road (SE Grouse Ridge Road) are fed by perched aquifers on or near the project site. Two streams flowing south of the ridge (one crossing the road to the Homestead Valley Gravel mine and one crossing the freeway east of this road) are fed by springs discharging from perched aquifers. Neither of these streams contain fish.

Comment *019-374* The DEIS did not and the FEIS should provide mitigations to protect existing aquifers and groundwater if the projected/estimated water levels for the "passive" pond or "freshwater" pond are not reached. To include peak water use periods, and low precipitation.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS. The DEIS and FEIS include several mitigation measures to protect the quantity of water in the aquifer and groundwater quality.

Comment *020-093* The DEIS states, "Interception and filtration of turbid water by the sandy and silty zones occurring within the ridge materials are expected to be sufficient to remove turbidity before groundwater is discharged to the springs provided that the excavation does not extend into perched zones that are indirect hydraulic connection with the springs." [DEIS 3.4-38]. The FEIS should reconcile this statement with "Based on these measured water levels, there would be no buffer zone with the perched aquifers on a seasonal basis in certain areas of the excavation." [DEIS 3. 4-41].

Response Groundwater may seasonally intercept the excavation base in limited areas at the Upper Site. If groundwater enters the excavation, activity would cease in that area and all equipment and materials would be removed from the area. Turbidity is filtered in saturated soils. Therefore, the absence of a buffer zone does not preclude filtering of the water. The area would be bermed to prevent introduction of contaminants to the groundwater.

Comment *001-001* The proposal has the potential to impact stream flows in the Snoqualmie Basin. This is of particular concern because instream flows that were established by rule in 1979 for the Snohomish/Snoqualmie Rivers are not being met many times during the year.

***Comment** 012-052*

The DEIS fails to address the impact on instream flows for the Middle and South Forks of the Snoqualmie River. RCW 90.03.345 establishes that instream flows levels, such as those adopted for the Snoqualmie River at WAC Ch. 173-507, are a form of water right that cannot be impaired. Thus, impacts to these flows caused by the gravel mine are significant and adverse. The EIS identifies the impacts, but does not recognize that they are unacceptable. For example, the DEIS states "[i]f the quantity or quality of groundwater beneath the site changes, this could affect the rivers" [DEIS, p. 3.4-39] and describes the impact of pumping as "relatively insignificant with respect to the average flow in the rivers" [DEIS, p. 3.4-40]. "Relative insignificance" is a value-laden term that does not acknowledge the context for assessing impairment.

***Comment** 019-026*

The DEIS states, "Groundwater from beneath the Lower site may discharge into the rivers. Groundwater beneath the Upper site discharges into small streams that drain into the rivers, and groundwater beneath the Upper site may discharge directly into the rivers. If the quantity or quality of groundwater beneath the site changes, this could affect the rivers." [DEIS 3.4-39]. The FEIS should address all the potential adverse impacts, preventative measures and the mitigations if this were to occur. The FEIS should provide a worst-case scenario and preventions of such.

***Comment** 020-128*

The Snoqualmie River is a Class A water source and the Middle and South Forks are Class AA Rivers. These rivers could be affected if the groundwater beneath the site changes. [DEIS 3.4-39]. The FEIS should address worst-case impacts for the proposal and each Alternative.

***Comment** 020-129*

The DEIS states, "Groundwater from beneath the Lower site may discharge into the rivers. Groundwater beneath the Upper site discharges into small streams that drain into the rivers, and groundwater beneath the Upper site may discharge directly into the rivers. If the quantity or quality of groundwater beneath the site changes, this could affect the rivers."' [DEIS 3. 4-39] Describe all the adverse impacts if this were to occur. What is the worst-case scenario for groundwater and/or rivers?

***Comment** 045-034*

Page 3.4-40, 1st para.: Consider the statement "Depending on the hydraulic connection between the aquifer that the water is pumped from and the Middle and South Forks of the Snoqualmie River, there could be a slight decrease over time in the groundwater contribution to the river." The word "slight" is meaningless and irresponsible. In light of the Endangered Species Act regarding salmon, and the 25-year length of the Project, there could be a significant decrease over a long period of time, or a shorter period of time should there be a loss of ground water onsite. Also, suggesting that the "slight increase in recharge at the Upper Site increasing groundwater contribution, calculated on an annualized basis, would offset the potential small decrease in stream flow resulting from groundwater pumping at the Lower Site" is misleading Annualizing does not account for wide fluctuations in seasonal and much longer climatic differences in recharge amounts at any particular time. The large pumping operation on a regular basis could cause long deficits in stream flow and hydraulic continuity with the River.

Response

The Water chapter of the FEIS includes a discussion of in-stream flow requirements as established on the South and Middle Fork of the Snoqualmie. The pumping of groundwater at the Lower Site could reduce groundwater contribution to the baseflow of the river. A lag time analysis is included to assess potential impact from groundwater pumping. FEIS acknowledges and discusses existing conditions and the significance of potential impacts.

Comment *115-045* p. 3.4-39 Again, the repeated assurances that the impacts to water resources are low continue to amaze me. I believe a more realistic environmental impact statement is needed here.

Response Comment Acknowledged. Revisions have been made to the Water section of the FEIS to address comments received.

Comment *020-039* Flow of water to springs and streams could be "reallocated" (pg. 3.4 - 39).

Comment *020-040* Spring discharge would also be affected by infiltration ponds (pg. 3.4 - 39).

Response Comments noted. As described in the DEIS, significant spring flow changes are not expected. Continued monitoring of springs through the project life is recommended as mitigation.

Comment *020-038* Runoff could increased and recharge could be refocused (pg. 3.4 - 39).

Response There may not be a direct groundwater connection between the Upper Site the Lower Site due to the bedrock high on the east side of the Lower Site. However, recharge to the Upper Site contributes to the Middle and South Fork drainage basin by flow to the north and south, and contributes to the deep aquifer by lateral flow in the river valleys.

Comment *020-030* The Sallal Water District Well #3 impacted by project.

Response Comment noted.

Comment *020-044* "Natural attenuation of contaminants" will reduce petroleum concentration before it gets to the Rivers (but what about the aquifer?) (pg. 3.4 - 39).

Response The frequency of groundwater monitoring should be adequate to detect groundwater impacts, if present, prior to migration from the site. Remediation of impacts is regulated under the Model Toxics Control Act. (MTCA), and is under the jurisdiction of Ecology. The site owner/operator would be responsible for cleanup.

Comment *012-084* The DEIS completely fails to address the possible interconnection between aquifers and the impact of breaching one or more of them on water quality and on local and regional water supplies.

Comment *012-085* This incident should be cited in the DEIS and differences and similarities between the two sites evaluated. In light of the studies cited here and the sensitive nature of the site and its groundwater, the potential impact of an aquifer breach should be a primary focus of this DEIS. What mitigation measures do the proponents plan to prevent aquifer breaching?

Comment *020-036* Perched aquifers on the upper site would be breached, and this could affect the Snoqualmie River.

Comment *020-122* The FEIS should address the adverse environmental impacts to all tributaries, streams, springs, and/or wetlands associated with the penetration of the perched aquifers on the Upper site.

Comment *020-253* The FEIS should address the depth of Upper Site excavation compared to the depth of Upper Site perched aquifers and how these perched aquifers will be protected.

Comment *045-036* Page 3.4-41, 4th para.: How can the Applicant state emphatically that "shallow and deep perching layers would not be breached," when "groundwater within the shallow perching zone locally rises above proposed excavation base"?

Response Breaching is considered to be the interception of an aquifer where either an upper or lower confining layer is removed, causing aquifer drainage and decreased water levels. By this definition, limited breaching of discontinuous perched zones at the Upper Site may occur. However, the more continuous silty zones that contribute water directly to the springs would not be breached and therefore impacts to streams and wetlands are expected to be small. At the Lower Site, a buffer zone will be maintained, and the aquifer would not be breached. Groundwater level monitoring and the groundwater interception trench are designed to maintain buffer zone across the Lower Site.

Comment *020-127* The FEIS should address the adverse environmental impacts associated with the fact that streams were not measured in drainages that "appeared to re-infiltrate."

Response Three streams contribute water directly back into the groundwater system. This water may re-emerge as surface water downhill or contribute recharge to aquifers. Changes to these streams could affect the systems to which they contribute water. These changes are not expected to be significant if the recommended mitigation measures are implemented.

Comment *020-090* The FEIS should address the adverse environmental impacts associated with the potential release of contaminants into the groundwater from both the Upper and Lower sites. Who will monitor and how often will contamination monitoring occur? Especially, considering the previous statement that, "Water quality testing should not be necessary unless the impacts to the water are visually evident (for example, the water appears turbid or a hydrocarbon sheen is evident)." [DEIS Vol. II, Appendix D, page 47, section 3. 4.2.2].

Response The frequency of groundwater monitoring would be adequate to detect groundwater impacts, if present, prior to migration from the site. Investigation and remediation of impacts is regulated under the Model Toxics Control Act (MTCA), and is under the jurisdiction of Ecology. The site owner/operator is responsible for cleanup.

Comment *020-048* The actual quantity of additional recharge would vary depending on the rate of development (pg. 3.4 - 45).

Response There would be an incremental increase in recharge as the site is cleared and excavated, thus decreasing evapotranspiration.

Comment *020-081* The FEIS should reconcile the following statements. The DEIS contemplates 25-year stormwater facilities. [DEIS 3.4-36]. However, on the next page, it seems to contemplate 10-year facilities. The FEIS needs to clarify whether 10 or 25-year stormwater facilities are planned, and should further assess the environmental impacts of a storm event in excess of whatever standard is chosen.

Response The FEIS indicates that the facility will comply with the requirements of the King County Surface Water Design Manual (KCSWDM). The facilities referred to on page 3.4-36 of the DEIS are stormwater conveyance structures (i.e., culverts and ditches). Per the KCSWDM, these facilities are designed to accommodate the 25-year storm. The facilities referred to on page 3.4-37 are stormwater flow control facilities, which must be designed to hold the discharge rate of the pre-developed, 10-year, 24-hour event.

Comment *020-045* There will be a slight decrease in groundwater contribution to the Snoqualmie River.

Response The FEIS discussed in-stream requirements as established on the South and Middle Fork of the Snoqualmie. The change in recharge, combined with groundwater pumping, could reduce groundwater contribution to the baseflow of the river. A lag time analysis is included in the FEIS to assess potential impact from groundwater pumping. FEIS acknowledges and discusses this potential impact.

Comment *020-068* The FEIS should address the adverse environmental impacts associated with the project's potential impact on the rates of groundwater recharge as identified in the DEIS.

Comment *020-070* The FEIS should address the adverse environmental impacts of "Aquifer recharge is expected to increase slightly as a result of the proposed mining operation." [DEIS 3.4-38].

Comment *020-071* The FEIS should address the adverse environmental impacts on streams and ground water due to the areal redistribution and/or refocusing of groundwater recharge caused by mining activities. [DEIS 3. 4-39].

Response Changes to recharge quantities are addressed in the DEIS. Changes to timing of recharge and discharge are addressed in the FEIS. The potential impacts resulting from these changes are also discussed in the DEIS and FEIS.

Comment *019-682* The DEIS failed to and the FEIS should address specific water processing, contaminants handling and processing, and drainage control to ensure the groundwater, public and environment are protected. This should be addressed each phase within each Alternative and compare the differences. The worst-case scenarios, cumulative impacts and mitigations should be provided for the aforementioned.

Response Concerns over water quality and water supply are addressed in the Water, Environmental Health and Public Utilities chapters.

Comment *019-045* The DEIS cites "The average annual pumping rate for the well at the Lower Site is estimated to be 70 gpm or less (36.8 million gallon per year). At this rate there is a potential for drawdown of the aquifer that could interfere with other wells. If the water supply well was screened in a different aquifer than the wells in the surrounding area, this potential interference could be minimized."[DEIS 3.4-48]. The FEIS should address the worst-case scenario if this does not occur.

Comment *019-046* The FEIS should address the significant adverse environmental impacts of the proposal to use Sallal Water District Well #3. To include the fact that the water level in that aquifer fluctuates by 40 feet and most of the wells in the area fluctuate 20 feet while

Well #3 fluctuates twice that amount. [DEIS 3.4-48]. What will be the cumulative impact on the fluctuation levels of Well #3 with an additional draw of 37 million gallons per year as compared to 15 million gallons a year from Well #3.

Comment *020-114* The FEIS should address the significant adverse environmental impacts of the proposal to encroach on and potentially impact the Sallal Water District Well #3, given the fact that the water level in that aquifer fluctuates by 40 feet. Most of the wells in the area fluctuate 20 feet while Well #3 fluctuates twice that amount. [DEIS 3.4-48]. What will be the cumulative impact on current fluctuation levels of Well #3 when the Project draws 37 million gallons per year as compared to 15 million gallons a year from Well #3. The DEIS further states, "At this rate there is potential for drawdown of the aquifer that could interfere with other wells." [DEIS 3.4-48].

Comment *020-133* The FEIS should address the adverse environmental impacts associated with the possibility that the project will draw down Sallal Water District Well #3 and the 39 other water supply wells within a one-mile radius of the site.

Comment *020-136* The FEIS should address the adverse environmental impacts associated with the proposed peak use of 70 gallons per minute of water by the proposed project. [DEIS 3.4-48].

Response Limited hydrogeologic data regarding the testing and operation of the Sallal well is available. However, FEIS includes available baseline information in the Water and Environmental Health Technical Report. The FEIS recommends the development of an alternative water supply plan which would be implemented if the gravel operation results in a significant impact to the quantity or quality of the water in Sallal Well No. 3.

Comment *019-061* The FEIS should address the adverse environmental impacts associated with the reallocation of water associated with the construction of the storm water infiltration ponds. [DEIS Vol. I, page 3.4-39].

Comment *020-120* The FEIS should address the adverse environmental impacts associated with the reallocation of water associated with the construction of the stormwater infiltration ponds. [DEIS 3. 4-39].

Response Infiltration of water from stormwater ponds would cause mounding of the groundwater surface. Based on the coarse-grained nature of the soils, mounding is expected to be minor. The DEIS recommend that the pond location be selected to minimize the reallocation of the water.

Comment *020-124* The FEIS should address the worst-case scenario of the decreased travel times for infiltrating water to reach the springs on the Upper site.

Response As described in the DEIS, the potential effect of decreased travel times is higher spring discharge following precipitation and potential lower spring discharge during dry periods.

Comment *020-145* The DEIS notes that the "actual quantity of additional recharge that would be attributed to the gravel operation is dependent on the rate at which the Lower and Upper sites would be developed and reclaimed." No analysis of what the quantities would be under different scenarios is attached to the document.

Response The schedule and extent of development and reclamation is dependent on site operations. Due to this uncertainty regarding the specific effects on recharge over time are not quantifiable.

Comment *019-007* The DEIS did not and the FEIS should address the adverse environmental impacts associated with the project's potential adverse impacts on the rates of groundwater recharge. This should include analysis of higher or lower precipitation recharges.

Response Recharge is normally linked to annual precipitation and is affected by variations in precipitation over time. Recharge rates to the aquifer are affected by storage within soils. As the soils are removed, the period between precipitation and recharge will decrease. The FEIS discusses impacts related to higher and lower periods of precipitation.

Comment *019-049* The DEIS did not and the FEIS should provide current information on sediment transport, bar growth, bed elevations and bank erosion on the Middle and South Forks of the Snoqualmie rivers, all streams and tributorial banks and bars. The FEIS should address cumulative direct or indirect impacts to these for all phases and alternatives. A worst-case scenario should be provided.

Comment *020-091* The FEIS should provide historic patterns of sediment transport, bar growth, and bank erosion on the Middle and South Forks of the Snoqualmie rivers.

Response Stormwater runoff caused by the project would remain on site. Significant impacts to sediment transport or sedimentation rates in the Middle and South Forks are not expected.

Comment *045-040* Page 3.4-55, last para., Page 3.4.56, 1st para.: It is inconsistent to state that "potential impacts on Upper Site groundwater are not likely to migrate to the Lower Site... [and] potential impacts at offsite water supply wells near Lower Site would be almost nonexistent," and then to say "the potential for groundwater quality to be affected at the Upper Site would be increased.., therefore, impacts on offsite water supply wells downgradient of the Upper Site would be increased." Which statement is true, and what safeguards are proposed for water protection?

Response The potential impacts between Upper and Lower Sites for Alternative 4 are clarified in the FEIS.

Comment *020-837* The FEIS should address the impacts of variant water levels, water contaminants, adverse biological responses and possible silt infiltration for each alternative, and provide comparisons between each alternative.

Response The FEIS addresses the possible effects of construction related silt and contaminants along the Fire Training Center Road (SE Grouse Ridge Road) and stated that impacts would be short-term and minimized by following all applicable standards and guidelines and BMPs during the construction phase (of the 13 streams crossed, only 4 streams with the potential to be impacted by road construction would contain water during construction). Water levels of fish-bearing stream reaches with headwaters in the vicinity of the upper site would be unlikely to be impacted by gravel extraction at the upper site. The DEIS recommends water quality and water level monitoring.

Surface water and groundwater monitoring is required by the permits. Analysis of potential contaminants to be included as part of proposed monitoring plan.

Comment *020-160* Describe the onsite surface water management requirements that will be imposed for the 1) crushing and separating operation 2) concrete processing operation and 3) asphalt processing operation.

Response The proposed project would have to comply with the King County Surface Water Design Manual. The details of those requirements would be addressed at the grading permit stage with the submittal of detailed engineering plans.

Comment *020-159* Describe the onsite surface water management requirements, which will be imposed for the material transportation (conveyor belt and its related steep slope portions), and the maintenance road for the conveyor belt (and its related the steep slopes portions) for the Grouse Ridge Project.

Response The proposed project would have to comply with the King County Surface Water Design Manual. The details of those requirements would be addressed at the grading permit stage with the submittal of detailed engineering plans.

Comment *002-016* Protection of environmental elements such as the aquifers.

Response Please see the Water chapter of the FEIS for a discussion of mitigation measures designed to provide aquifer protection.

Comment *122-005* If this proposed operation must be considered, it is my opinion that everything possible be done to prevent, not mitigate, any potential threats to existing water supplies and the aquifer. Alternative #4 would present this option. The DEIS section 3.4 p54-56 states the impact of this alternative on the Lower Site, which is where the existing wells are located and where the aquifer that feeds these wells exists. They follow:

- Surface Water Quality – NO IMPACTS
- Groundwater Quality – NO IMPACTS
- Aquifer recharge – NO IMPACTS
- Water Supply Wells – Almost non-existent

Comment *127-075* If this proposed operation must be considered, it is my opinion that everything be done to prevent and not mitigate any potential threat to existing water supplies. Alternative Number Four would prevent this option. The DEIS 3.4, 54 to 56, states the impact of this alternative. The alternative to surface water quality shall have no impacts, groundwater no impacts, aquifer recharge no impacts, and almost nonexistent impacts to the water supply wells. Thank you.

Response Comment acknowledged.

Comment *012-050* Uncertainties in the groundwater capture zone for the Sallal well have not been discussed. The size, shape, and orientation of this capture zone may be significantly different from what is portrayed on Figure 3.4-4. Although there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow direction beneath the western portion of the Lower Site, the monitoring well Cadman, Inc. has proposed to install on the Lower Site would provide additional data in support

of a more definitive interpretation of site conditions. [DEIS page 3.420, paragraph 1]"The level of analysis completed to develop the wellhead protection plan was appropriate for its intended purpose; however, due to the uncertainty of the assumptions, it should be considered an approximation of the actual capture zone for the well." page 3. 4-20, paragraph 2

Comment *012-186* Uncertainties in the groundwater capture zone for the Sallal well have not been discussed. The size, shape, and orientation of this capture zone may be significantly different from what is portrayed on Figure 3.4-4.

Comment *020-089* The FEIS should address the statement in the DEIS that, "... the well head protection area is only an approximation, and it is possible that the well (Sallal Water District Well #3) could draw water from beneath the processing area." [DEIS Vol. II, Appendix D, page 34, section 3.2. 2.2]. An "approximation" is not satisfactory.

Comment *115-037* p. 3.4-20 Sounds like Well No. 3's wellhead protection area is final. I guess it should be left alone. Any time you are dealing with groundwater, you are dealing with a lot of unknowns. Uncertainty should not be an excuse to move forward.

Response The FEIS recommends additional monitoring well(s) to assess water quality and protect the existing water supply well.

Comment *016-004* The upper site could have impacts on the seeps and wetlands that drain to the Middle Fork Snoqualmie River. No activity should be allowed that impacts off site surface waters.

Response Direct discharge to surface water bodies would not occur. The excavation plan, hazardous materials handling and storage, and spill response and remediated plans would be established to prevent impacts to the springs and surface water. The FEIS recommends the establishment of surface water discharge and quality monitoring points at springs along the Upper Site.

Comment *045-010* Page 3.4-3, Lower Site Surface Water: The Applicant observed a tributary drainage basin contributing stormwater runoff to the site, most of which they say infiltrates rather than leaving the site. But the ponding of stormwater observed in a few low spots where previous gravel mining had occurred is caused by fine grained sediment accumulation. This accumulation would continue to increase in those and many new areas of mining operation on the lower site, which would increase ponding. Washington Trout (August 31, 1993) is also "concerned about the potential for additional sediment transport from roads from increased heavy equipment traffic and from [a] site itself."

Response Maintenance would be necessary to optimize pond function. This would be included as part of the drainage design and operations and maintenance plan.

Comment *020-098* The FEIS should provide substantiation of any historic or current data on the safety of Class A bio-solid and/or GroCo applications in close proximity to aquifers.

Comment *020-099* The FEIS should address the proposed agronomic rates for the application of GroCo. Are the agronomic rates for GroCo both defined and required?

Comment *020-100* The FEIS should address the monitoring plan and mitigation methods for any adverse environmental implications from the application of GroCo.

Comment *020-101* The FEIS should address if the 503 Biosolids Rule by Dr. Donald A. Hendrickson HML, Inc., is applicable to this project area?

Comment *020-271* The FEIS should address if bio-solid will be used in reclamation and detail the potential short and long term effects on the soils, settling pond, and aquifer systems.

Comment *020-274* The FEIS should address if bio-solid will be used in reclamation and detail the potential short and long term effects on the soils, settling pond, and aquifer systems.

Comment *127-079* That is, take biosolids, toxic sludge. I didn't have a chance to look at the entire DEIS. Is sludge even talked about? What we are talking about is digging two big holes in the valley, connecting with a big giant conveyor belt and smearing toxic sludge all over it and saying it is good. It is not good. It sucks. My idea, if you have to do this damn plan, excavate on the top of the mountain, take it up to Snoqualmie Ridge where you have put your damn plant there.

Response Rates of application and monitoring of the use of GroCo would be established by the Washington State Department of Ecology. GroCo doesn't pose a threat to groundwater if applied according to manufacturer/distributor specifications regarding appropriate application rates and methods. Areas of biosolids applications would be dependent upon reclamation plan and actual excavation limits. Application and monitoring will be addressed in reclamation plan with respect to applicable regulations.

Comment *024A-065* Please provide an analysis of the effects of using GroCo and other soil amendments on aquatic resources. How much of these amendments will be added and when. What are the chemical constituents of these products? What are the possible effects on water quality from increased nitrates and trace minerals on surface water quality? What effects from leaching can be expected as regards groundwater supplies?

Response GroCo is a biosolids product that is rich in nutrients and organic materials and has been treated to a level that allows beneficial recycling on land. Biosolids products have met the requirements of federal regulation 40 CFR Part 503 and the state biosolids rule Chapter 173-308 WAC. The levels of contaminants in King County biosolids are considered to pose relatively low risks when applied according to state and federal regulations (EPA, 1993).

Comment *012-163* There is no discussion of the impacts of hydraulic oil spills. Loss of hydraulic fluids is commonplace and unavoidable with trucks and heavy equipment. Pressurized hoses and fittings come loose, break and leak. Such events are usually not immediately apparent to the operator and such leaks can emit 30 gallons or more of hydraulic fluids in less than a minute. These kinds of leaks will inevitably occur on the site. Some effort must be made to account for their long-term impacts; mitigations need to be recommended.

Comment *020-156* Describe the entire spectrum of contaminates, petrochemical, hydrocarbon, water soluble materials, sediments (inert or natural) which could possibly affect the water quality or stormwater system contained on the Grouse Ridge Project.

Comment *020-163* Describe the preventative measures of Light Hydrocarbon contamination of the surface water or storm water.
* The DEIS did not address this item for each Alternative.

Comment *020-245* The FEIS should address potential contaminants from truck traffic on the maintenance road and how they will be monitored and collected to prevent infiltration into the Lower Site soils and/or collection in the settling ponds.

Comment *115-042* p. 3.4-37 Rather than merely addressing the cleanup of spills of petroleum products into our precious water resources, perhaps you should spend more time discussing a viable prevention plan. It's so inconvenient to have to clean up those spills as required by law, I know, but a little look at prevention might be a useful thing.

Comment *127-118* One example, the DEIS cites a case of where the worst event related to onsite spilling of a single 55-gallon drum. That is trivial. I want to know what happens when a dozen of those drums explode and catch fire. I want to know what happens to a dozen of those drums that are left unattended and forgotten by a less than scrupulous site manager, and that leaks into our water supply for the next quarter of a century. Those kinds of items are not addressed in this document, but that is the real world.

Comment *127-165* How does it deal with a problem with a diesel leak like you talked about? If you had a hydraulic of what happened, you could do a computer simulation on what happens if 1,000 gallons of diesel spilled from a truck that was there or an accident happened in the factory. I know if you look at what happens in nuclear power plants, they know how to simulate accidents. They know how to prepare for them. What is being done at Cadman today to prepare for an accident in their current mines? Maybe you can take a look at some of the plans they have in effect now and evaluate them. Can they handle crisis? There have been some articles that people have mentioned that this isn't always the case. People don't know how. They tend to react to the crisis rather than plan for it. And the document I hope has that information added to it in the future. Thank you.

Comment *137-002* It does not address the issues of contamination from the trucks, oil dripping, etc.

Response All probable contaminants, measures to prevent contamination, and impacts from potential releases are addressed in the Environmental Health chapter in the FEIS.

Comment *127-159* If they are exposed to 18-wheelers on a daily basis like I am when I walk my dog. But a dog, just the oil in the ground from one of these things, it is all over my feet, all over my clothes, all over my dog. That is just one. That is not hundreds. They just pull off.

Response Comment acknowledged.

Comment *127-092* Point No. 12, provide a description of each material, including organic and inorganic components.

Response Please see the FEIS Environmental Health chapter for discussion of biosolids.

Comment *019-420* The DEIS states, "…the quantity of the contaminants released is not expected to exceed 55 gallons." [DEIS Vol. I, page 3.4-39, Section 3.4.2.2]. This comment is not factual assuming the following:

a. 70' project truck x number of trucks 200-300 gallon diesel fuel tanks per truck

i. 10 gallons motor oil per truck
b. Service Trucks 600 gallon diesel tanks
i. 200 gallons of hydraulic
ii 175 gallons of salvage
iii. 175 gallons of hydraulic grease
c. Diesel for vehicles 14,000 gallon storage tank
d. Asphalt Processing Plant 10,000 gallon storage tank--300,000 annual
e. 2nd storage for Asphalt 15-20,000 gallon storage tank

Comment *020-146*

The DEIS purports to analyze the potential environmental impacts associated with only a 55-gallon release of contaminants, even though up to 44,000 gallons of fuel, oil, or propane may be stored on the site. In addition, the DEIS does not even consider the environmental health impacts related to the fact that the project will generate 936 truck trips per day, each of which can carry up to 250 - 300 gallons of fuel, meaning that up to 234,000 - 280,800 gallons of fuel will pass through the site per day on rolling inventory.

Comment *020-714*

The DEIS states that the Asphalt Batch Processing Plant (vol. II, app. K, Fuel, pg. 3-3) will use a 10,000 gallon storage tank with an annual estimated usage of 300,000 gallons. The DEIS further states that it will use diesel for "'vehicle" refueling (vol. II, app. K, Fuel, pg. 3-3) requiring an on site 14,000 gallon tank. An additional proposal includes the use of Diesel fuel, in lieu of propane, for Asphalt Batch Processing which would require an additional 15,000 to 20,000-storage tank. Yet, the applicant only estimates that only 55 - gallons of contaminant would be released in a spill (DEIS, pg. 3.4 - 39).

Comment *045-032*

Page 3.4-39, bottom para.: The reference to a 55-gallon spill indicates that only drums of materials could possibly be spilled accidentally. Although it is unlikely that an individual spill from a vehicle would be larger, what about the 10,000-, 14,000-, and possible 20,000-gallon fuel storage tanks onsite? The Spill Prevention and Emergency Response Plan is woefully inadequate to repair any spill over certain areas, or a spill of larger amounts of contaminating materials. A few sponges will not do the trick! And, what about the cumulative effects of vehicle and other spills during operation (e.g., hydraulic hose leaks, oil, petroleum hydrocarbons), especially when the Applicant expects to mine within 5 feet of groundwater (and sometimes at or under groundwater levels!)?

Response

Spills are addressed in the Environmental Health chapter in the FEIS. A larger spill was determined to be unlikely and speculative based on the design plan for double-walled ASTs within concrete-bermed containment. This analysis represents a more probable event of drum or vehicle fuel tank spillage.

Comment *020-876*

One part of the DEIS states that "aquifers are found at an elevation of 1,540 if" and yet another part says perched aquifers are "inferred at the elevation of 1,500 ft.'" [DEIS vol. 11, app. D, page 9, sec. 2. 2.1.2 Groundwater Flow]. Furthermore, another part states that the excavation depth at the Upper Site has been changed from "a 1,435 foot elevation to 1,535 foot elevation to eliminate possible effects to aquifer discharge". [DEIS vol. II, app. E, pg. 28]. If excavation occurs at the 1,535 foot elevation as specified, the project will be invading a aquifer(s) and cause ecological, environmental, and financial damage on a grand and possibly, irreparable

Response

Limited perched zones at groundwater at elevations above 1535 feet msl are present in the central portion of the Upper Site. Removal of these limited perched zones is expected to only have a small impact on groundwater resources.

Comment *012-073* [DEIS p. page 3.4-47] admits that "the Lower Site is within the wellhead protection zone for Sallal Well No. 3" and "it is possible that the well could draw water from beneath the processing area." This entire paragraph summarizes a number of serious non mitigable impacts to subsurface water and existing water rights.

Response The proposed alternatives locate the processing and maintenance operations at the Lower Site outside of the Sallal wellhead protection area (DEIS Figure 3.4.4). The FEIS recommends an alternative water supply plan be developed in the event Sallal Well No. 3 becomes impacted by the gravel operation.

Comment *019-048* The FEIS should discuss the adequacy of only installing a monitoring well near the Sallal Well #3 versus an actual plan to avoid, minimize or mitigate any problems that arise as the result of the proposed excavation.

Comment *020-116* The FEIS should discuss the adequacy of only installing a monitoring well near them Sallal Well #3 versus an actual plan to avoid, minimize or mitigate any problems that arise as the result of the proposed excavation.

Response FEIS will recommend additional monitoring well(s) as mitigation if a single well does not appear to be adequate. The DEIS and FEIS recommend surface water and groundwater monitoring to identify and avoid potential impacts.

3.4.3 Cumulative Impacts

Comment *016-002* There is a danger, not mentioned in the DEIS, that fugitive discharges from vehicles (spilled oils, fuels, transmission fluids, and so on), will find their way into the soil, and eventually into the groundwater. In addition, deposition from air emissions, particularly soot, elemental carbon and associated metals, and heavy volatiles, will also get into the groundwater through the same pathways.

Response Possible hazardous material spills are addressed in the Environmental Health chapter. This is a new section of the EIS, consolidating information on hazardous materials that was previously found throughout the DEIS. Air emissions are not predicted to exceed applicable standards and therefore the potential for cumulative impacts on groundwater are considered unlikely.

Comment *127-004* An additional concern of ours is the water that is going to be used by the facility. I know that just in the last year we -- the charge that we are charged by Sallal for gallons above a certain amount has more than tripled, and the letter that we received from Sallal said that the increase in the water rate was due to the fact that they only had so much water, and because of the limited supply of water, we would not be able to -- they had to raise the price basically for the service that we received.

Response The Sallal Water District's costs should not be impacted by the project. There is discussion of water use requirements in the Water chapter of the FEIS.

Comment *045-042* Page 3.4-56, last para.: The DEIS admits that the Project's withdrawal of groundwater could impact water quantities in the Snoqualmie Valley. But it doesn't seem that the County has considered this in light of the huge potential impact for the growth planned in the area for the next 25 years. 25 years x 250 days/year x 150,000 gallons/day = 937,500,000 gallons(that's almost a TRILLION gallons!)

Response All forms of development in the region affect water consumption. Water consumption at the site is the equivalent of approximately 30 houses. Ecology would consider the cumulative impacts prior to ruling on the water right for the project.

Comment *020-083* The FEIS should address how excavation will be monitored during above average rainfall or above average aquifer recharge to prevent an "encounter"? What mitigation measures will be initiated and by whom if an "encounter" occurs? What potential contamination can or will occur with an "encounter"?

Response A groundwater level monitoring program on the Upper and Lower Sites and the groundwater interception trench would be designed to maintain adequate buffer zones. Potential groundwater quality impacts are discussed in the DEIS and FEIS

Comment *019-027* The FEIS should address the adverse environmental impacts associated with the contemplated decrease over time of groundwater contribution to the Snoqualmie River [DEIS 3.4-40].

Comment *020-130* The FEIS should address the adverse environmental impacts associated with the contemplated decrease over time of groundwater contribution to the Snoqualmie River. [DEIS 3. 4-40].

Response The FEIS acknowledges and discusses the significance of potential impacts to the flow in the Snoqualmie River.

Comment *019-008* The DEIS does not and the FEIS should provide data for the following: "Aquifer recharge is expected to increase slightly as a result of the proposed mining operation." [DEIS 3.4-38]. Define "slightly" and what are the potential impacts of such for all alternatives.

Comment *019-009* The DEIS cites "On a regional basis, this net decrease in quantity of water in the aquifer system will be offset by enhanced recharge on the Upper site." [DEIS Vol. II, Appendix D, page 35, section 3.2.2.3] and then cites "Overall, the increase rate of recharge is expected to be modest for the following reasons..." [DEIS Vol. II, Appendix D, page 33, section 3.2.2.2]. Define "modest".

Comment *019-010* The DEIS failed to and the FEIS should provide an accurate account of what will occur and redress the entire recharge analysis. The public should have a right to review before the FEIS is presented.

Response Recharge calculations are included in the EIS. Recharge at the Lower Site is expected to increase by approximately 0.1 cfs on average. Recharge at the Upper Site will be affected by the extent and schedule of excavation and reclamation and would vary throughout the life of the project.

Comment *020-078* The FEIS should address reconcile the above statement with "The volume of stormwater runoff from the Lower and Upper Site may be impacted during construction of the facility. When the volume of stormwater runoff is altered, impacts on the existing environment can occur. For example, an increase in runoff from the site can cause flooding of the downstream system, which may not have the capacity to accept an increase in flow. Likewise, a decrease in runoff from the site may deprive an environment that depends on this water source to survive." [DEIS Vol. 11, Appendix

D, page 20, section 3.1.2.1]. The FEIS should address the worst-case scenarios for both an increase and decrease in runoff. The FEIS should thoroughly address what mitigations measures will be implemented and who will monitor their adequacy.

Response Runoff at the site will be into the interior of the excavation at the Lower and Upper Sites. Changes in runoff volume at the Lower Site may affect infiltration and aquifer recharge volumes. Changes in recharge at the Upper Site may affect spring discharge and deep aquifer recharge. Recharge will be augmented as a result of the excavation and clearing at the site, and water levels will be monitored to avoid interception of the groundwater surface at either the Upper or Lower Sites.

Comment *022D-009* Specifically, the cumulative impacts section in the DEIS does not discuss the rapid increase in development occurring in the nearby cities of North Bend and Snoqualmie. Development in these cities will increase water quality burdens in the Snoqualmie River and should be considered along with impacts from the mining operations. As described in the previous paragraphs, the analysis of the potential long-term impacts to surface water quality may be insufficient. The extensive operations period of the proposed project warrants additional attention to the potential long-term impacts of the project on surface and groundwater associated with the Snoqualmie River system. Given the large area of the proposed project, simply monitoring for impacts without contingency plans for subsequent actions presents an increased risk for water quality impacts.

Response Development of the site is part of potential future regional residential, commercial, and municipal development. These combined impacts could have long-term impacts on river water quantity and quality. The FEIS recommends contingency plans to address potential water quantity and water quality impacts.

Comment *012-064* What is "continual monitoring of drainage issues" and how could it prevent unidentified adverse impacts [DEIS p. 3.4-56]?

Response Significant spring flow changes are not expected. Continued monitoring of springs through the project life is recommended as mitigation to confirm there are no significant impacts.

Comment *012-065* The DEIS correctly identifies decrease in baseflow to the rivers as a cumulative effect of the project [DEIS p. 3.4-57]. Why is this not quantified?

Response Because of the distance to the river from the site and the limited cumulative effects attributed to the site, a quantification of potential baseflow impacts would not be accurate or practical.

3.4.4 Mitigation Measures

Comment *008-004* The EIS documents the potential for ground water pollution impacts from petroleum and chemical spills and mining activity intercepting the ground water table. The best available control for these risks is to keep the mining above the ground water table and have an adequate buffer of dry soil to intercept and contain accidental spills before they reach the water table. Mitigation measures in the final EIS should include a specific requirement to complete additional ground water monitoring, establish a conservative

maximum groundwater level and prohibit mining within 20 feet of the ground water table.

Comment *008-005* The water and environmental health mitigating measures outlines above should be considered as additional mitigating measures to protect streams supported by perched aquifers from upper site in the FEIS.

Response The FEIS Water chapter recommends groundwater monitoring. The evaluation of likely chemical spills indicates that a 5-foot buffer zone should be adequate to protect groundwater quality.

Comment *131-001* Regional issues of significant danger to the aquifer is the most important issue to be addressed. I do not believe danger can be mitigated successfully and therefore the project should not be allowed or scaled back to the point of no risk.

Comment *133-001* Please give deeper consideration to the problem of what effect this mine would have on the water supply and to the aquifer. This makes absolutely no sense that runoff and effects could come some close to drinking water, not just for locals but for others who receive this water.

Comment *135-006* What about drinking water for other communities?

Comment *137-001* The EIS does not adequately address the concerns about the water, water use, groundwater.

Response Protection of groundwater quality and quantity would be addressed via proper storage and handling of hazardous materials, appropriate spill response, and remediation monitoring. These actions and plans are designed to protect local water quality and regional water quality supplies.

Comment *045-015* The East King County Regional Water Association (Seattle Times, April 1998) is planning "to construct a pipeline and system capable of producing up to 50 million gallons a day." They are also considering <an alternative to a long pipeline...pumping the water into the Snoqualmie River near North Bend... and then into the regional water-supply system." If either of these plans is used in the near future, the DEIS for the 25-year operation of the North Bend Project should definitely include up front contingency plans to protect the water for, and adjust their operations accordingly to, the public's use of the regional aquifer.

Comment *045-018* Page 3.4-9, last para: If the wellhead protection area for the [Sallal Well No. 3] extends onto the Lower Site," as well as a good portion of the large, potentially-regional aquifer, who would be responsible if these "public water supplies" were to be breached or contaminated? This is an uncomfortable subject, but it must be addressed up front to avoid County liability at a later date if a permit were to be granted. It should also be required that a large bond be posted as part of the Project permit that would cover any possible impacts over the 25-year life of the operation.

Response Monitoring plans would be included as part of the permitting process. Review and approval of monitoring plans, including analytes and monitoring frequency, are part of the permitting process. The FEIS recommends that a contingency water supply plan be developed for Sallal Well No. 3 in the event that the well is impacted by the gravel operation.

Comment *045-012*

Page 2-21, 2.2.6.2, Lower Site: States that "'Monitoring wells would be maintained to verify and record aquifer depths.'" Page 3.1-3, 1st para. States "However, significant quantities of water, indicative of an aquifer, were not encountered." And Page 3.4-3, 2"d para. refers to "the porous nature of the ground surface" and that "most stormwater.., infiltrates through underlying sands and gravels, rather than leaving the site." Page 3.4-8 admits that the "embankments [of the upland aquifers] are hydraulically linked to the valley aquifer." These inconsistent statements do not give proper consideration to the large underlying aquifer in the area of the Project, which the East King County Groundwater Advisory Committee (and the USGS study it commissioned in 1995) recognize as a significant source of water in both quality and quantity.

Response

The FEIS references the studies completed on behalf of the East King County Regional Water Association and the potential use of the deep aquifer for a regional water supply.

Comment *045-041*

Page 3.4.56, 3.4.3.2, 2nd para.: It is untrue to state that "Because the threat would be identified at the surface, any contamination would be identified before it could affect the Middle and/or South Forks of the Snoqualmie River." Although it is agreed that a gravel pit operation is not the same as an oil pipeline, there are many times and ways that chemicals can leak or leach into the ground (and groundwater) for a long time before being detected.

Response

Spills are addressed in the Environmental Health chapter in the FEIS. Significant spills would be visible and addressed as part of the Spill Prevention and Emergency Response Plan. A groundwater monitoring plan would be in place to detect potential impacts not readily apparent during construction and operational monitoring.

Comment *012-063*

The DEIS is fundamentally flawed in its failure to acknowledge decreased streamflow in the Snoqualmie River as a significant unavoidable adverse impact of the project [DEIS, p. 3.4-62].

Response

The only aspect of the project likely to have any impact on baseflows in the Snoqualmie River would be the well proposed for the Lower Site. It is not expected that a maximum removal of 100 gallons/minute at this well will have an adverse impact on fisheries resources. Potential project impacts to water resources are more completely reviewed in Chapter 6 (Water). In summary, the project will not cause impacts to fisheries resources in the Snoqualmie River due to decreased streamflow.

Comment *019-097*

31. Identify and describe how the offsite improvements required as mitigation measures related to State of Washington Department of Transportation roads, utilities, storm water conveyance systems, water retention, detention and bio-filtration systems (including but not limited to the Exit 34 intersection of Interstate 90) required for the development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Salmon Recovery Office of the State of Washington.

Response

No water discharge would occur from the Upper or Lower Sites. Appropriate BMPs and standards and guidelines would be used for road widening along the SE Grouse Ridge Road and near Exit 34 as referenced in the King County Surface Water Design Manual.

Comment *010-002*

However, given the magnitude of the proposed operation, SPU will continue to maintain a high level of interest in the project as it receives regulatory scrutiny and

goes into development. We strongly support King County in vigorously requiring and monitoring the implementation of the mitigation measures described in the DEIS that provide groundwater and surface water protection.

Response Comment acknowledged.

Comment *045-019* General comment: All of the monitoring of water is proposed to be done by the Applicant. That should not be acceptable. Even after the High Rock Aquifer breach at the Applicant's site near Monroe, DOE monitored the site for 2 years. The Final Report on the break (DOE, December 1995) stated that "it is [DOE's] view that the aquifer will continue to provide water to the wells .... Aquifer storage has stabilized and water levels in wells are exhibiting normal seasonal fluctuations at new equilibrium levels." After the monitoring was completed, DOE said that "well owners interested in picking up water-level monitoring in their own wells may contact [DOE] regarding where to purchase monitoring equipment and how to use it.'" Even DOE's monitoring was not sufficient, because today there are still two families who live within 1000 feet of the Applicant's site do not have water. The Applicant was at fault and the residents should not have had to pay for their own monitoring. In the Final Report, DOE stated that "if and when future sudden aquifer drainages occur from any cause, Ecology should provide independent monitoring and evaluation of the hydrologic impacts." The word independent should be emphasized here. Regarding the current North Bend proposal, it might be acceptable for the Applicant to do daily monitoring onsite, but independent monitoring should be required on- and offsite at least monthly (including complete review of Applicant's monitoring logs). And this should be done at the expense of the Applicant, not County residents.

Response Responsibility for monitoring would be addressed at the permitting stage of the project.

Comment *022D-007* Although the project proposal includes plans to monitor water quality in the seeps, there is no discussion of what will be done in the event of water quality problems. Further justification for the assessment that impacts will not occur, or additional mitigation measures that would be implemented if water quality problems are observed, are justified. The known changes to site hydrology and the extensive disturbance and exposure of fine sediments warrant additional investigation and associated water quality protection efforts at the DEIS stage.

Response Monitoring plans will be included as part of the permitting process. Review and approval of monitoring plans, including analytes and monitoring frequency, are part of the permitting process. Depending on the monitoring results, corrective actions such as changes in procedures, could be required.

Comment *071-007* Explanation of how tributaries of the Snoqualmie River as well as the main forks will be monitored for water quality.

Response The FEIS recommends establishing surface water discharge and quality monitoring points at springs along the Upper Site for periodic monitoring. There is an existing monitoring network operated by Ecology and the USGS on the forks of the Snoqualmie River. Monitoring of the river was not recommended in the EIS.

Comment *115-046* The rivers will be affected! Aquifer drawdowns by an area water district have been determined by the DOE to potentially have affected the flow patterns of the North Fork of Issaquah Creek, a salmon stream. Damage to groundwater will invariably affect

surface water. Everything is interconnected. Your Spill response plan is not a panacea, give us something more realistic to work with here.

Response A detailed spill prevention plan would be developed as part of the permitting process.

Comment *127-057* Not just that, but the drinking water. Here at River Bend we thought there was E-coli in the water. Are you telling me that mining 20 vertical feet above an aquifer is going to be safe, because there is going to be clean-up materials around or stack? I am just very upset right now because I have been thinking about this. It has been keeping me up at night.

Response Maintaining an adequate buffer zone thickness at the site, in addition to proper hazardous materials and storage and handling spill response and remediation, and monitoring should be adequate to protect groundwater quality.

Comment *110-005* Finally, a fair amount of attention was given to surface water controls in the DEIS but little detail was given to a water quality monitoring plan (3.4-60) that would be implemented after the mine was running (Upper Site). It mentions the monitoring of any hazardous substances that will be used on the upper site, but does not specifically identify what these substances are and how they would be detected/measured. The DEIS also stated that "water quality testing should not be necessary unless the impacts are visually evident (for example, the water appears turbid or a hydrocarbon sheen is evident". You seriously think that Cadman Inc. will have personnel meticulously monitoring stream water quality on a regular basis? An objective and impartial water quality technician should be contracted or a qualified technician from King County should be assigned to this function. While construction is going on and during the first year of operation water quality sampling should be undertaken on a regular basis, including all storm events. If data shows that state water quality standards are not being met then monitoring frequency should be maintained on a regular basis (including all storm events).

Comment *140-002* Water quality living conditions will be degraded.

Response The DEIS and FEIS recommend groundwater and surface water monitoring. The monitoring frequency and potential contaminants or other parameters to be included as part of proposed monitoring plan would be determined at the permitting stage of the project.

Comment *012-076* However, the DEIS itself (see pp. 3.4-3, 3.4-8, 3.4-9, 3.4-20, 3.4-22) and independent authorities (Massmann 2000 and Seeds and Massmann 1999) agree that the relationships among the groundwater sources are simply not known. Thus the DEIS suggests an impossible mitigation.

Response Additional monitoring well(s), groundwater levels and groundwater quality monitoring is recommended as mitigation to better define the groundwater system and to detect potential impacts.

Comment *020-047* A 20-foot buffer is proposed but "would not be maintained" (pgs. 3.4 - 40 & 41), but at the lower site a minimum 5-foot buffer would be maintained, but would be less than 5-feet in "isolated areas" (pg. 3.4 - 44) So, what is the buffer?

Response The buffer zone is greater than 20 feet wide across the majority of the site. However, there are areas in the eastern portion of the Lower Site where the buffer zone may be less than 10 feet thick on a seasonal basis. The proposed groundwater interception trench would maintain a minimum 5-foot buffer zone. Operations should cease and equipment should be removed in areas where the buffer zone cannot be maintained.

Comment *012-118* And in the following paragraph 6(c)(iii) it notes that mitigation measures must be spelled out: Clearly indicate those mitigation measures (not described in the previous section as part of the proposal or alternatives), if any, that could be implemented or might be required, as well as those, if any, that agencies or applicants are committed to implement

Response Mitigation requirements are part of the permitting process; however, the EIS proposes measures to mitigate impacts.

Comment *015-003* Groundwater monitoring program. An adequate groundwater monitoring network must be installed to provide timely warning in the event contaminants from the Cadman gravel operation should reach the aquifer and be transported toward the Sallal well and to determine any disruptions in groundwater flow or levels. The groundwater monitoring wells must be located to provide a means of early detection of any contamination leaving the Cadman site. Section 3.4-20 of the DEIS indicates that there is uncertainty regarding the relationship of the aquifers and the groundwater flow beneath the western portion of the Lower Site, where the Sallal well is located. Sallal requires adequate assurances that the groundwater system and flow directions (including seasonal variations) are adequately understood to allow for the design of an effective groundwater monitoring system. An adequate groundwater monitoring network will probably require more than a single monitoring well. Additional groundwater monitoring wells may have to be installed to define and/or monitor the seasonal groundwater flow variations.

Response The FEIS recommends additional monitoring well(s) as mitigation if a single well does not appear to be adequate.

Comment *015-004* In addition, the groundwater monitoring program must be conducted at a frequency that will ensure the periodic monitoring will provide an adequate time period for further evaluation of the contaminant migration, cessation of use of the Sallal well and provision of interim sources of water. Sallal has some concerns that groundwater monitoring at a frequency of once every six months may not be adequate. A preliminary approach may be a frequency of quarterly or every four months until additional hydrogeologic data is obtained. The frequency of groundwater monitoring must consider the proximity of the nearest source of potential contamination, the estimated groundwater velocity (following additional well installation) and the anticipated response time for corrective actions and provision of alternative water sources. Therefore, Sallal requests that a Groundwater Monitoring Plan be developed and provided to Sallal for it's concurrence prior to operations at the site.

Comment *019-041* The DEIS cites "Water quality testing should not be necessary unless the impacts to the water are visually evident (for example, the water appears turbid or a hydrocarbon sheen is evident)." [DEIS Vol. II, Appendix D, page 47, section 3.4.2.2]. The FEIS should require frequent water quality testing for water quality rather than using visual observations. Many known contaminants (some of which will be used on site) do not produce a sheen on water.

Comment *122-003*

One of the existing wells in the proposed Lower Site is Sallal Well No. 3 that assists in providing water to over 1300 Cooperative members. It is indicated that monitoring wells would be drilled to predetermine whether ongoing operations may affect this water supply. Yet, Section 3.4 p 20 indicates that there is uncertainty regarding both the relationship of the aquifers and the groundwater flow direction beneath the western portion of the Lower Site, where the Sallal well is located. This tells me that the existing knowledge provides an uncertain future for this critical water supply if this project should proceed. Given the stated uncertainty of the groundwater flow direction the information from a monitoring well may come after damage has already occurred. This proposed mitigation does provide certain mitigation of the possible effects of this operation on this well.

Response

The DEIS and FEIS describe site-specific information that should be considered in developing an appropriate monitoring plan. Review and approval of monitoring plans, including the number and location of monitoring points, analytes and monitoring frequency are part of the permitting process.

Comment *015-005*

Replacement of Sallal Well if impacted. The Sallal well adjacent to the proposed Lower Site is the source of potable water for homes and businesses in this portion of the Sallal service area. It is vital that this well be protected through the mechanisms discussed above and in the event, however unlikely, the well is contaminated or disrupted as a result of the North Bend Gravel Operation, the water source must be replaced as quickly as possible. Sallal request that this be emphatically understood by all parties through the EIS and subsequent permitting phases of the project. If the Sallal well is damaged, contaminated or disrupted as a result of the North Bend Gravel Operation, Cadman, Inc. must be required to replace the well with a well of similar size and production capability in a location suitable to the Sallal water system operations. All interim water supply costs, drilling/well replacement costs and costs associated with the connection of the new well to the Sallal water system must be the responsibility of Cadman, Inc.

Comment *115-036*

p. 3.4-9 Groundwater quality and use. The groundwater quality is very good, and we would like to keep it that way. Cadman seems to have a history of puncturing aquifers and damaging groundwater quality. Since the lower site encroaches upon the wellhead protection area for Sallal Well No. 3, it is likely that the groundwater quality for that well will be compromised over time. It is unacceptable to knowingly contaminate someone's water source, and unconscionable as well! How in the world do you plan to deal with this?

Response

The FEIS recommends the development of a contingency water supply plan that could be implemented if significant impacts related to the gravel operation are detected at Sallal Well No. 3.

Comment *019-020*

The FEIS should provide mitigation measures for a worst-case scenario if there is a breach or "encounter" of an aquifer.

Response

An aquifer breach is not expected at the Lower Site. In the event of an aquifer encounter, operations in the area would cease and equipment and hazardous materials would be removed from the area until the groundwater levels subside below the base of the excavation.

Comment *019-036* The DEIS did not and the FEIS should address the worst-case scenarios for both an increase and decrease in runoff. The FEIS should thoroughly address what mitigations measures will be implemented and who will monitor their adequacy.

Response No offsite runoff would occur at the site. There may be changes to runoff within the excavation. This runoff would be addressed in the design of the onsite stormwater management system and monitoring requirements.

Comment *019-042* d. The FEIS should address monitoring standards and frequency for arsenic in the groundwater as a direct or indirect result of the project. The DEIS cites "Although there is some limited uncertainty regarding the relationship of the aquifers and the groundwater flow direction beneath the western portion of the Lower Site, the monitoring well (See Addendum E) Cadman Inc. has proposed to install on the Lower Site would provide additional data in support of a more definitive interpretation of site conditions." [DEIS 3.4-20]. The FEIS should require that this be thoroughly analyzed and identified before allowing any action to occur.

Response Arsenic is not considered to be a significant metal in local groundwater and is not expected to be mobilized by site activities. Monitoring is recommended in the DEIS and would be required as part of the permitting process.

Comment *001-007* Ecology supports frequent monitoring of the aquifer prior to and throughout the life of the proposal for establishment of baseline conditions, identification of alterations in the hydrology, and to determine when changes in operations are warranted.

Response Monitoring of surface water and groundwater is recommended as mitigation.

Comment *019-047* The FEIS should provide the exact location for the Projects well-head.

Comment *020-115* The FEIS should provide the exact location for the Projects well-head.

Response The applicant's proposal does not include a specific well location. The FEIS recommends siting the water supply well to minimize or eliminate impacts to other wells.

Comment *019-068* Establish criteria and agreements from applicant, which requires the site to be inspected at least once every seven days and within 24 hours after any storm event greater than 0.5 inches of rain per 24 hour period, as provided in Section 9., D., d., (p14) NPDES and State Waste Discharge Permit for Storm water Discharges Manual, modified Effective August 24, 1998.
*This item was not addressed

Response Inspection criteria would be based upon the NPDES permit monitoring requirements.

Comment *019-069* Describe the enforcement and conditions which will be established, relating to applicants noncompliance of above item.
* This item was not addressed.

Response Ecology is the enforcing agency for the permit. The agency that issued the permit would be responsible for enforcement of non-compliance or exceedances as defined in the permit.

Comment *019-071* Describe the specific criteria, which will be established for the monitoring of the discharge water for water quality, during the entire operation of the Grouse Ridge Project. This DEIS did not address this for each Alternative or the differences between the Alternatives. Vol. II, pg. 47, Spring and Surface Water Monitoring, does not include passive freshwater pond or process water retention pond monitoring. The mitigations do not provide how often monitoring should be performed. "Water quality testing should not be necessary unless the impacts to the water are visually evident (for example, the water appears turbid or a hydrocarbon sheen is evident." is simply an unacceptable form of measurement.

Response Treatment and monitoring of discharge water and wastewater will be based on applicable permit regulations and standards. The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. These changes to the proposal are discussed in the FEIS.

Comment *012-067* Monitoring of flow rates in springs and streams does not resolve the question of what to do if those flow rates change [DEIS p. 3.4-60].

Response Monitoring of the flow rates in springs draining from perched aquifers would provide information as to changes in base flows and timing of discharge from the springs. If significant impacts are observed, then gravel operations could potentially be modified to reduce impacts. Changes in spring discharge from the perched aquifers have not been documented to have any effect on fisheries resources in stream watersheds that the springs are in.

Comment *045-045* Page 3.4-60, Monitoring, 3rd bullet: Water quality testing should be required, because impacts to groundwater (underground!) are not always visible.

Response The DEIS recommends groundwater quality monitoring.

Comment *012-059* [DEIS §3.4.4.2; p. 3.4-60], in the section "Spring and Surface Water Monitoring," proposes additional work be done "To provide baseline data and assess potential impacts to springs and surface water on the Upper Site." Two observations are pertinent here:

1. This statement contradicts [DEIS §3.4.1.1; p. 3.4-3]; so there are, in fact, impacted streams at the Upper Site
2. The proposed additional study should have been part of this DEIS effort.

Response Statement refers to monitoring in the event of potential impacts, not predicted impacts. Please see the Water chapter in the FEIS for an additional discussion of discharge information. Collection of the additional data as part of the EIS would not have assisted in identifying potential impacts.

Comment *012-068* The proposal to construct and screen the supply well for the project to prevent interference with other wells does nothing to address the problem of decrease flow in the Snoqualmie River caused by the project [DEIS p. 3.4-61].

Response The FEIS discussed in-stream flow requirements as established on the South and Middle Fork of the Snoqualmie. A decrease in recharge due to site activities could reduce groundwater contribution to the baseflow of the river. A lag time analysis is included to assess potential impact from groundwater pumping. FEIS will acknowledge and discuss existing condition and significance of impact.

3.4.5 Significant Unavoidable Adverse Impacts

Comment *012-124* The proposal includes the construction of a complex infrastructure of roads, drainage pipes, retaining ponds, conveyors, lighting systems, etc. Decommissioning the site will be equivalent to removing a small city from the location. A thorough reclamation plan needs to be provided accounting for the removal and disposal of all these structures and materials. Which of these are toxic or hazardous materials? The paved roadway debris should not be "dispersed in place" (as proposed on [DEIS, p 3.1-5]) nor used as fill for the decommissioned ponds. This is equivalent to making the site a land-fill. How will the ponds be drained and filled? What particulate matter will have settled on the bottom of the ponds? Is any of this potentially toxic or hazardous material? Does it require special permits to handle and transport? How will it be disposed of?

Comment *012-125* [DEIS §3.1.4.2; p. 3.1-8] states that "Fines from the wash water and fines settling basin" will be used as part of the "stockpiled topsoil" to be applied during reclamation. This is an application of potentially toxic and lethal compounds and may constitute illegal dumping. The proponents must devise an environmentally sound and legally acceptable means of disposing of these fines. This issue is elaborated on further in section 9.1 below.

Comment *012-126* The operation will have at least one effluent pond. Cadman proposes to dispose of the accumulated fines [DEIS Table 2-1, p. 2-19] as a slurry via onsite burial. These fines are classified as a solid waste, and must be disposed of, which involves totally different regulations than have been addressed in the DEIS. The fines probably qualify as NORM materials (naturally occurring radioactive waste) and there may be significant levels of heavy metals in these fines. The DEIS ignores this pond and the disposal activities that will take place on the site. Also, if the fines do contain significant levels of heavy metals or are NORM/NARM materials, they are regulated and require solid waste, or in some cases, hazardous waste storage and disposal permits.

Comment *012-127* [DEIS §3.1.4.2; p. 3.1-8] states that "Fines from the wash water and fines settling basin" will be used as part of the "stockpiled topsoil" to be applied during reclamation. This is an application of potentially toxic and lethal compounds and may constitute illegal dumping. The proponents must devise an environmentally sound and legally acceptable means of disposing of these fines. Nowhere is the exact composition of these fines described.

Response A draft reclamation plan has been prepared for project. However, prior to site reclamation, a final reclamation plan would be reviewed and approved by the Department of Natural Resources. The FEIS has been revised to indicate that the access road described in the DEIS would not be paved; therefore, asphalt disposal from this area would not be a concern. Toxic or hazardous materials are not expected to be present in the sediments that would collect in the ponds. The ponds closures and disposal of pond sediments would be performed in accordance with the applicable

guidelines of the King County Surface Water Design Manual and the final reclamation plan, and would require the approval of King County.

Comment *045-047*

Page 3.4-62, last para.: I strongly believe, due to the comments made above, that the statement that "the project is unlikely to have significant and unavoidable adverse impacts on water or environmental health" is not true, because the mitigation measures offered are not nearly enough to ensure avoidance of such impacts.

Response

Comment acknowledged. Additional impact analysis and mitigation is discussed in the FEIS.

Comment *127-066*

The ground water referred to -- well, let me -- they call it in the index "significant unavoidable adverse impacts." I don't accept that. That is just not going to work for me. So I don't know where you are going to come up with the money to fix those significant unavoidable adverse impacts, but I suggest you find out. Thank you.

Response

The DEIS concluded that significant unavoidable adverse impacts were unlikely if the proposed mitigation measures are applied.

3.5 PLANTS AND ANIMALS

Comment *019-580* The Plants and Animals section of the DEIS does not meet the SEPA requirements for a full disclosure of potentially significant impacts that would or could result from the project. It does not provide a full disclosure of how each project alternative could reduce or increase those impacts. Such an oversight could result in monumental accidents to the environment. Preservation appears to be of little importance.

Comment *020-826* The Plants and Animals section of the DEIS is not adequate as prepared. The document does not meet SEPA requirements for a full disclosure of probable significant adverse environmental impacts that would result from the project nor does it provide a full discussion of how project alternatives could reduce those impacts.

Comment *020-868* The DEIS did not address disturbances to water, habitat and soil and their direct or indirect impacts on the biota for the entire project area (not just the excavation site).

Comment *024A-063* We believe it is questionable to state that impacts to biotic resources are "temporary" and, thus, insignificant when such impacts will last 20 to 30 years. For most of us, this is a good part of a lifetime. It certainly is many lifetimes for most wildlife species.

Comment *045-048* Page 3.5-1: The Plants and Animals section of this DEIS is inadequate and contains conflicting statements, I am of the understanding that an additional (or different) study is being done on these two subjects. If that is the case, the public should have time to review and comment on it when available.

Comment *135-005* Besides school children and residents, consider the larger population of elk, deer and wildlife (fish). If you don't care about the welfare of people, at least consider animal and environmental issues!

Response Comments noted. The FEIS contains supplemental information from additional biological surveys for existing vegetation, wildlife habitat, wetlands and fish in the proposed project area.

Comment *020-831* The FEIS should address if DNR expertise was utilized to develop knowledge and technology to maintain or improve wildlife and fish habitat, and to improve soil stability and vegetation cover, and to integrate wildlife, and fish with other forest uses. [United States Department of Agriculture, Forest Service FS-20, page 24].

Response Washington Department of Natural Resources (WDNR) staff commented on the DEIS. WDNR was not involved in development of the DEIS for these issues, but their HCP was consulted and followed, and their surface mining regulations would be followed. Both Washington Department of Fish and Wildlife (WDFW) and U.S. Fish and Wildlife Service (USFWS) were consulted regarding listed threatened or endangered species in the project area. Biologists from WDFW were interviewed by phone regarding the resident elk population and potential impacts. See the FEIS for supplemental analysis of elk.

Comment *020-832* The FEIS should address if DNR expertise was utilized to help project managers understand the complex relationship among habitat quality, growth, and responses of vegetation to defoliation and mining, and those impacts on wildlife and fish populations. This knowledge would ensure diverse, well-distributed habitats, and protection and

improvement of forage and related sources. [United States Department of Agriculture, Forest Service FS-20, page 24-25].

Response WDNR staff commented on the DEIS. WDNR was not involved in development of the DEIS for these issues. Information from various agencies with expertise was used, including WDFW, USFWS and King County.

3.5.1 Existing Conditions

Comment *115-050* p. 3.5-9 I know this sounds mushy and sentimental, and not scientific, but all of the plants and animals listed in this chapter have a home here. That probably means nothing in the face of "progress," but it means something to me.

Response Comment noted.

Comment *020-830* This DEIS only facilitates the following conclusion: there are no maps or data for evaluating or estimating, and one must assume the presentations put forth are of inferior quality and based on inferences, speculations and/or guesses. Therefore, the DEIS does not meet the criteria required by law to provide an organization or public entity the ability to review the known or projected environmental impacts of the proposed project and its alternatives.

Response To adequately respond to comments, supplemental wildlife habitat surveys were conducted after publication of the DEIS. A map of existing vegetation cover-types was developed to assess wildlife habitat in the project area. This is included in the Plants and Animals chapter of the FEIS with a table showing the approximate area of each cover type. A wetland delineation was also performed for the FEIS. A wetland report and assessment of impacts is provided in the Plants and Animals Technical Report. Additional stream surveys for fish habitat assessment were also conducted. The analysis of impacts in the FEIS has been supplemented with the survey results.

Comment *019-581* To illustrate this, the DEIS states that there are not detailed groundwater contour maps yet there are numerous assumptions, regarding groundwater levels, aquifer locations, hydraulic gradient, and potential for flow between aquifers for the Lower and Upper sites.

Comment *019-611* The DEIS should provide detailed groundwater contour maps, information and water level data for the project site and adjacent lands that are or may be tributary sources for the Middle or South Forks of the Snoqualmie River.

Response Detailed design studies are not required for an EIS. The EIS provides a basis upon which the responsible agency and officials can make the balancing judgment mandated by SEPA, because it provides information on the environmental costs and impacts" (WAC 197-11-448).

3.5.1.1 Fish and Wildlife Habitat

Comment *019-588* The DEIS failed to and the FEIS should address potential habitat or food sources for the Northern Spotted Owl located within the project area or food source. "The DNR implemented a Habitat Conservation Plan (HCP) for its commercial forest lands within

the range of the Northern Spotted Owl. In the DNR's HCP, their lands to the east of the project area are designated as habitat for the northern spotted owl. SE Grouse Ridge Road passes through these between the project area and Exit 38 on the Snoqualmie Pass Highway, 1-90." [DEIS vol. 1 section #3.5, Plants & Animals, subsection 3.5.14 page 3.5-11].

Comment *020-874*

The DEIS cites, "The DNR implemented a Habitat Conservation Plan (HCP) for its commercial forest lands within the range of the Northern Spotted Owl. In the DNR's HCP, their lands to the east of the project area are designated as habitat for the northern spotted owl. SE Grouse Ridge Road passes through these between the project area and Exit 38 on the Snoqualmie Pass Highway, 1-90." [DEIS, volume I section #3.5, Plants & Animals, subsection 3.5.14 page 3.5-11]. The DEIS fails to identify similar habitat located within the project area as a suitable habitat or food source.

Response

WDFW Priority Habitat and Species maps (WDFW-PHS 2000) do not show any spotted owl territories on Grouse Ridge. The closest spotted owl territory is located to the east-northeast on the north side of Bandarra Ridge. Spotted Owl habitat as defined by Washington Forest Practices Rules (WAC 222-16) is divided into nesting-roosting-foraging (NRF) habitat, and dispersal habitat. NRF habitat is found in old-growth habitat and sub-mature habitat.

Old-Growth Habitat (WAC 222-16-085). Old-growth habitat means habitat that provides for all of the characteristics needed by northern spotted owls for nesting, roosting, foraging, and dispersal, described as stands with:

(i) a canopy closure of 60% or more and a layered, multi-species canopy where 50 % or more of the canopy closure is provided by large old growth trees (typically, there should be at least 75 trees per acre greater than 20 inches diameter base height (dBH), or at least 35 trees 30 inches dBH or larger per acre); and
(ii) three or more snags of trees 20 inches dBH or larger and 16 feet or more in height per acre with various deformities such as large cavities, broken tops, dwarf mistletoe infections, and other indications of decadence; and
(iii) more than two fallen trees 20 inches dBH or greater per acre and other woody debris on the ground.

Submature & Young Forest Marginal Habitat. (WAC 222-16-085 summarized) Submature and young forest marginal habitat provide all of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal. Young forest marginal habitat provides some of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal. In western Washington these stands are characterized by conifer-dominated stands with greater than 70 percent canopy closure, 115 to 280 trees per acre greater than 4 inches dBH with dominants/codominants greater than 85 feet high or dominants/codominants greater than 85 feet high with two or more layers, and Snag/Cavity trees more than 3 per acre greater than or equal to 20 inches dBH and 16 feet high).

Dispersal Habitat (WAC 222-26-085). Dispersal habitat means stands that provide the characteristics needed by northern spotted owls for dispersal. Such habitat provides protection from the weather and predation, roosting opportunities, and clear space below the forest canopy for flying. Timber stands that provide for spotted owl dispersal have the following characteristics:

(a) for western Washington, timber stands 5 acres in size or larger with:
  (i) 70% or more canopy closure
  (ii) 70% or more of the stand in coniferous species greater than 6 inches dBH; and

(iii) a minimum of 130 trees per acre with dBH of at least 10 inches or a basal area of 100 square feet of 10 inch dBH or larger trees;
(iv) a total tree density of 300 trees per acre or less, and
(v) a minimum of 20 feet between the top of the understory vegetation and the bottom of the live canopy, with the lower boles relatively clear of dead limbs.

The existing vegetation cover type map in the Plants and Animals chapter of the FEIS prepared for the project area shows that most of the project area and the surrounding commercial forests are early successional stages ranging from recently clearcut forests, through seedling and sapling stages, to pole stage forests. There is one small patch of mature forest in the buffer area south of the mine area. This patch of mature forest is part of a discontinuous and isolated string of mature forest along the north bank of the South Fork of the Snoqualmie River. The area would not meet the requirements for a spotted owl territory because it is of insufficient size.

Comment *020-053* Coastal cutthroat, rainbow & brook trout are found on the north side of plateau.

Response None of the fish-bearing streams would be impacted by the project. There is a possibility that mining may penetrate perched aquifers that supply water to springs in the headwaters of streams on the north side of Grouse Ridge. Water from springs on the south side of Grouse Ridge and spring S-10 on the north side of Grouse Ridge flows through surface channels for 50 to 100 feet before flowing subsurface with no surface connection to the lower reaches of the streams where fish populations are present. A cluster of springs (springs S-1, S-2, S-3 and S-4) draining the north side of Grouse Ridge has an intermittent surface connection to the lower reaches of the stream during periods of stormwater runoff. A cluster of springs (springs S-6 and S-7) farther to the east has a similar intermittent surface connection to the lower reaches of the stream. The headwater channels and riparian areas fed by these springs either have no surface connection to lower stream reaches or are connected by intermittent channels which only carry water during periods of stormwater runoff. No downstream drift of food organisms (macroinvertebrates) or transport of woody debris occurs from these isolated stream channels to fish-bearing stream reaches at lower elevations. Headwater springs on the north side of Grouse Ridge are estimated to contribute approximately 10 percent of the total flow in the stream basin draining the north side of Grouse Ridge. Monitoring of the flow rates for the past two years of these headwater springs and intermittent measurements of the lower, fish-bearing reaches of streams flowing north from Grouse Ridge has shown no direct correlation between flow rates from headwater springs and stream flows in the lower fish-bearing reaches. While there is a slight potential for the extreme headwater portions of streams draining north from Grouse Ridge being impacted if mining operations alter the direction of flow from perched aquifers, fish-bearing portions of the streams will not be impacted by the proposed project. Impacts to aquatic riparian resources are discussed in the FEIS.

Comment *055-008* The US Forest Service conducts Hankin-Reeves Field Stream Surveys to catalog and assess water bearing streams that both contain fish and are tributary in nature to fish bearing streams. These surveys serve to catalog streams and riparian areas for plants and animals (especially fish). These surveys are typically done prior to timber harvests and mining. I am requesting that a full survey be conducted from personnel on the ground, actually walking the streams and collecting data. Additionally, I am requesting that these exact surveys be conducted each year the mine is in operation. Again, this would serve as a baseline to pre-mine conditions for assessment (not speculation) on actual mine damage to these sensitive areas.

Response Potential impacts to streams by the project would be limited to a reduction of stream flows due to potential loss of perched aquifers and construction/operation related impacts to the tributaries crossed by SE Grouse Ridge Road. Reduction of stream flows, if any, apply to the small tributary streams flowing from the north and south sides of Grouse Ridge. Indirect impacts to water quality (due to road widening and increased truck traffic) would be mitigated through implementation of effective water quality treatment. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing. All of these streams were surveyed for fish presence along their entire length by a senior fisheries biologist. A Hankin-Reeves survey was not used. A Hankin-Reeves survey would be an inappropriate method of monitoring proposed project impacts, which are best monitored by flow gauges at springs fed by perched aquifers, and turbidity/sediment measurements taken in the tributary streams below the Fire Training Center Road (SE Grouse Ridge Road). All of these procedures are specified in the FEIS. The springs have been monitored for over a year and monitoring will continue. Turbidity/sediment measurements will be taken if and when construction occurs.

Comment *055-009* Streams were surveyed in May and June of 1999 only. Is this scientific? Shouldn't (at a minimum) these streams be assessed during the different time periods or is this document stating these streams have steady flow throughout the year? Additional data points would be required to better understand these stream definitions.

Response These streams were surveyed for fisheries and aquatic resources on those dates, in addition to a survey conducted in the spring of 2001. During the spring 2001 survey, fish were found in two of the tributaries flowing under SE Grouse Ridge Road that were previously thought not to contain fish. Flow data and channel characteristics were noted to make an approximate determination of stream classification. These streams are for the most part unmapped or poorly mapped in existing GIS or USGS coverages and do not have official DNR classification. Generally, the streams of this size, when they are classified, are classified by using available watershed area and climate data (with a limited amount of ground truthing). Repeated surveys (ground truthing) over time increases the likelihood that correct stream types are assigned to streams in the project vicinity. Hydrologic data of water sources potentially impacted by the proposed project, such as springs fed by perched aquifers, has been continuously monitored since late 1999. Of course, additional data points will yield a better understanding of stream definitions. However, even a year or two of field data gathered during an unusually wet or dry period will yield an inaccurate assessment of stream classification. This is why historic climate data and watershed size are also used in making these determinations. For additional information on water resource related issues, please review the FEIS Water Technical report.

Comment *020-182* Identify and describe how the intended on-site development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Salmon Recovery Office of the State of Washington.

*The DEIS did not address this item for each Alternative

Response There are no anadromous salmonids above Snoqualmie Falls. The proposed project will have no impact on water quality or critical salmon habitat below Snoqualmie Falls.

***Comment** 019-596*

The DEIS did not and the FEIS should identify the species and provide potential adverse impacts for the mixed forest area which provides habitat for a number of terrestrial vertebrate species. "Mixed forest is attractive to wintering wildlife that require adjacent coniferous forest for cover." [DEIS vol. II, app. E, sec. 2.0, subsections 2.1.1, 2.1.2, 2.1.3, 2.1.4, pages 5 & 6].

***Comment** 019-597*

The DEIS did not and the FEIS should identify the species occupying or that could occupy the mixed forest, red alder forest, and forest clear-cut areas as noted in DEIS vol. II, subsections 2.1.1,2.1.2, 2.1.3 and 2.1.4, pages 5 & 6).

***Comment** 020-848*

The FEIS should identify the species occupying or that could occupy the mixed forest, red alder forest, and forest clear-cut areas as noted in DEIS vol. II, subsections 2.1.1, 2.1.2, 2.1.3 and 2.1.4, pages 5 & 6).

***Comment** 020-867*

Under Affected Environment the DEIS states "... provides habitat for a number of terrestrial vertebrate species. Mixed forest is attractive to wintering wildlife that require adjacent coniferous forest for cover." [DEIS vol. II, app. E, see. 2.0, subsections 2.1.1, 2.1.2, 2.1.3, 2.1.4, pages 5 & 6]. The species are not identified and potential impacts are not addressed (i.e. noise, vibration, adjacent habitat

***Comment** 055-007*

The time period for analysis is not sufficient. Only March through Jun 99 and April 00 were studied. This period does not cover the mating/reproductive period of many large game animals. DEIS methodology does not offer baseline for determining reproduction habitat or activity for Elk, Deer, Bear, etc.

Response

Descriptions of these forest types and potentially affected specifies are discussed in both the Plants and Animals chapter and Technical Report. King County (1987) provides a species habitat matrix that identifies the species that are likely to be found in various vegetation cover-types in King County. This matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats throughout the county. The King County matrix currently serves as a standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. The matrix is attached to the Plants and Animals Technical Report. It has been edited to include only the cover-types found in or proximate to the project area. The wildlife species present within the project area can be represented by identifying what type of vegetation cover types exist (e.g. seedling shrub, sapling, pole, etc.) and in how large an area.

Two additional field visits were conducted after the publication of the DEIS to conduct additional wildlife habitat and vegetation surveys. Wildlife species encountered during those visits are documented in the table as well as wildlife species reported by local residents in the comment letters and public meetings. The project area is generally highly disturbed, early second growth, commercial forest composed primarily of Douglas fir, but with some western hemlock, western red cedar, red alder, big-leaf maple, and other species. Over most of the area, there is infrequent down woody debris other than tree stumps, few to no snags, and no large stature mature trees. The exception to this general observation is the area indicated as mature forest in the map of existing vegetation provided in the FEIS. This area contains down woody debris and snags, has an open canopy and resembles old-growth forest in its composition. This patch of mature forest is located outside the project boundary in the buffer and will therefore be retained as high value wildlife habitat. Over most of the Project Area, the absence of woody debris, snags, and old-growth like trees precludes the presence of most cavity nesting or cavity dependent bird species. While grasses, forbs, and shrubs are present in the seedling/sapling areas, the remainder of the pole and early mature forests are in the stem exclusion stage of forest development and are almost devoid of

understory vegetation. Photographs of the different vegetation cover types can be found in the Plants and Animals Technical Report of the FEIS. A map of vegetation cover types is in the Plants and Animals chapter. The map shows that the majority of existing vegetation that would be affected is seedling shrub.

Comment *127-023*

In addition to a Hankin-Reeves study, I am proposing a parasite ecology study on the water. To help you folks out, parasites are very important for fish. They eat that as food, much as we eat Burger King. Part of this, the Hankin-Reeves study, is to assess the riparian zone which contributes to the quality of the water, which essentially contributes to the fish and the rest of the wildlife species that need the water for survival.

In addition to an initial assessment of the current state, there needs to be an ongoing assessment, and I am proposing a one-year Hankin-Reeves study on the two-cycle rotation. The first rotation should happen during the spawning season, and the second one should happen during the low water point. This should happen again initially and ongoing at each year, so for the next 25 years to include the initial one, we have 52 studies that need to be conducted.

The reason I am proposing an ongoing study is initially to catalog the existing state and health of the stream and the water zones and on an ongoing basis to continue to monitor that.

Response

Fish parasites are organisms resident to the body organs and guts of fish. Parasites lodged in the muscles, skin and other body organs of this fish are not mobile and certainly not available as food. Other life stages of parasites are resident in other hosts and not available as food for the fish. Parasites resident in fish guts are there because they have the ability of avoiding digestion. Parasite ecology has no bearing on project related impacts to fisheries resources.

Comment *012-135*

The DEIS makes no mention at all of Pileated woodpeckers. Hart Crowser 1999 states:

The snags in the area would provide, and likely do provide [emphasis added], excellent habitat for cavity-nesting wildlife such as Pileated woodpeckers, a candidate species for "threatened" status by the state. Snags represent a priority habitat, according to the Washington Department of Fish and Wildlife (WDFW). On the basis of the snag density observed in the area (>10 per acre), it is highly likely that the habitat in this area would be considered "priority" habitat, with a high vulnerability to habitat alteration. Mitigation for loss to this type of priority habitat is complicated and difficult, because such snags take decades, if not centuries to develop naturally. Many biologists consider that the loss of such habitat cannot be mitigated [emphasis added] (p. 24).

It is curious that the DEIS authors fail to cite this information since the report was prepared explicitly for the project Proponents, Cadman and Weyerhaeuser.

Local residents frequently see Pileated woodpeckers in the area. The DEIS needs to recognize they are present in the region, indicate impacts, and propose mitigations.

Comment *019-587*

The DEIS does not address and the FEIS should identify potential habitat for the Pileated Wood Pecker and the Northern Spotted Owl for the entire project area. The Hart Crowser report (page 24) cites "the snags in the area would provide, and likely do provide, excellent habitat for cavity-nesting wildlife such as Pileated Woodpeckers, a candidate species for "threatened" status by the state. Snags represent a priority habitat,

with a high vulnerability to habitat alteration. Mitigation for loss to this type of priority habitat is complicated and difficult, because such snags take decades, if not centuries to develop naturally. Many biologist consider that the loss of such habitat cannot be mitigated." The DEIS did not and the FEIS should conduct field observations for each alternative and provide comparisons for the aforementioned.

***Comment** 020-875*

The Hart Crowser report cites, "the snags in the area would provide, and likely do provide, excellent habitat for cavity-nesting wildlife such as Pileated Woodpeckers, a candidate species for "threatened" status by the state. Snags represent a priority habitat, with a high vulnerability to habitat alteration. Mitigation for loss to this type of priority habitat is complicated and difficult, because such snags take decades, if not centuries to develop naturally. Many biologists consider that the loss of such habitat cannot be mitigated." [Hart Crowser page 24]. The DEIS does not address the potential habitats for the entire project area.

***Comment** 074-005*

The question of habitat for the pileated woodpecker (which as mentioned above is found in the area) was not addressed in the DEIS in spite of a report prepared for Cadman by Hart Crowser, an environmental consulting firm, which states, "The snags in the area would provide and likely do provide, excellent habitat for cavity-nesting wildlife such as Pileated woodpeckers, a candidate species for "threatened" status by the state. Snags represent a priority habitat, according to the Washington Department of Fish and Wildlife. On the (~I0 per acre, it is highly likely that the habitat in this area would be considered "priority" habitat, with a high vulnerability to habitat alteration. Mitigation for loss to this type of priority habitat is complicated and difficult, because such snags take decades, if not centuries to develop naturally. Many biologists consider that the loss of such habitat cannot be mitigated."

Why was this concern not addressed in the DEIS?

***Comment** 112-002*

Reference: 3.5.1.3, page 3.5-9, Paragraph 5: Not included in this list of birds is the Pileated Woodpecker (Dryocopus pileatus). I believe this bird is a threatened species and I have seen these bird, which is the largest of the American Woodpecker, frequently in the project area. Please include this bird in the affected list and assess what impact mining would have on this species.

Response

During additional field investigations, biologists surveyed existing vegetation specifically for pileated woodpecker habitat value. Pileated woodpeckers (*Dryocopus pileatus*) are the largest woodpecker in the Pacific Northwest. They will use coniferous, deciduous, and mixed forests and will forage across a wide variety of forest types and size classes. They are, however, restricted to areas containing mature forests for nesting because pileated woodpeckers require large trees (>20 inches dBH) in which to excavate nesting cavities. The critical components of pileated woodpecker habitat are large snags, large trees, and diseased trees, and a high snag density (Bull 1975, Schroeder, 1982). Pileated woodpeckers depend heavily upon carpenter ants and other wood-boring insects for food and choose foraging habitats that contain high densities of logs and snags, dense canopies, and diseased and decadent trees. Most nesting sites were in stands older than 70 years (Roderick et al., 1991). Five studies in Oregon and Washington report similar nest tree characteristics: mean dBH was greater than 27 inches and mean height was greater than 87 feet. Most nest cavities west of the Cascade Crest were in Douglas fir and grand fir. Nest cavities were excavated into hard snags with bark and broken tops.

An examination of the cover types in the project area in December 2000, found no stands with suitable characteristics for pileated woodpecker foraging or nesting except for one small patch of mature forest on the steep south-facing bluff. The preponderance of the project area is unsuitable pileated woodpecker habitat due to the absence of large

trees and snags for nesting and the absence of large snags, stumps, and down woody debris for foraging. Pileated woodpeckers would be present in the mature stands between the project area and the South Fork of the Snoqualmie River and may wander into the project area. Over time and with the absence of logging in the project area, available habitat for Pileated woodpeckers will increase with the development of snags and down woody debris. The patch of mature forest noted above is located within the proposed project buffer and outside the project boundary and therefore will not be impacted. No spotted owl territories are shown on Grouse Ridge on the WDFW Priority Habitat and Species maps. Additional spotted owl discussion is in Section 3.5.1.4 of this document.

Comment *127-019* Secondly, the eagle habitat is still protected. As of this month the eagle habitat is still on -- the eagle is still on the endangered species list, as well as the Spotted Owl, and both of those habitats would be in that area.

Response Updated information from the U.S. Fish and Wildlife Service (USFWS, 2000) was obtained on listed species that may be present in the project vicinity (see Attachment A of the Plants and Animals Technical Report). Three species are listed as Threatened by the USFWS (bull trout *[Salvelinus confluentus]*; marbled murrelet *[Brachyramphus marmoratus]*; northern spotted owl *[Strix occidentalis caurina]*). No species are designated as Proposed or Candidate. Additional research and habitat analysis was conducted for these species in preparation of the FEIS. Identification of potential habitat for threatened species using aerial photographs and field investigation was conducted. Field investigations conducted in December 2000 and February 2001 surveyed existing vegetation and mapped cover types in the project area. No listed species were documented during these visits. The Plants and Animals chapter of the FEIS and Technical Report have been updated to address cumulative impacts to all threatened, endangered, and species of concern.

3.5.1.2 Wetlands

Comment *019-583* Additionally The DEIS acknowledges the existence of wetlands at both the Upper and Lower sites yet states “Since a wetland delineation was not performed the boundaries and character descriptions of the wetlands identified must be considered approximate”. The DEIS also cites “Since the total size of each wetland was not calculated definitively, wetlands indicated as being smaller then 2,500 ft^2 in size may actually be greater than 2,500 ft^2 in size and, therefore, be regulated”. [DEIS vol. II, app. E, sec. 1.3.2 Wetlands, paragraph. 1, pg. 5]. Why wasn't this done?

Comment *019-693* The DEIS failed to conduct a Wetland Delineation for identified wetlands.

Comment *020-050* A “reconnaissance-level” wetland investigation was performed (as opposed to a delineation) (pg. 3.5 - 7).

Comment *020-051* The lower site wetland was classified as a Class II without a delineation (pg. 3.5 - 7).

Comment *020-828* The DEIS acknowledges the existence of wetlands at both the Upper and Lower sites yet states “Since a wetland delineation was not performed the boundaries and character descriptions of the wetlands identified must be considered approximate.” The DEIS also states, “ Since the total size of each wetland was not calculated definitively, wetlands indicated as being smaller then 2,500 ft2 in size may actually be greater than 2,500R2 in size and, therefore, be regulated”. [DEIS vol. II, app. E, sec. 1.3. 2 Wetlands, paragraph. 1, pg. 5].

Comment *020-844* The FEIS should perform wetland delineations and definitive size calculations for all wetlands on the proposed site(s) rather than "'reconnaissance level" wetland investigations [DEIS pg. 3.5 - 7].

Comment *020-845* The FEIS should explain in detail how the wetland identified on the lower site was classified as a Class II without a delineation. [DEIS, pg. 3.5 - 7]

Comment *026-022* Quantification of the total acreage of wetland along the Fire Training Academy Road should be estimated. Although delineations have not been conducted, an estimate of individual and total wetland acreage can be derived from the estimates provided in feet. A comparison of the total length of road and total acreage of wetlands along the road should then be made. The DEIS lacks an assessment of quantified wetland impacts. Of the 2,000 feet of wetland, riparian, and in-stream habitat that would be impacted, how much is classified as wetland habitat? How many miles of road widening would occur (approximately 1.8?).

Comment *115-049* p. 3.5-7 Why was a wetland delineation not performed? With so many water resources in question, perhaps it would be a good idea to perform one.

Response A wetland delineation was performed by URS biologists on October 19-20, 2001. The delineation followed a reconnaissance-level investigation conducted October 10, 1999, and April 20, 2000, by URS/Dames & Moore as reported in the DEIS. Results of the delineation are reported in the Plants and Animals Technical Report – North Bend Gravel Operation Wetland Delineation Report. As described in this report, the wetland found on the Lower Site (Wetland A) and the wetland found along the SE Grouse Ridge Road (Wetland C) are both Class 2 wetlands according to the criteria described in King County Code 21A.06.1415. Wetland C is adjacent to the shoulder of SE Grouse Ridge Road for approximately 50 feet. Direct impacts to both wetlands and their buffers could be avoided.

Comment *001-020* Once they are performed, wetland delineations will have to be verified by the Army Corps of Engineers for accuracy. If you have any questions, please call Ms. Sarah Suggs with our Wetlands Section at (425) 649-7124.

Comment *045-049* Page 3.5-1: Any wetlands that might be regulated or jurisdictional should be identified, classified, and delineated before any permitting or operation is allowed.

Response A wetland delineation was performed by URS biologists on October 19-20, 2000. Nick Gillen, reviewer for King County Department of Development and Environmental Services, reviewed the wetland delineation in the field with a URS biologist on December 19, 2000. Mr. Gillen verbally approved of the wetland boundaries as delineated by URS. Direct impacts to both wetlands and their buffers could be avoided. Therefore, King County will not likely permit the filling of wetlands. Confirmation by the Corps would be requested if the chosen development alternative requires a permit from the Corps.

Comment *026-023* The DEIS fails to disclose and analyze Sensitive Area regulations applicable to wetlands along SE Grouse Ridge Road. First, the DEIS statement at page 3.5-7 that "[a]ccording to the King County Code (KCC), jurisdictional wetlands are greater than 2,500 ft^2 in size." The KCC definition of wetlands at KCC 21A.06.1415 specifies that the jurisdictional exclusion of Class 3 wetlands smaller than 2,500 ft^2 only applies to wetlands "located within an area designated 'urban' in the King County Comprehensive Plan." KCC 21A.06.1415.C.2.a. The wetlands along SE Grouse Ridge Road are outside the designated "urban" area, and are jurisdictional wetlands regardless of their size.

Response The DEIS incorrectly stated that all jurisdictional wetlands in King County are greater than 2,500 square feet. This has been corrected in the FEIS. Wetlands A and C are considered Class 2 wetlands according to the criteria described in KCC 21A.06.1415, which is reiterated in the Methods section of the Plants and Animals Technical Report. Because these wetlands do not provide habitat for endangered, threatened, sensitive, or priority species, do not possess any plant associations of infrequent occurrence, do not possess any permanent open water, and are each less than 10 acres in size, neither are considered Class 1 wetlands. Because these wetlands are each less than 1 acre in size, possess 3 vegetation classes, and contain forested wetlands, each is considered a Class 2 wetland.

Comment *026-024* The DEIS fails to disclose and analyze how regulatory requirements at KCC 21A.24.330 Wetlands; permitted alterations applies to wetlands along SE Grouse Ridge Road. Subsection N. of this regulation requires that wetland road crossings may only be allowed if "King County determines that no alternative access is practical." The DEIS discloses that at the very least the reconstruction of SE Grouse Ridge Road will require crossing of either wetland C-1 or C-2 as wetlands are located on opposite sides of the road at the same location.

Response In contrast to the DEIS, the delineation report reports that Wetland C exists only north of SE Grouse Ridge Road. Wetland C is no longer split between Wetland C-1 and Wetland C-2. Thus, road widening may be accomplished without direct impacts to Wetland C. Road widening near Wetland C is discussed in Section 4.0 (Impacts and Mitigation) of the delineation report.

Comment *012-060* Local residents and hikers are aware of many localized wetlands areas at all locales and elevations in the region. To determine the size, location, and quality of wetlands on and adjacent to the site, a comprehensive wetland assessment needs to be conducted by an experienced wetland biologist.

Response The sites that would be directly impacted by the proposed operation were surveyed for wetlands by URS wetland biologists. The survey occurred throughout all areas of the sites including along their boundaries and in immediately adjacent areas. As indicated in the delineation report, the wetland and ephemeral stream found in the Lower Site are near (and extend across) the site boundaries.

Comment *012-061* [DEIS §3.5.1.2; p. 3.5-7] describes a number of potentially extensive wetlands, which contradicts conclusions in the above-cited section. Likewise, [DEIS §3.5.5.4; p. 3.5-22] says "it may be possible to avoid impacts on wetlands .... "also contradicting the statement in [DEIS §3.4.1.1; p. 3.4-3]. The DEIS needs to document whether or not there are impacted wetlands in the project area and, if them are, describe impacts and mitigations.

Response The Upper Site can be accessed by SE Grouse Ridge Road, a 2.5-mile paved road that extends from the gate south of the South Fork of the Snoqualmie River to the Fire Service Training Center. No wetlands were found within the Upper Site. Additionally, only one of the five areas identified as wetlands along the SE Grouse Ridge Road in the reconnaissance report of the DEIS was determined to be a wetland by the delineation investigation. The small streams and springs discussed in Section 3.4.1.1 of the DEIS are located on "the northern and southern flanks of the ridge" and are not within or adjacent to the Upper Site or the SE Grouse Ridge Road.

3.5.1.3 Potentially Affected Fish and Wildlife Species

Comment *019-589* The DEIS did not provide current data on Cougar sightings.

Response The Washington Department of Fish and Wildlife has observed a steady increase in the cougar population in the region. This is due to a reduction of harvest or hunting and the increase of urban development into forest lands that provide suitable cougar habitat (Spencer, pers. comm. 2001). The Washington State referendum that discontinued the use of dogs for hunting cougars has resulted in a population boom. An increase in the number of cougar sightings is a result of the increased cougar population. The population has been concentrated into a smaller area due to urban development into previously forested lands. The proposed gravel operation will not result in any additional impacts to cougar in the region than those that currently exist. Land use has been commercial forest harvest that involves a continual alteration of the landscape and habitats over time. The gravel mine land use will have a similar pattern of habitat alteration and regeneration due to the phased sequence of mining operations.

Comment *019-591* The DEIS did not provide current data on Bear sightings.

Response Comment acknowledged. Similar to the impacts on cougar, the proposed gravel operation will not result in any additional impacts to bear in the region than those that currently exist. Land use has been commercial forest harvest that involves a continual rotation of the landscape and habitats over time. Bear habitat has been affected by this pattern of land use and will not incur any additional losses in value or concentrations. The gravel mine land use will have a similar pattern of habitat alteration and regeneration due to the phased sequence of mining operations.

Comment *012-133* [DEIS §3.5.1.3; p. 3.5-8 and 9] In paragraphs 2 and 3 there is an assumption made that the elk seen commonly in the lower site vicinity reside in the Cedar River Watershed and use the project area only for wintering. On what basis is this assumption made? The size of the herd is stated as 300? On what basis is this assumption made?

Virtually all local residents will attest that the herd is a resident and not a migratory one.

Comment *020-052* Wintering elk habitat at the lower site.

Comment *020-855* The FEIS should identify the current population of the elk herd, as determined by Washington State Fish and Wildlife. Are there more current studies of the resident elk population and their demographics?

Comment *020-856* The FEIS should identify the range of the herd/herds, including winter and summer.

Comment *020-858* Calf in Wood River. (Refer to hardcopy for photograph, pg 138)

Comment *037-004* Loss of habitat for elk herds and other wildlife. In reference to the DEIS page 3.5-8 and 3.5-9, there is an assumption made that elk use the project area mainly for wintering, while being only occasionally seen by some residents in the summertime. If a study were to be conducted to determine the current habits of these elk, we believe you would find they are a year round resident herd. If "present populations are unknown", and no studies have been conducted to assess the habits, range, and numbers of elk in the area, how can any statements be made regarding how they will be impacted by this operation? How would the conveyor belt affect them? No doubt it will interfere with the route that the herd uses going to and from Grouse Ridge for grazing. Will they be able to get

around the belt somehow (over/under)? Will they be deterred by the noise? Since no plans have been submitted for this conveyor belt, how can potential impacts to wildlife be assessed? In this case, "temporary loss of wildlife habitat" could prove to be permanent for the animals at stake.

***Comment** 044-002*

I do frequently hike in the exact area when the mines are proposed. The areas abounds with wildlife and it is remarkably accessible to the public. Elk have their calves in both the lower basin and on top of the ridge and in the, wintertime, as the snow forces them to lower elevations, they congregate there. A grassy section exactly where the conveyor belt is planned has been dubbed Elk City by my neighbors because you can view them daily there-all year long. When we consume these lowlands, where in the valley will they go? This year I saw a wild turkey there; last year a black bear. And I am sure there is more to see.

***Comment** 048-001*

The first thing I would like to address is the impact to the Elk Herd that is supposed to migrate out of the Cedar River Watershed. I would like the detailed information on how the study was performed. Did radio collar or other scientific means track the elk? The heard of elk that is referred to, is the elk herd that resides locally, more commonly known as the Edgewick Heard by the locals. Last week I came home one night and saw a dozen or so elk on my lawn not to mention the 4 calves (At the end of July). It was quite a sight, not the picture that the EIS painted. You will find that if you ask the right questions to the right people you will get the correct answers. My Family and I have lived here since 1988; these elk are local and DO NOT MIGRATE!

***Comment** 055-010*

ELK- The DEIS states that "Local residents recall observing elk mainly during the fall and winter; however, a few residents recall seeing elk during the summer". This statement is not backed by numbers of interviewees. I live within .5 miles of the proposed site and see consistent elk presence year round. I have both recent photographs of elk in my backyard (with summer vegetation in background) and new scat deposited on a weekly basis. I propose a questionnaire, or a door-to-door survey be conducted. Rather than omitting actual numbers of interviewees and actual numbers and patterns observed, I am requesting that factual data be presented. Example "Out of 103 interviews, 80% stated that the elk were year round". I live at 47523 SE 137th Street in North Bend, WA and would gladly allow someone to inspect my property for elk sign, during any calendar month or take a copy of my pictures. My point being, that the elk herd is year round and the proposed mine may force the animals into unknown habitat and away from here. Elk are extremely sensitive to noise. The potential ramifications for displacing an elk herd has not been assessed.

***Comment** 074-001*

Reference: Volume I Chapter 3 Plants and Animals 3.5.1.3 Potentially Affected Fish and Wildlife Species.

Paragraph 2. Data is outdated and not site specific. Population counts during the 1970s estimated the Rocky Mountain elk in nearby Cedar River watershed at 300 individuals. "Local residents recall observing elk mainly during fall and winter; however, a few residents recall seeing elk during summer." According to my experience as a resident close to the proposed operation, elk are regularly seen in summer. If local residents were surveyed about the elk population, there is not sufficient documentation to make this a scientific study. How many were questioned about the elk population and at what addresses?

***Comment** 090-001*

What is the current population and number of herds in North Bend, and on Grouse Ridge as determined by WA Fish & Wildlife Department?

***Comment** 112-001*

Reference: 3.5.1.3 Potentially Affected Fish and Wildlife Species, Page 3.5-8&9 Paragraphs 2 and 3. There is an assumption made that the elk seen commonly in the

lower site vicinity reside in the Cedar River Watershed and use the project area only for wintering. On what basis is this assumption made? The number stated is 300, on what basis is this assumption made? Statement "...a few residents recall seeing elk during the summer." On what basis is this statement made? All the assumptions made are basically either unknown or false. Reference Impact Summary Table page S-15: Alternative 2 - temporary loss of wildlife habitat at the lower and upper sites, elk and deer foraging on residential landscaping may increase, increased competition for habitat from displaced habitat, increased noise levels from mining operations. Unless a study is conducted to determine the current behaviors, range, and number of elk and deer in the area, any such assumptions are invalid and premature. In this case, "temporary loss of wildlife habitat" could prove to be permanent and final for the animals in question. Assessments need to made on the importance of the sites as habitat for what I believe to be a resident rather than a migrating herd of elk.

Comment *126-008*

We enjoy the resident elk population. This is very clearly part of their habitat, along with many other species of wildlife. This huge project would clearly devastate this areas wildlife.

Comment *127-007*

The DEIS. On Page 3.5-9 it states that local residents recall seeing migrating elk mainly during fall and winter. However a few residents recall seeing elk during the summer. Residents also mentioned that elk in the area are known to forage on landscaping plants by lot owners. To me this totally downplays the size of the elk herd in the area and the fact that it definitely is a year-round herd. And there are way more than a few local residents that will attest to that.

Response

In response to concerns regarding elk displacement and disturbance, additional research and habitat analysis was conducted. Additional field investigations by biologists surveyed existing vegetation specifically for elk habitat value. Washington Department of Fish and Wildlife biologists were contacted for additional information regarding the local herd.

Two subspecies of elk are found in Washington State. Roosevelt elk were present in the mountainous areas of the Olympic Mountains, in southwestern Washington. These herds are referred to in the earliest records for the region. While archaeological evidence indicates that elk were present on the east side of the Cascade Mountains and the Columbia Plateau, they do not seem to have been present when the earliest explorers arrived and were not noted in the earliest accounts (McCorquidale, 1985).

The elk that are currently found in the Hanford area and on the east slopes of the Cascades are Rocky Mountain elk introduced early in the 20th Century (WDFW undated). Elk were released near Enumclaw in 1912 and became the nucleus of the Mount Rainier Herd. In 1913, elk were release in the Naches River area of Yakima County. These animals are probably the source for the current Yakima/Kittitas County Herds. Animals were also released east of Ellensburg and probably form the source for the Colockum Herd. The herds currently found on the west slope of the Cascades in the Green, Cedar, and Snoqualmie watersheds probably include elements from both the Rainier and Yakima/Kittitas Herds.

On the west slope of the Cascade Mountains, mature and old-growth forests provide important winter shelter habitat for elk, but optimum forage habitat is early successional stages including grasslands and shrublands. These cover-types are found following disturbances like wildfire, following timber harvest, and in the floodplain of meandering streams and rivers. Little forage is available in pole-stage and early mature forests. Winter forage is present in old-growth forests that have developed a broken and more open canopy and more robust understory shrub layer. With the advance of forest harvests into the Cascade Mountains, starting in the 1920s, extensive areas of old

growth forest were converted to early successional stages. With the increase in early successional vegetation along the slopes of the Cascade Mountains, elk populations increased substantially and expanded their range.

Currently, resident herds are now found around Mount Rainier, near Enumclaw, in the upper Green River Watershed (Howard Hanson Reservoir), Cedar River Watershed(Chester Morse Reservoir), and the watersheds of the North, Middle, and South Forks of the Snoqualmie River. Patterns of habitat use vary both between and within the several herds. Some animals migrate seasonally between summer pastures in the subalpine zone on the mountains and winter in low elevation forests. Other individuals may reside throughout the year in low elevation forests that include both shelter habitat and foraging habitat.

Elk have historically been associated with undeveloped areas with few open roads and little human disturbance. More recently, some elk populations have become habituated to rural developments and now reside at the edge of developed or developing areas. For many years both the Cedar River Watershed and the upper Green River Watershed have been closed to public access because of their use for public water supplies. Forest harvests within both watersheds, and on adjacent public and private forest lands improved conditions for elk by creating new areas of forage habitat. Elk present on the site may include portions of a herd that reside year around on Grouse Ridge and adjoining lowlands and portions of a herd that winter in the lowlands and migrate to higher elevation for the summer.

WDFW (Spencer pers. comm. 2001) comments that the composition and movement of their local herd is not sufficiently well known to make any definitive statements regarding annual distribution and movement. Population counts during the 1970s estimated the population of Rocky Mountain elk in the nearby Cedar River Watershed at 300 individuals. Present populations of elk in the Cedar and Snoqualmie River Watersheds are unknown, but it is evident that the population continues to increase. Impacts will result in a temporary loss of habitat. Suitable adjacent habitat may be used as an alternative and the displacement of wildlife from the project site into nearby habitats may cause some stress in the affected populations.

Rocky Mountain elk using the Lower Site as winter range would be displaced to similar habitat in adjacent areas. If these animals attempt to occupy habitat closer to residential areas, foraging on residential landscaping may increase. The proposed conveyor system extending from the Lower Site to the Upper Site will be built low to the conveyor. Two forest management roads that currently cross the proposed alignment will be retained and underpasses for the roads will be constructed. These underpasses likely will be used by deer and elk.

***Comment** 012-130*

[DEIS §3.51.4; p. 3.5-10] The section on "Threatened and Endangered Species" asserts "No status species would be affected by the project." However, this conclusion relies solely on a single written report that is out dated (see King County, 1987, Wildlife Habitat Profile), does not focus on bird species specifically, and is not focused on Snoqualmie Valley much less the local Grouse Ridge habitat. No primary studies of bird populations of the immediate area are cited. The DEIS did not attempt even a cursor current survey of avian species. An adequate survey will have to cover a full year to properly account for population variations due to seasonal and migration patterns.

***Comment** 055-011*

Birds- The common Blue Jay, Pileated Woodpecker, and Northern Bobwhite, are just a few bird species that the DEIS fails to list that occur naturally in this area. All species should be identified.

Comment *074-002*

Comment #2 - The bird list is incomplete. No summer, fall and winter studies were done. Dames and Moore biologists surveyed the area during March through June 1999 and again in April 2000. No mention is made of times of day during which observations were made. My husband and I are not scientists, but have observed many, many more birds than are mentioned in this study. Observations during midday would be very different than morning and evening observations. Also, many different birds are present during different seasons.

Among many others no mention is made of the pileated woodpecker (a candidate for threatened species for Washington State), Lewis woodpecker (rare and a species of concern by the U.S. Forest Service) and the bald eagle (endangered) all of which are found in the area.

Comment *074-004*

Volume II Appendix E 1.0 Introduction 1.3 Methodology 1.3.1 Streams.

Again there is inadequate documentation. John Gauthier, a Dames and Moore Wildlife biologist, walked project site and area surrounding the project--- Dates?? Time of day ??? Again, no mention of surveys of wildlife from July through February.

Response

King County (1987) provides a species habitat matrix that identifies the species that are likely to be found in various vegetation cover-types in King County. This matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats found throughout the county. The King County matrix currently serves as a standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. The Plants and Animals Technical Report of the FEIS is the principal table from King County's Wildlife Habitat Relationships (1987). It has been edited to include only the cover-types found in or proximate to the project area. The wildlife species present within the project area can be represented by identifying what type of vegetation cover types exist (e.g. seedling shrub, sapling, pole, etc.) and in how large an area. Two additional field visits were conducted after the publication of the DEIS to conduct additional wildlife habitat and vegetation surveys. Wildlife species encountered during those visits are documented in the table as well as wildlife species reported by local residents in the comment letters and public meetings. The project area is generally highly disturbed, early second growth, commercial forest composed primarily of Douglas fir, but with some western hemlock, western red cedar, red alder, big-leaf maple, and other species. Over most of the area, there is infrequent woody debris other than tree stumps, few to no snags, and no large stature mature trees. The exception to this general observation is the area indicated as mature forest in the map of existing vegetation provided in the FEIS. This area contains down woody debris and snags, has an open canopy and resembles old-growth forest in its composition. This patch of mature forest is located outside the project boundary in the buffer and will therefore be retained as high value wildlife habitat. Over most of the project area, the absence of woody debris, snags, and old-growth trees precludes the presence of most cavity nesting or cavity dependent bird species. While grasses, forbs, and shrubs are present in the seedling/sapling areas, the remainder of the pole and early mature forests are in the stem exclusion stage of forest development and are almost devoid of understory vegetation. Photographs of the different vegetation cover types can be found in the Plants and Animals Technical Report of the FEIS.

3.5.1.4 Threatened and Endangered Species

Comment *012-141*

[DEIS §3.5, p. 3.5-13] lists common plant species found on-site, but does not mention any possible rare, sensitive, threatened, or endangered species that could be found in the

general area. The Washington State Priority Habitat Species Program should be consulted and the results detailed in the EIS. If any priority plant species could potentially exist in the area, site surveys by a biologist should be conducted, preferably during the flowering season.

Comment *019-582* The DEIS did not perform basic assessments such as conducting field observations for Endangered or Threatened Vascular Plants. In reference to the Endangered and Threatened Species stating that there are "no documented sightings" on private Weyerhaeuser land is ridiculous as a measurement.

Comment *019-598* The DEIS did not and the FEIS should provide field observations, analysis and impacts for the potential habitat and existence of "King County Endangered, Threatened and Sensitive Vascular Plant List as noted under the U.S. Forest Service known sites database.

Comment *020-849* The FEIS should address identification, analysis or impacts on plant life identified in the King County Endangered, Threatened, and Sensitive Vascular Plant List.

Response The USFWS was contacted for a list of Endangered, Threatened, Proposed, and Candidate Species, as well as Species of Concern, for the project area. The USFWS listed no plant species within or near the project area. The DNR's Washington Natural Heritage Program (NHP) was also contacted regarding special status vascular plants in the vicinity of the project site. The NHP receives special status vascular plant location information from many sources, including the United States Forest Service. Therefore the NHP has the pertinent information from the known sites database for the Mt. Baker-Snoqualmie Forest, which is the closest National Forest to the project. The NHP has no record of any occurrence of rare plants within a mile of the Upper and Lower sites or Fire Training Road. The sites are heavily disturbed by previous logging and mining activity and are therefore not appropriate habitat for the plants listed on the King County Endangered, Threatened, and Sensitive Vascular Plant List. The Plants and Animals chapter of the FEIS and Technical Report have been updated to address cumulative impacts to all threatened, endangered, and species of concern.

Comment *070-003* The manner in which your Department has conducted this DEIS, during the time period concerned, represents a violation(s) of the US Endangered Species Act, as amended (ESA), particularly as it concerns such ESA-related concepts/definitions as "jeopardize the continued existence of' (e.g., 50 CFR, Section 402.02), "to take" (e.g., 50 CFR, Section 17.3; 16 USC, Section 1538), "critical habitat" (e.g., 16 USC, Section 1533 (a)(3)) and "best scientific and commercial data available" (e.g., 16 USC, Section 1533(b)(1)(A)).

Comment *097-006* Ensure no significant impact to existing habitat of endangered or threatened species?

Comment *097-009* Evaluate effect on conditions favorable to Federal and State Listed Endangered Species survival?

Response In addition to literature search, species lists were obtained from National Marine Fisheries Service, USFWS, WDNR, and the Priority Habitat and Species Program of the WDFW. Surveys of the project site and impacted environment did not show any ESA listed species or critical habitat for listed species at the project sites, there will be no impacts to ESA listed species due to the project. In addition, there is no federal nexus to initiate Section 7 consultation under the ESA (the project does not take place on federal land, have federal funding, require a federal permit, and will not result in a "take" or jeopardize the continued existence of any species listed or proposed for listing under ESA).

Comment *012-009* Failure to cite King County's plan to investigate the presence of Bull Trout in the region above Snoqualmie Falls (King County DNR 2000a) (see section 10.7 below, "Fish").

Comment *012-140* [DEIS §3.5.1.4, p. 3.5-11] Herein the DEIS erroneously concludes, "Bull trout have not been documented above Snoqualmie Falls, and it is unlikely that they occur in the vicinity of the project areas." King County documents (readily available but ignored by DEIS authors) conclude that Bull Trout may in fact be found in or near the project area. In the recently published Literature Review and Recommended Sampling Protocol for Bull Trout in King County (R2 Resource Consultants 2000), experts note the clear possibility of the presence of Bull Trout above the Snoqualmie Falls and recommend a plan for sampling areas above the Falls:

Recommended candidate areas for reconnaissance sampling within King County are: 1) Snoqualmie River above Snoqualmie Falls... This list includes the highest priority candidate areas [emphasis added] for Phase 1 sampling and does not rule out additional or supplemental sampling in other appropriate areas. (p. 38)

Another King County publication (King County DNR 2000a) summarizes the County's plans to survey Bull Trout populations in accordance with ESA policies:

King County is working with FWS to develop research protocols that the county would begin using in 2000, which would first target areas most likely to have bull trout, including Issaquah Creek, the upper Tolt River and the Snoqualmie River above the forks .... No later than January 1, 2000, King County expects to issue emergency administrative rules relating to the bull trout and chinook listings. The rules would set standards for how the Department of Development and Environmental Services will review requests for changes to standard buffers required by King County's Sensitive Area Ordinance.

Thus the DEIS is in error in its assessment of Bull Trout. In order for the County to be in compliance with the ESA, a survey of Bull Trout populations must occur prior to project approval.

Comment *049-001* Kirk Anderson, Snoqualmie River Basin Steward for the King County Department of Natural Resources, recently alerted me to the fact that Bull trout are a threatened species pursuant to the Endangered Species Act of 1973. Mr. Anderson has told me that there has been no study of the status of bull trout on the Snoqualmie River, yet the Oregon U.S. District Court has designated the Puget sound as one of five distinct population segments of this threatened species. "Distinct population segment" is an Endangered Species Act term that applies to vertebrate animals under certain conditions: individuals interbreed within each segment, segments are physically discrete from one another, and segments are biologically significant to the species as a whole.

The Federal court in this ruling (April 8,1999) held that Bull trout are threatened by "habitat degradation from...mining," among other environmental pressures. Given the

absence of research in the DEIS about the run-off water from the proposed Grouse Ridge mine, I urge you to do research into the abundance, trends in abundance, and distribution of bull trout in the Snoqualmie River.

I find nothing in the DEIS respecting a huge mining operation near this threatened species.

Comment *070-002*

The DEIS is in conflict with information currently posted on King County's Department of Natural Resources website (www.dnr.metrokc.gov/wlr/esa/bulltrt.htm), particularly as it concerns the "critical habitat" of the "bull trout", its range (Figure 3.1) and "life-style" [e.g., please see pages 5-8 of the forty-seven page "Bull Trout, Interim Conservation Guidance" as written by the US Fish and Wildlife Service and published on December 9, 1998, hereby fully incorporated into this letter as "critical DEIS reference material"].

Response

The conclusion, "Bull trout have not been documented above Snoqualmie Falls, and it is unlikely to occur in the vicinity of the project areas" is correct. The King County Bull Trout Literature Review and Recommended Sampling Protocol document cited in this comment states that although many surveys have taken place in the Snoqualmie watershed above Snoqualmie Falls, no bull trout or "native char" have been documented during these surveys. Primary investigators of the various fisheries resource surveys of this watershed and other acknowledged experts on the distribution of bull trout in western Washington have been uniform in their agreement with this statement.

Among the biologists interviewed, were Kurt Kraemer (WDFW), Bob Pfeiffer (WDFW), Fred Goetz (ACOE), Jeff Chan (USFWS), Scott Craig (USFWS), and Al Solonsky (Seattle City Light). Fred Goetz, a nationally recognized expert in bull trout distribution stated, "If you compare the three major watersheds with impassible waterfalls in the vicinity of the upper Snoqualmie River watershed, you have the Cedar River above Cedar Falls, the Snoqualmie River above Snoqualmie Falls, and the South Fork of the Skykomish River above Sunset Falls. Of these watersheds, by far the best spawning habitat is found in the South Fork of the Skykomish, and the upper Snoqualmie River. The Cedar River has adequate spawning habitat. Bull trout were never documented in the South Fork of the Skykomish River until Sunset Falls was laddered, after which they rapidly colonized suitable habitat in the South Fork above the falls from a fluvial/anadromous population that existed below the falls. A large bull trout population has been documented in Chester Morris Reservoir and the Cedar River above Cedar Falls (with no known spawning populations in the river below the falls). The only known native spawning populations of bull trout in the Snoqualmie River system are those in the North Fork of the Skykomish River. Before the arrival of Europeans, this population apparently never was able to colonize portions of the Snohomish River watershed above Snoqualmie and Sunset falls. The Cedar River population appears to be a relic lacustrine population native to Cedar Lake above Cedar Falls (now part of Chester Morris Reservoir) with no known spawning population in the watershed below Cedar Falls. In one instance, the Cedar River population was native and extensively documented over the years. In another instance, bull trout or 'native char' were undocumented in the South Fork of the Skykomish until a fish ladder gave access to the river. Soon after the barrier was laddered, a population established itself and became documented and easily noticeable to fishermen. In the final instance, despite the availability of extensive spawning and fluvial habitat above Snoqualmie Falls, no bull trout have been documented. The fact that no bull trout have been reported by stream and angler surveys or angler's reports to papers (a large bull trout is extremely likely to be reported to local papers, friends, etc.), is a strong argument that a fluvial population of bull trout is unlikely to exist above Snoqualmie Falls."

This in itself does not imply that bull trout will never be documented in the upper Snoqualmie River watershed. It is possible that a resident (non-fluvial) population of Dolly Varden or bull trout may exist above a waterfall on a tributary with suitable spawning habitat in the upper Snoqualmie River drainage (as is now found in the Sol Duc River above a waterfall). However, there is no tributary habitat in the project area suitable for such a population to exist and the statement that it is unlikely that bull trout are found in the project area is correct. The King County Bull Trout Report recommended Phase I reconnaissance sampling in King County drainages where habitat characteristics are suitable for bull trout spawning and rearing, but the presence of self-sustaining populations has not yet been conclusively proven. In short, the watershed was recommended for a Phase I reconnaissance survey based entirely upon the presence of good bull trout habitat, not the likelihood of bull trout presence. Considering the limited amount of suitable bull trout spawning habitat in King County, this is an appropriate criterion for a survey protocol, but does not establish the presence of bull trout in any way. It simply suggests that streams with suitable habitat should be the first surveyed for bull trout. The most likely populations to be found in the Snoqualmie River above the falls would be relic populations above barrier falls on headwater snow-melt streams. A fluvial population having access to the South and Middle Forks of the Snoqualmie in the project area remains unlikely and undocumented.

Comment *020-850*

The FEIS should provide field observations, analysis and impacts for the potential habitat and existence of "Tetraphis Geniculata" (no common name and "Round-leafed rein orchid (*platanthera orbiculata*)" as listed on the King County Endangered, Threatened and Sensitive Vascular Plant List and noted under the U.S. Forest Service known sites database.

Response

No appropriate habitat is present at the proposed project site for either species mentioned. *Tetraphis geniculata*, a moss, grows on peaty soil and rotten wood. The large woody debris that is present at the site has recently been cut. Round leafed rein orchids grow in dry to moist coniferous woods and meadows. Orchids in the Pacific Northwest are not adapted to large amounts of disturbance, such as is present at the proposed project site.

Comment *142-010*

3.5.1.4 You've missed Bald eagles and Osprey. Both have now or previously had nest on our land, less than a mile from the site. 3.5.2.2 "No listed bird species or nesting sites are located within WDFW guidelines for buffer zones around nesting areas of certain endangered bird species" This is false for the 10 dBA noise plus spikes will chase away our eagles, hawks, owls, and osprey.

Response

Updated information from the U.S. Fish and Wildlife Service (USFWS, 2000) was obtained on listed species that may be present in the project vicinity (see Attachment A of the Plants and Animals Technical Report). Three species are listed as Threatened by the USFWS (bull trout *[Salvelinus confluentus]*; marbled murrelet *[Brachyramphus marmoratus]*; northern spotted owl *[Strix occidentalis caurina]*). No species designated as Proposed or Candidate are listed within the project vicinity.

Additional research and habitat analysis was conducted for these species in preparation of the FEIS, including identification of potential habitat for threatened species using aerial photographs and field investigation. No listed species were documented during these visits. King County (1987) provides a species habitat matrix that identifies the species that are likely to be found in various vegetation cover-types in King County. This matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats found throughout the county. The King County matrix currently serves as a

standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. See the Plants and Animals chapter of the FEIS and Technical Report which have been updated to address cumulative impacts to all threatened, endangered, and species of concern.

Mining noises can discourage wildlife species from using portions of project sites. In general, however, most species will habituate to mining activity and continue to use the habitat areas adjacent to mining activity. Animals are generally tolerant of regular steady noise such as would be produced by the steady operation of mining machinery. Noise levels in adjacent areas due to mining operations would not exceed the Ecology's Environmental Designation for Noise Abatement (EDNA) levels, which are well below noise levels known to affect animals during laboratory studies. However, some areas would experience increases of more than 10 dBA, which is considered significant under EPA guidelines. Mitigation of these noise impacts is feasible and is discussed in the North Bend Gravel Operation Noise Technical Report. Additional discussion of noise impacts on wildlife is included in Chapter 7 and the Plants and Animals Technical Report.

Comment *019-094*

Identify and describe how the intended on-site development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Endangered Species Act.

*The DEIS did not address this item for each Alternative.

Response

Please see the FEIS Plants and Animals chapter for a relevant discussion of the Endangered Species Act.

Comment *019-585*

The DEIS did not and the FEIS should conduct in depth field observations for Endangered and Threatened species over the entire project area.

Response

Updated information from the U.S. Fish and Wildlife Service (USFWS, 2000) was obtained on listed species that may be present in the project vicinity (see Appendix A of the Plants and Animals Technical Report). Three species are listed by the USFWS as Threatened (bull trout [*Salvelinus confluentus];* marbled murrelet *[Brachyramphus marmoratus];* northern spotted owl [*Strix occidentalis caurina*]). No species are designated as Proposed or Candidate. Additional research and habitat analysis was conducted for these species in preparation of the FEIS. Identification of potential habitat for threatened species using aerial photographs and field investigation found no suitable habitat. Field investigations conducted in December 2000 and February 2001 surveyed existing vegetation and mapped cover types in the project area. No listed species were documented during these visits. The Plants and Animals chapter of the FEIS and Technical Report have been updated to address cumulative impacts to all threatened, endangered, and species of concern.

Comment *074-003*

3.5.2.2 Operation In, pacts - Alternative 3, Lower and upper sites

Northern spotted owl not known to currently next in forest adjacent to SE Grouse Ridge??? Were studies conducted at night when owls are more active and likely to be sighted. On what basis is this statement made? Can we be sure Northern spotted owls are not residents?

Response

WDFW Priority Habitat and Species maps (WDFW-PHS 2000) do not show any spotted owl territories on Grouse Ridge. The closest spotted owl territory is located to the east-

northeast on the north side of Bandarra Ridge. Spotted Owl habitat, as defined by Washington Forest Practices Rules (WAC 222-16), is divided into nesting-roosting-foraging (NRF) habitat, and dispersal habitat. NRF habitat is found in old-growth habitat and sub-mature habitat.

Old-Growth Habitat (WAC 222-16-085). Old-growth habitat means habitat that provides for all of the characteristics needed by northern spotted owls for nesting, roosting, foraging, and dispersal, described as stands with:

(i) a canopy closure of 60% or more and a layered, multi-species canopy where 50 % or more of the canopy closure is provided by large old growth trees (typically, there should be at least 75 trees per acre greater than 20 inches dBH, or at least 35 trees 30 inches dBH or larger per acre); and
(ii) three or more snags of trees 20 inches dBH or larger and 16 feet or more in height per acre with various deformities such as large cavities, broken tops, dwarf mistletoe infections, and other indications of decadence; and
(iii) more than two fallen trees 20 inches dBH or greater per acre and other woody debris on the ground.

Submature & Young Forest Marginal Habitat. (WAC 222-16-085 summarized). Submature and young forest marginal habitat provide all of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal. Young forest marginal habitat provides some of the characteristics needed by northern spotted owls for roosting, foraging, and dispersal. In western Washington these stands are characterized by conifer-dominated stands with greater than 70 percent canopy closure, 115 to 280 trees per acre greater than 4 inches dBH with dominants/codominants greater than 85 feet high or dominants/codominants greater than 85 feet high with two or more layers, and Snag/Cavity trees more than 3 per acre greater than or equal to 20 inches dBH and 16 feet high).

Dispersal Habitat (WAC 222-26-085). Dispersal habitat means stands that provide the characteristics needed by northern spotted owls for dispersal. Such habitat provides protection from the weather and predation, roosting opportunities, and clear space below the forest canopy for flying. Timber stands that provide for spotted owl dispersal have the following characteristics:

(a) for western Washington, timber stands 5 acres in size or larger with:
  (i) 70% or more canopy closure
  (ii) 70% or more of the stand in coniferous species greater than 6 inches dBH; and
  (iii) a minimum of 130 trees per acre with dBH of at least 10 inches or a basal area of 100 square feet of 10 inch dBH or larger trees;
  (iv) a total tree density of 300 trees per acre or less, and
  (v) a minimum of 20 feet between the top of the understory vegetation and the bottom of the live canopy, with the lower boles relatively clear of dead limbs. The existing vegetation cover type map in the Plants and Animals chapter of the FEIS prepared for the project area shows that most of the project area and the surrounding commercial forests are early successional stages ranging from recently clearcut forests, through seedling and sapling stages, to pole stage forests. There is one small patch of mature forest in the buffer area south of the mine area. This patch of mature forest is part of a discontinuous and isolated string of mature forest along the north bank of the South Fork of the Snoqualmie River. The area would not meet the requirements for a spotted owl territory because it is of insufficient size.

The existing vegetation cover type map in the Plants and Animals chapter of the FEIS prepared for the project area shows that most of the project area and the surrounding commercial forests are early successional stages ranging from recently clearcut forests, through seedling and sapling stages, to pole stage forests. There is one small patch of mature forest in the buffer area south of the mine area. This patch of mature forest is part of a discontinuous and isolated string of mature forest along the north bank of the South Fork of the Snoqualmie River. The area would not meet the requirements for a spotted owl territory because it is of insufficient size.

Comment *020-877*

Throughout section 2.3, Threatened and Endangered Species, there are continuous statements "There are no documented sightings of...". This has no analytical value as the proposed site is located on private Weyerhaeuser land and only Dames & Moore personnel from March through June 1999 conducted field observations. The only other resources noted were by "literature review". [DEIS vol. I1, App. E, Sec. 1. 3, Methodology, subsec. 1.3.1 Streams, pg. 2]. To be effective, there should be on-going field observations occurring at different seasons, times of day and utilizing the best objective personnel available of various sources.

Response

A great deal is known about the species that occur in the general area and in the habitats that occur on the project site. The likelihood of finding listed species is low in the setting of the project.

Comment *019-595*

The DEIS did not and the FEIS should provide thorough field observations during different times of day (considering nocturnal species) and different seasons for Endangered and Threatened Species. Section 2.3, Threatened and Endangered Species, cites "There are no documented sightings of .... ". This is not acceptable as there is not public access to Weyerhaeuser land and field observations were conducted only by Dames & Moore personnel from March through June, 1999 and by "literature review". [DEIS vol. II, App. E, Sec. 1.3, Methodology, subsec. 1.3.1 Streams, pg. 2]. This sampling is not representative nor to the depth it requires to identify and prevent any adverse impacts.

Response

Updated information from the U.S. Fish and Wildlife Service (USFWS, 2000) was obtained on listed species that may be present in the project vicinity (see Attachment A of the Plants and Animals Technical Report). Three species are listed by the USFWS as Threatened (bull trout [*Salvelinus confluentus];* marbled murrelet *[Brachyramphus marmoratus];* northern spotted owl [*Strix occidentalis caurina*]). No species designated as Proposed or Candidate are listed within the project vicinity. Additional research and habitat analysis was conducted for these species in preparation of the FEIS. Identification of potential habitat for threatened species using aerial photographs and field investigation found no suitable habitat. Field investigations conducted in December 2000 and February 2001 surveyed existing vegetation and mapped cover types in the project area. No listed species were documented during these visits. The Plants and Animals chapter of the FEIS and Technical Report have been updated to address cumulative impacts to all threatened, endangered, and species of concern.

3.5.2 Environmental Impacts

Comment *012-138*

[DEIS §2.0 et seq.] Section 2.0 describes a conveyor system to move aggregate from the Upper to the Lower Site. At no point is this feature analyzed in the context of wildlife impacts. Elevated structures like the proposed conveyor system are known to alter wildlife feeding and migration patterns as in the case of caribou impacted by the

Alaska Oil Pipeline. A video distributed by Cadman in 1998 shows a conveyor system that appears to be some five feet in elevation. What are the dimensions of this system? Is it elevated or recessed at or below ground level (it is described as both at different places in the DEIS)? Is the system an effective barrier to migration of elk and deer? What is the impact on smaller mammals? On bird species? Does the combination of the conveyor, the facilities at the Lower Site and the excavation work at the Upper Site constitute a barrier that is one to two miles long effectively isolating herds on one side or the other of the area? The DEIS must provide an assessment of possible impacts and document mitigations.

Response A revised description of the conveyor is provided in Chapter 2 of the FEIS. The impacts of construction and operation will result in a temporary loss of wildlife habitat associated with the forestlands in various stages of harvest and regeneration. Wildlife would be displaced from areas in active mining and in areas used for facilities. When wildlife is displaced, it usually moves to adjacent suitable habitat. However, if adjacent or nearby habitats are at their carrying capacity for a particular species, then the arrival of displaced wildlife may cause stress in the affected populations, resulting in a temporary decrease in productivity, health, and an increase in mortality for the displaced populations. Additional wildlife analysis has been conducted in preparation of the FEIS and is included in Chapter 7 "Plants and Animals" of the FEIS and in the Technical Report. Mitigation measures have also been updated to respond to comments.

Comment *012-167* National Parks and Conservation Association states "Protecting dark night skies in our National Parks is as vital as protecting clean air, water, wildlife, and the sounds of nature." ("NPCA Survey Finds Light Pollution Threatens National Park System," March 24/U.S. Newswire/, http:/www.lfr.com/news/regupdate/regupdate004.htm).

Lighting from overhead lights and from truck headlights will pose a significant threat to the community processes of Grouse Ridge and the surrounding environment. Excess light in the evening hours may disrupt the hunting, foraging, movement and sleeping behaviors of animals that depend on darkness for safety. Additionally, continuous lights attract insects away from other areas, affecting animals that may use them as food.

Neither this section nor the section on "Plants and Animals" [DEIS §3.5] notes any potential impact on wildlife. Words like "animals," or "wildlife" or "birds" do not appear at all in the context of lighting. Nor are there any references to readily available scientific research on such impacts. This topic is not adequately addressed.

Response A more detailed description of the lighting conditions in the vicinity of the sites has been added to this FEIS. The intensity of light from the proposal on surrounding plant life would be too low to affect photosynthesis and respiration. No effects would be expected. Similarly, impacts of lighting on wildlife are expected to be low. Wildlife adapt to lighting as they do to noise.

Comment *012-131* Commercial and residential development both west and east of the site over the past thirteen years could well have altered the habitat of threatened and endangered species. Pressure on bird populations due to future development must also be assessed.

Response The effects of historic commercial and residential development peripheral to the project area is beyond the scope of the EIS. Field surveys for existing vegetation cover-types and wildlife habitat in the project area and vicinity were conducted in December 2000 and February 2001. A map of existing vegetation cover-types is provided in the Plants and Animals chapter of the FEIS, along with a table showing the area to each cover-

type. The potential impact of the future development on bird populations is also discussed in this chapter.

Comment *019-586* The DEIS did not and the FEIS should perform comparisons and impacts analysis of these observations for each alternative. [Comment refers to observations of Endangered and threatened species.]

Comment *107-003* We see deer, elk, eagle and coyote several times a month. What will be the impact on them?

Response The alternatives analysis addressed the No Action alternative, three action alternatives, and a restoration scenario. The FEIS has been updated to include additional analysis of wildlife impacts for each of the alternatives. Cumulative impacts to wildlife over time was also analyzed further using information gained from the additional biological surveys conducted in December 2000 and February 2001.

Comment *019-600* The DEIS did not and the FEIS should conduct an impacts analysis of fish spawning gravels and sediment levels for water sources that effect the Middle and South Forks of the Snoqualmie River. The DEIS did not provide an analysis for each alternative for the aforementioned.

Response No impacts would occur to fish spawning gravels and sediment levels for water sources in the Middle Fork of the Snoqualmie River. The DEIS stated that a potential exists for the release of sediment into streams crossed by the Fire Training Center Road (SE Grouse Ridge Road) exists during the construction phase at crossings where the road would be widened. Only seven of the streams crossed would have water present during construction. Six of these streams contain fish (with two of the streams containing less than 0.2 CFS flow and providing only limited habitat downstream from the road). Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing. All applicable BMPs and standards and guidelines will be followed to prevent the release of sediments into these streams. Impacts if any, from construction related sediments entering these tributaries, would be short-term and unlikely to remain after the first winter/spring freshets.

Comment *019-691* The DEIS did not address the direct and indirect impacts of the Elk herd's displacement. The DEIS failed to present a worst-case scenario for this item. The DEIS failed to address this for each phase and each Alternative of the proposed project.

Comment *020-857* Elk grazing in WoodRiver neighborhood Calf in WoodRiver (Refer to hardcopy for photographs, pg, 137 & 138).

Comment *020-859* The FEIS should evaluate the noise level of each alternative and its effect on the elk herd/herds as they access the winter and summer ranges, as well as their calving grounds.

Comment *020-860* The FEIS should provide the food sources of the elk herd/herds and to what extent these sources will be impacted by the project. How will the herd/herds be monitored and what type of plan will be instituted to protect or mitigate adverse impacts?

Comment *020-861* The FEIS should address how the mining sites, access roads, maintenance road, conveyor and water corridors, processing facilities, light, and dust will affect the elk herd/herds.

Comment *020-862* The FEIS should provide impacts from the elk herd/herds displacement of habitat and it's impacts for each alternative with comparisons. If the herd/herds are displaced where and what type of environment will they seek? Does such an area remain in the Upper Snoqualmie Valley?

Comment *020-863* The FEIS should provide the numbers of residents interviewed for the statement "most residents recall observing elk mainly during fall and winter months, however, a few residents recall seeing elk during summer months." [DEIS, volume II, sec 2.2 Potentially Affected Fish and Wildlife Species, page 13, and volume, page 3.5-9].

Comment *020-869* The DEIS did not thoroughly address the impacts of the Elk herd's displacement.

Comment *020-878* Direct impacts due to Elk Herd Displacement.

Comment *020-879* Destruction of private property due to Elk displacement.

Comment *020-880* Public Safety from Elk herds encroaching in populated areas due to project impacts.

Comment *020-881* Encroachment of Elk herds' predators in populated areas.

Comment *024A-060* Please provide information on how the conveyor belt that will be 4-5 feet off the ground, will it affect elk movement and migration in the area? Also, will there be sufficient space beneath the conveyor to allow movement by smaller animals?

Comment *024A-064* Please address more fully the impact on the resident herd of elk on Grouse Ridge. It is known by residents that have lived in the area adjoining the Weyerhaeuser lands since the 1940's that the elk herd is resident year round on Grouse Ridge.

Comment *090-002* What is the exact range of the Grouse Ridge elk herd(s)?

Comment *090-003* What is the winter range of the Grouse Ridge elk herd?

Comment *090-004* What is the summer range of the Grouse Ridge elk herd?

Comment *090-005* Where are the calving grounds of the Grouse Ridge elk herd?

Comment *090-006* Address the direct and indirect impact of noise from the gravel mine project on the Grouse Ridge elk herd.

Comment *090-007* Identify and address the food sources of the elk herd and the extent that the elk herd size and health will be impacted by elimination of access to these sources.

Comment *090-008* Address the plan to mitigate impact of #7.

Comment *090-009* Address the impact on the elk herd and plans for mitigation of the following components of the gravel mine: gravel mine itself, roads and road construction, trucks, lights, dust, conveyor system.

Comment *090-010* Address how the items listed in #9 will impact the breeding and size of the elk herd.

Comment *090-011* What plan will be developed to monitor and address these issues listed in #9?

***Comment** 090-012* Address possible dislocation of the elk herd and alternate range. Will there be a plan to address this?

***Comment** 090-013* Address the issue of the age of the studies referenced in the DEIS. Are there more recent studies/data?

***Comment** 090-014* Address the development of a plan to mitigate issues listed in #9. How will this plan be implemented and monitored?

***Comment** 111-001* Referring to the Section 3.5.1, assessing impacts to wildlife, I would like attention directed to the omission of impact potentials of the proposed conveyor belt. Please see 3.5-16, first paragraph under Terrestrial Resources. The only comment I find addressing the "virtual" conveyor belt is "This alternative (2) would lack the proposed conveyor belt, resulting in a minimal net difference of 0.5 acre of disturbed habitat." Since engineering of the conveyor belt is not included in the DEIS, this assumption cannot be made. Also, not assessment has been made noting the possible interference of the conveyor belt on movement by the resident herd of elk. This conveyor belt would most likely bisect the route that the herd currently uses when going to and from Grouse Ridge for grazing. Being as the elk travel in small family groups frequently, it should be assessed what affect the belt would have on young and adult elk. Over? Under? Around? Would the noise deter them? Please demand more detail and viability of the path of the conveyor so that these impacts could be noted with a higher degree of consideration and accuracy.

Response In response to concerns regarding elk displacement and disturbance, additional research and habitat analysis was conducted. Additional field investigations by biologists surveyed existing vegetation specifically for elk habitat value. Washington Department of Fish and Wildlife biologists were contacted for additional information regarding the local herd.

Two subspecies of elk are found in Washington State. Roosevelt elk were present in the mountainous areas of the Olympic Mountains, in southwestern Washington. These herds are referred to in the earliest records for the region. While archaeological evidence indicates that elk were present on the east side of the Cascade Mountains and the Columbia Plateau, they do not seem to have been present when the earliest explorers arrived and were not noted in the earliest accounts (McCorquidale, 1985).

The elk that are currently found in the Hanford area and on the east slopes of the Cascades are Rocky Mountain elk introduced early in the 20th Century (WDFW undated). Elk were released near Enumclaw in 1912 and became the nucleus of the Mount Rainier Herd. In 1913, elk were release in the Naches River area of Yakima County. These animals are probably the source for the current Yakima/Kittitas County Herds. Animals were also released east of Ellensburg and probably form the source for the Colockum Herd. The herds currently found on the west slope of the Cascades in the Green, Cedar, and Snoqualmie watersheds probably include elements from both the Rainier and Yakima/Kittitas Herds.

On the west slope of the Cascade Mountains, mature and old-growth forests provide important winter shelter habitat for elk, but optimum forage habitat is early successional stages including grasslands and shrublands. These cover-types are found following disturbances like wildfire, following timber harvest, and in the floodplain of meandering streams and rivers. Little forage is available in pole-stage and early mature forests. Winter forage is present in old-growth forests that have developed a broken and more open canopy and more robust understory shrub layer. With the advance of forest harvests into the Cascade Mountains, starting in the 1920s, extensive areas of old growth forest were converted to early successional stages. With the increase in early

successional vegetation along the slopes of the Cascade Mountains, elk populations increased substantially and expanded their range.

Currently, resident herds are now found around Mount Rainier, near Enumclaw, in the upper Green River Watershed (Howard Hanson Reservoir), Cedar River Watershed(Chester Morse Reservoir), and the watersheds of the North, Middle, and South Forks of the Snoqualmie River. Patterns of habitat use vary both between and within the several herds. Some animals migrate seasonally between summer pastures in the subalpine zone on the mountains and winter in low elevation forests. Other individuals may reside throughout the year in low elevation forests that include both shelter habitat and foraging habitat.

Elk have historically been associated with undeveloped areas with few open roads and little human disturbance. More recently, some elk populations have become habituated to rural developments and now reside at the edge of developed or developing areas. For many years both the Cedar River Watershed and the upper Green River Watershed have been closed to public access because of their use for public water supplies. Forest harvests within both watersheds, and on adjacent public and private forest lands improved conditions for elk by creating new areas of forage habitat. Elk present on the site may include portions of a herd that reside year around on Grouse Ridge and adjoining lowlands and portions of a herd that winter in the lowlands and migrate to higher elevation for the summer.

WDFW (Spencer pers. comm. 2001) comments that the composition and movement of their local herd is not sufficiently well known to make any definitive statements regarding annual distribution and movement. Population counts during the 1970s estimated the population of Rocky Mountain elk in the nearby Cedar River Watershed at 300 individuals. Present populations of elk in the Cedar and Snoqualmie River Watersheds are unknown, but it is evident that the population continues to increase. Impacts will result in a temporary loss of habitat. Suitable adjacent habitat may be used as an alternative and the displacement of wildlife from the project site into nearby habitats may cause some stress in the affected populations.

Rocky Mountain elk using the Lower Site as winter range would be displaced to similar habitat in adjacent areas. If these animals attempt to occupy habitat closer to residential areas, foraging on residential landscaping may increase. The proposed conveyor system extending from the Lower Site to the Upper Site would be built low to the ground, creating a potential barrier to elk. Elk often use roads for travel corridors where available, especially in areas closed to hunting. The maintenance road would pass under the conveyor in two locations, and an existing forest road would pass under the conveyor in one location. Elk may use the underpasses for crossing under the conveyor belt. Other migratory routes through the project area, that do not cross the conveyor belt corridor, are also present. Elk may travel on the north side of the Lower Site, avoiding the conveyor belt, or through the southern portion of the Lower Site and along the south side of Grouse Ridge.

Comment *019-601* The DEIS did not and the FEIS should evaluate the direct and/or indirect impacts to the interstitial habitat or hyporheic zone for the Middle and South Forks of the Snoqualmie River ecosystem that will or could be potentially affected. The water(s) from the project site can have direct, irreparable and major adverse impacts. A worst- case scenario was not provided.

Comment *020-871* The DEIS did not evaluate direct or indirect impacts to the interstitial habitat or hyporheic zone for the Middle and South Forks of the Snoqualmie River ecosystem that

will or could potentially be affected. The water(s) from the project site can have a direct and irreparable impact and yet it is not even addressed. [See Addendum A]

Response It is highly unlikely that any project related impacts to the interstitial habitat or hyporheic zone of the Snoqualmie River will occur from this project. Any slight release of sediment at the few stream crossings along the Fire Training Center Road (SE Grouse Ridge Road) during construction would not be large enough to reach the river (or travel more than a short distance down the few tributaries that would have water present during construction). The only other potential impacts to the hyporheic zone would be from a potential well site on the Lower Site and this potential impact will be addressed in the water resources section. No impacts to fisheries resources would occur due to project related impacts to the interstitial habitat or hyporheic zone of the Snoqualmie River.

Comment *020-872* The DEIS did not conduct an impacts analysis of fish spawning gravels and sediment levels for water sources that effect the Middle and South Forks of the Snoqualmie River. The DEIS did not provide an analysis for each Alternative for the aforementioned.

Response No impacts would occur to fish spawning gravels and sediment levels for water sources in the Middle Fork of the Snoqualmie River. The DEIS stated that a potential exists for the release of sediment into streams crossed by the Fire Training Center Road (SE Grouse Ridge Road) exists during construction phase at crossings where the road would be widened. Only seven streams crossed would have water present during construction. Six of these streams contain fish (with two of the streams containing less than 0.2 CFS flow and providing only limited habitat downstream from the road). All applicable BMPs and standards and guidelines, will be followed to prevent the release of sediments into these streams. Impacts if any, from construction related sediments entering these tributaries, would be short-term and unlikely to remain after the first winter/spring freshets. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing.

Comment *019-095* Identify and describe how the intended on-site development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Salmon Recovery Office of the State of Washington.

*The DEIS did not address this item for each Alternative.

Comment *019-096* Identify and describe how the off-site improvements required as mitigation measures, related to King County roads, utilities, storm water conveyance systems, water retention, detention and bio-filtration systems required for the development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Endangered Species Act.

*The DEIS did not address this item for each Alternative.

Comment *020-181* Identify and describe how the intended on-site development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Endangered Species Act.

*The DEIS did not address this item for each Alternative.

Response Three species are listed by the USFWS and NMFS as Threatened: bull trout (*Salvelinus confluentus);* marbled murrelet *(Brachyramphus marmoratus);* and northern spotted owl (*Strix occidentalis caurina*). No species are designated as Proposed or Candidate. Field investigations conducted in December 2000 and February 2001 surveyed existing vegetation and mapped cover types in the project area. No listed species were documented during these visits. In addition, identification of potential habitat for threatened species using aerial photographs and field investigation found no suitable habitat. USFWS lists several Species of Concern to potentially occur in the project area. These are discussed in the Plants and Animals chapter of the FEIS. Many of these species have not been documented in the project area, but suitable habitat does occur on or adjacent to the site. Therefore, some species are given the determination of "May affect, not likely to adversely affect," noting the potential of impacts occurring from habitat modification. No Pacific salmon are found above Snoqualmie Falls. The project would not have any affect on water quality or Pacific salmon below Snoqualmie Falls.

There is no federal nexus to initiate Section 7 consultation under the ESA (the project does not take place on federal land, have federal funding, require a federal permit, and will not result in a "take" or jeopardize the continued existence of any species listed or proposed for listing under ESA).

Comment *090-015* What type of plan will be developed in case of catastrophic impact on the elk herd?

Response The purpose of an EIS is to analyze the environmental impacts of a proposal and outline mitigation measures which reduce those impacts. Catastrophic impact on the elk here is not expected to occur. However, King County could apply a condition to the permit requiring such a plan.

Comment *020-054* The site is good habitat for the olive sided flycatcher, lone-eared myotis, long-legged myotis and Pacific Townsend's big-eared bat, but they haven't been "documented". (pg. 3.5 - 11)

Comment *020-852* The FEIS should discuss the impacts of each alternative on the habitat for the olive sided flycatcher, lone-eared myotis, long-legged myotis and Pacific Townsend's big-eared bat, listed as Federal Species of Concern.

Response Updated information from the U.S. Fish and Wildlife Service (USFWS, 2000) was obtained on listed species that may be present in the project vicinity (see Attachment A of the Plants and Animals Technical Report). Three species are listed by the USFWS as Threatened (bull trout [*Salvelinus confluentus];* marbled murrelet *[Brachyramphus marmoratus];* northern spotted owl [*Strix occidentalis caurina*]). The species listed in the comments are federal species of concern identified to potentially occur in or near the project site, but have not been documented or surveyed there. Suitable foraging and nesting habitat for the olive-sided flycatcher does occur at the site. See the Plants and Animals chapter of the FEIS.

Comment *020-055* The DEIS admits that wildlife will be displaced.

Comment *055-015* Terrestrial Resources: DEIS states "When wildlife Species are displaced, suitable adjacent habitat may be used as an alternative." Reviewing a recent Ecology (:lass text ("Ecology', 4th Edition, Charles J. Krebs, page 61, copyright 1994) I used while pursuing my BS in Zoology at the University of Washington, I found the following statements: "Habitat selection is one of the most poorly understood ecological process"

and "Individuals choose not to live in certain habitats and animals do not occupy all of their potential range even though they are able to disperse into the unoccupied areas."

Comment *055-016* Based on this credible source from a highly respected local university, how can the DEIS make such a statement? It is just as true to state: "..suitable adjacent habitat may not be used as an alternative." In the event that this statement is true, what happens to the wildlife? This fact presents an reasonable risk that the wildlife may not relocate and therefore may die or killed due to loss of habitat. The DEIS does not assess the complete or partial loss of specific species in project areas and what effect that has on the larger ecology.

Comment *138-003* Wildlife displacement is an ongoing problem and this will only add to it.

Response The impacts of construction and operation will result in a temporary loss of wildlife habitat associated with the forestlands in various stages of harvest and regeneration. Wildlife would be displaced from areas in active mining and in areas used for facilities. When wildlife is displaced, it usually moves to adjacent suitable habitat. However, if adjacent or nearby habitats are at their carrying capacity for a particular species, then the arrival of displaced wildlife may cause stress in the affected populations, resulting in a temporary decrease in productivity, health, and an increase in mortality for the displaced populations. Additional wildlife analysis has been conducted in preparation of the FEIS and is included in the Plants and Animals chapter of the FEIS and in the Technical Report. Mitigation measures have also been updated to respond to comments. A map of vegetation cover types can be found in the Plants and Animals chapter of the FEIS. The map indicates that the majority of the existing vegetation that will be affected is seedling shrub habitat, or replanted clear cut areas, and pole stage second growth timber. Seedling shrub areas do provide foraging habitat for some mammals and birds. The patches of pole timber have minimal wildlife habitat due to the lack of understory vegetation and the high density of trees that inhibit passage. The areas of high wildlife value, such as riparian areas and a patch of mature forest adjacent to the Upper Site, are in the project buffer and will not be affected. After mining is complete, the area will return to working forest and be replanted.

Comment *019-349* The EIS should carefully study the displacement of wildlife as a result of the environmental impact of noise, particularly predators, but to include all wildlife, as a result of the Grouse Ridge project. Driving these animals into residential areas is simply NOT an option.

Comment *020-056* Some areas would experience noise increases of more than 10 dBA, considered significant to animals by EPA.

Comment *024A-062* The DEIS states that "Research that has been conducted to examine the effects of noise on animals has focused primarily on high noise levels on laboratory animals, studies of ambient noise measurements in barns or kennels, or the effects of aircraft noise. These studies generally indicate that if adverse effects are present the effects do not occur until noise levels approach 95 to 100 dBA. (Appendix E of the DEIS on page 26 under Cumulative Impacts). Given the increased noise levels projected for the project as indicated in the noise analysis prepared for LCA over the noise levels stated in the DEIS, it is likely that the noise impacts from, at the least, the asphalt and the crusher operations could have serious adverse effects on wildlife. Please address noise impacts on wildlife after the noise assessment has been redone as called for under the Noise section of this document.

Response Mining noises can discourage wildlife species from using portions project sites. In general, however, most species will habituate to mining activity and continue to use the habitat areas adjacent to mining activity. Animals are generally tolerant of regular

steady noise such as would be produced by the steady operation of mining machinery. Noise levels in adjacent areas due to mining operations would not exceed the Ecology's Environmental Designation for Noise Abatement (EDNA) levels, which are well below noise levels known to affect animals during laboratory studies. However, some areas would experience increases of more than 10 dBA, which is considered significant under EPA guidelines. Mitigation of these noise impacts is feasible and is discussed in the North Bend Gravel Operation Noise Technical Report. A study by Raedeke Associates Inc. (1998) for the Mats Mats quarry in Jefferson County, indicates the habituation of wildlife to rock quarry including blasting at the quarry face. The Mats Mats rock quarry was surveyed during a normal period of operation in early September. The following activities were in progress at the time of the site visit: drilling for explosive charges, rock crushing, hauling of material in large, off-road trucks, large front-end loaders moving material and loading trucks and operation of conveyor belts. No explosives were set off on the days of the surveys. Under these conditions, the following species were encountered: American crow, American robin, black-tailed deer, belted kingfisher, coyote, double-crested cormorant, Douglas squirrel, great blue heron, harbor seal, herring gull, northern alligator lizard, northern pintail, northern shoveler, pacific treefrog, raccoon, red-tailed hawk, river otter and winter wren. The onsite staff at the Mats Mats quarry reported that bald eagles and osprey were also frequent visitors. If the survey had been conducted during the breeding season, many more species would likely have been encountered.

Comment *014-007*

Use of Exit 38 as a haul route would require widening and improving the Fire Training Academy Road, which winds through many miles of State DNR forest land up to the top of Grouse Ridge from the east and north. There are 13 stream crossings along the route and two major bridge crossings of the South Fork Snoqualmie River, one of which would require significant enlargement. Even with the best construction practices some impact to streams, forestlands, and the river is unavoidable. Use of Exit 34 would have no similar impacts to any rivers or streams.

Response

The use of Exit 34 would have increased impacts to traffic and congestion in a more developed area. These impacts would likely be greater than the slight effect of road widening to stream channel habitat of tributary streams crossing the Fire Training Center Road (SE Grouse Ridge Road).

Comment *016-013*

While no fish are known on the site, any release of sediment or pollutants to adjacent waters would have serious impacts.

Response

Although all applicable BMPs, standards, and guidelines will be followed to prevent construction or operation related sediment or pollutants being released to fish-bearing streams, there will be a slightly increased possibility of the release of pollutants into the South Fork of the Snoqualmie River from increased traffic on the Fire Training Center Road (SE Grouse Ridge Road), with the potential of slightly affecting fisheries resources. Road widening construction may take place at the crossing of six fish-bearing tributary streams and one additional stream that would be likely to contain water at the time of construction. The other seven stream channels are likely to be dry at the time of construction. All BMPs and standards and guidelines would be followed, and construction impacts would be minimized with very little impact to fisheries resources expected other than the loss of 10 to 30 feet of stream habitat on one side of the road at six fish-bearing streams. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish

passage upstream from the road crossing. No modifications to bridge crossings of the South Fork of the Snoqualmie River are proposed.

Comment *016-014* While the presence of bull trout has been debated, the County should take a conservative approach and proceed as if they are present. This would also provide better protection for the resident species known to inhabit these waters.

Response No impacts will occur to potential bull trout habitat. None of the tributary stream watersheds with springs fed by perched aquifers are accessible to fluvial bull trout and do not provide habitat for stream-resident bull trout. Construction to widen the Fire Training Center Road (SE Grouse Ridge Road) would only impact six fish streams and no potential bull trout spawning or rearing habitat (however, if the road is widened, replacement of the culverts would provide access to potential habitat for bull trout (if they exist in the South Fork of the Snoqualmie River) where access is currently prevented above the road.

Comment *020-057* Upper site excavation will modify discharge from perched aquifers and will impact the stream flowing south of the Fire Training Academy, which is a fish bearing stream.

Response None of the streams crossed by the Fire Training Center Road (SE Grouse Ridge Road) are fed by perched aquifers on or near the project site.

Comment *020-851* The FEIS should discuss the impacts of each alternative on the coastal cutthroat, rainbow & brook trout identified on north side of the plateau.

Response There will be no impacts to coastal cutthroat trout, rainbow trout, or brook trout resident to the stream system on the north side of the plateau. The FEIS stated there was a potential for slightly reduced flow in the middle and eastern fork of the stream system from springs fed by perched aquifers on the ridge. Surface flow from these springs does not flow into the stream and monitoring of these streams and springs over the last year has indicated that variations in total flow in the springs from 0.1 to 0.3 CFS do not produce changes in the flows of the middle and eastern forks, which are the watersheds fed by the springs.

Comment *019-599* The DEIS did not and the FEIS should identify and address the impacts to larvae, nymphs, caddis, mayflies, stoneflies, terrestrial insects, parasites, phreatophytes etc. which are present or affected by the proposed project. This is critical to offset any adverse impacts to fish and other dependent wildlife.

Comment *020-870* The DEIS does not identify or address the impacts to larvae, nymphs, caddis, mayflies, stoneflies, terrestrial insects, parasites, phreatophytes etc. which are present or affected by the proposed project.

Response The FEIS states that there is a slight chance of construction related impacts at stream crossings along the Fire Training Center Road (SE Grouse Ridge Road) impacting macroinvertebrates for a short distance below the stream crossing. Seven of the 14 crossings where construction may potentially take place would be dry during construction, with potential impacts only occurring in the six remaining fish-bearing and one non-fish bearing streams. Impacts to macroinvertebrates, if they occur, would be short-term and populations would be expected to recover within 6 months.

Comment *127-018*

There are several concerns I have with the plans that they are proposing. Pollution is my primary concern. The habitats of the salmon concern me. I see no opportunity for runoff to be prevented from going into the stream at the south fork of the Snoqualmie. My concern is that the south fork of the Snoqualmie would be deluged with silt and that the streambed would be destroyed for any kind of salmon.

Response

The project will use all BMPs, standards, and guidelines referenced in the King County Surface Water Design Manual. No construction will occur at stream crossing #1 (South Fork of the Snoqualmie River) and stream crossing #12. Seven of the remaining stream channels are unlikely to convey water even during a summer storm event, leaving a total of seven streams that have the potential of receiving and conveying sediment to the river. Three of those streams are small enough that they will probably be dammed and pumped past the construction site (less than 0.3 CFS) and the other streams are quite small and of low gradient. Construction will be limited to widening on one side of the road. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing. Under these circumstances, a release of fine sediments is unlikely and if they do occur, the release would be very small and difficult to measure against background levels of sediment present in these streams. It is extremely unlikely that measurable amounts of road construction related siltation would make it far enough from the construction site to reach the river. Impacts to macroinvertebrates, if they occur, would be short-term and populations would be expected to recover within 6 months. Repopulation of macroinvertebrates in any impacted area would occur rapidly via normal downstream drift patterns.

Comment *127-022*

My comments in terms of the Draft EIS are lack of information under riparian zones of the south fork of the Snoqualmie River to include the tributaries. So what I am proposing is a Hankin-Reeves study, H-A-N-K-I-N, R-E-E-V-E-S, be conducted on the full length of the Snoqualmie River, short of where the first runoff flow from the mine into the river, to include tributaries all the way upstream.

Response

This comment suggests a complete Hankin-Reeves survey of the full length of the Snoqualmie River drainage upstream of the project areas. Any potential project related impacts to water quality and quantity would be expected to occur downstream from the project site. Hankin-Reeves surveys are intended to provide a system-wide baseline of biological and physical watershed data to be used in managing entire watersheds as a system. As described in the DEIS, project impacts to streams would be limited to a potential reduction in discharge from several perched aquifers, construction related impacts to widening road crossings at 14 small tributaries of the South Fork of the Snoqualmie, and the cumulative impacts of increased traffic on this road. Seven of these streams would likely be dry during construction, and one of the remaining seven streams does not contain fish. The impacts to the aquifers are more completely discussed in the response to Comment 012-063 and the impacts to the streams crossed by the road are discussed in responses to Comments 075-002 and 110-003. These are potential impacts to specific stream reaches and any measurable and usable data would have to be gathered using a reach specific methodology. The discharge from the perched aquifers are presently being monitored. Baseline sediment data will be gathered before road construction and turbidity above and below the construction sites will be monitored and work stopped if turbidity increases (with appropriate measures taken to control any storm-related turbidity increases).

Comment *127-067* The length and scope of the DEIS attests to the many environmental and safety issues involved with placing an operation of this magnitude in an established residential area near several streams that may have an effect on salmon habitat.

Response No impacts to salmon habitat are expected from project related activities. There are no anadromous salmonids above Snoqualmie Falls. The proposed project would have no impact on water quality or critical salmon habitat below Snoqualmie Falls. At this time, the only expected potential impacts to fish would be the slight loss of habitat along the SE Grouse Ridge Road if the road is widened near perennial streams. Even under a worse case situation, these impacts would be very slight with the possibility of a short-term increase in fine sediments in stream #2. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing.

Comment *008-006* The draft EIS notes the potential to avoid impacts to wetlands along the road to the upper site by expanding the road away from the wetlands in three of the four locations. The final EIS should clarify the feasibility of avoiding impacts to the three wetlands in question. Additionally the final EIS should examine the need to widen the road to the upper site versus using narrowed road sections in sensitive areas as is commonly done in forest road areas.

Comment *026-025* Wetland C-1 and C-2 are jurisdictional wetlands, and widening of SE Grouse Ridge Road is essential to the safety of heavy haul trucking use. As a result, compliance with King County sensitive areas wetlands regulations requires analysis of whether this road crossing of wetlands is allowed, because the DEIS does disclose that alternative access that does not impact wetlands is practical.

Response In contrast to the results of the wetland reconnaissance as reported in the DEIS, only one wetland (Wetland C) exists along the north side of SE Grouse Ridge Road. The other four areas identified as potential wetlands in the DEIS were found to be uplands by the delineation investigation. A mitigation measure recommends road widening be limited to the south side of the road to avoid impacts to Wetland C. Road expansion near Wetland C is also discussed in Section 4.0 (Impacts and Mitigation) of the delineation report.

Comment *019-692* The DEIS did not adequately address disturbances to water, habitat and soil on the biota for the entire project area (not just the excavation site) and their direct or indirect potential, cumulative or worst-case scenario impacts. A comprehensive field observation for "Endangered, Threatened, and Sensitive Vascular Plant List" was not performed. Thorough and complete listings and field observations were not performed for all "Endangered and Threatened Species".

Response Please see responses to Comment 012-141 and Comment 019-582 for a discussion of Endangered and Threatened plant species.

Comment *012-136* [DEIS §3.5.5.2; p. 3.5-21] describes how progressive replanting of the 50-acre mined areas will essentially negate any impact on wildlife from loss of forest and plant materials. However, it will be some ten to twenty years before seedling trees begin to approximate the maturity of current forests on the site. Thus by the time of the proposed end of the project, most of the mined surfaces will be in a nascent growth phase and upwards of 200 acres will be unsuitable for wildlife habitat.

Response The current management of the project area is for timber production, harvesting on a rotation as early as 22 years up to 35 or 40 years. Additional field surveys were conducted for the FEIS. Existing vegetation was mapped and generally quantified within the project area. Currently, over 65 percent of the project area is second or third growth forests classified as seedling/shrub (1-5 years old) and sapling (5-15 years old). The remaining area is pole timber (15-25 years old) and unvegetated areas. If timber harvest continued in the project area, the current pole forests would be harvested on a rotation basis. If the project occurs, the phased mining would disturb areas containing pole timber as well as recently clearcut areas. Indeed, loss of wildlife habitat would occur with the mining, but the phased process is designed to minimize impact. The progressive replanting of the project area would result in a similar mosaic of age classes of forest that currently exist. After the mining is complete, pole forests that have developed (and those which will develop in the 20 years following) would progress into early mature and mature forests.

Comment *019-609* The DEIS did not and the FEIS should address the impacts of variant water levels and water volume flows of streams, springs or any tributorial sources (seasonally or continually) of the Middle and South Forks of the Snoqualmie River, and wetlands for all phases and all alternatives.

Comment *020-846* The FEIS should perform comparisons of the impacts to these wetlands for each alternative.

Response The FEIS includes an analysis of wetland and spring and stream impacts for each alternative.

Comment *105-002* This is a project of grand scale that will effect our wildlife and quality of life as we know it now.

Response Comment acknowledged.

Comment *019-592* The DEIS did not and the FEIS should provide adverse impacts and mitigations from increased Bear presence near or within residential areas due to the project.

Comment *020-864* The FEIS should provide data regarding the cougar and bear population and the impacts.

Comment *020-873* The DEIS did identify or address the resident cougar and bear population and the direct or indirect impacts created by the project for each alternative. It also failed to identify potential impacts of the cougars' and bears' predatory nature to follow the displaced Elk herd. The DEIS did not provide any mitigations for the protection of the public created by these displacements.

Comment *020-882* Displacement and potential impacts of the bear population and the impacts to the public.

Comment *020-883* Displacement and potential impacts of the cougar population and the impacts to the public.

Response The Washington Department of Fish and Wildlife has observed a steady increase in the cougar population in the region. This is due to a reduction of harvest or hunting and the increase of urban development into forest lands that provide suitable cougar habitat (Spencer, pers. comm. 2001). The Washington State referendum that discontinued the use of dogs for hunting cougars has resulted in a population boom. An increase in the

number of cougar sightings is a result of the increased cougar population. The population has been concentrated into a smaller area due to urban development into previously forested lands.

The proposed gravel operation will not result in any additional impacts to cougar or bear in the region than those that currently exist. Land use has been commercial forest harvest that involves a continual alteration of the landscape and habitats over time. Bear and cougar habitat has been affected by this pattern of land use. The gravel mine land use will have a similar pattern of habitat alteration and regeneration due to the phased sequence of mining operations.

Comment *019-602* The DEIS did not and the FEIS should address disturbances to water, habitat and soil and their direct and/or indirect impacts on the biota for the entire project area (not just the excavation site).

Response The DEIS states that road construction along the Fire Training Center Road (SE Grouse Ridge Road) has the potential to release a small amount of sediment into the tributary streams (at five crossings) and remove a small amount of riparian habitat. These impacts, loss of riparian buffer, and stream channel habitat would be mitigated for, which would result in no significant impact to fisheries resources in the South Fork of the Snoqualmie River. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing.

Comment *019-603* The DEIS should address and identify the riparian habitat and zones and the potential impacts (direct or indirect) for all alternatives.

Response The DEIS states that depending upon the extent of road widening required along the Fire Training Center Road (SE Grouse Ridge Road), as much as 30 feet of riparian habitat could be clear-cut along five fish streams and eight non-fish streams. One of the fish-bearing streams flows through a field at this point, and two of the other streams (including a non-fish bearing stream) flow through a clear-cut at the crossing. It is unlikely that the loss of 10-20 feet of riparian habitat along one tributary stream will produce any significant impact to fisheries resources in the Snoqualmie River. Most of the existing culverts are barriers or impediments to fish passage. Construction-related impacts due to any instream work necessary to extend culverts where fish are present in the vicinity of the road crossing would be partially mitigated by replacing these culverts with better designs that restore fish passage upstream from the road crossing.

Comment *020-838* The FEIS should address the impacts and mitigations of the aforementioned to plant and wildlife.

Response Please see the FEIS Plants and Animals chapter for a discussion of impacts and mitigation measures for plants and wildlife.

Comment *056-001* Environment: I have served as a US Forest Service Fisheries Biologist in Tonasket, WA surveying the impact of roads, timber harvests and livestock have on fish bearing streams. I was certified as a Hankin-Reeves Stream Surveyor in 1996. It my professional opinion that the South Fork of the Snoqualmie River is affected enough by current levels of traffic on I-90. Additional trucks, especially of the nature of gravel

trucks would pose a significant threat to the quality of fish habitat. I am proposing a full survey of all streams and riparian areas be conducted to include tributaries. The results of the survey would give the community an idea of the numbers and types of wildlife that could be impacted. It could also serve as a baseline to assess damage to the area caused by operation of the proposed mine.

Response The impacts referred to would occur in seven small perennial and seven intermittent ephemeral tributaries of the South Fork of the Snoqualmie River. Six of the small tributaries contain populations of resident trout. These impacts would be cumulative in nature and extremely slight in relation to total traffic related impacts within the South Fork watershed. In addition, considering the volume of flow and gradient of these streams downstream from the SE Grouse Ridge Road and the limited surface runoff in the vicinity of these streams or ditches flowing into them, impacts would not be expected to be measurable. To conduct extensive Hankin-Reeves stream surveys when the expected impacts would be impossible to separate from other impacts a short distance from the road crossings (assuming any measurable impacts could be detected) would be an inappropriate application of a Hankin-Reeves survey. This survey was designed to provide a survey of a watershed's baseline physical and biological characteristics (rather than a reach specific and more specific survey which would be required to yield any possible data relevant to project effects on these tributary streams).

Comment *019-614* The DEIS did not and the FEIS should provide the potential, adverse biological responses that could occur from possible silt infiltration and water contaminants for each alternative and provide comparisons between each alternative.

Comment *110-003* Several studies that I have read answer this question in part. The highlights are listed below.

1. Increasing amounts of fine sediments can have a detrimental effect on aquatic organisms who lay their eggs in these waterways. Fines can suffocate incubating eggs of these organisms. According to the US Dept. of Fish and Wildlife, bull trout (Federally listed and protected by the ESA) could potentially occur in waterways near the proposed gravel mine. I would think that the increased suspended sediment flushed from the gravel mine would increase risk to this species directly (if they exist) and/or destroy existing prime habitat that would sustain a reintroduced population of bull trout?
2. Increased suspended sediments can reduce growth rates and damage gills of fish if turbidity levels reach 25 NTU's for sustained periods of 5-10 days (Sigler 1984)I.
3. The ability of trout and salmon to locate prey can be impaired (turbidity levels in the range of 25-70 NTU's) (Lloyd, 1987).

In light of these potential detrimental effects of fines on the aquatic community there needs to be more emphasis placed on stream turbidity measurement (monitoring) in the DEIS.

Response The DEIS did not state how much sediment can be expected to be flushed into waterways during storm events because this is impossible to quantify. However, the project will use all BMPs and standards and guidelines referenced in the King County Surface Water Design Manual. No construction will occur at crossing #1 (South Fork of the Snoqualmie River) or Crossing #12. Seven of the remaining stream channels are unlikely to convey water even during a summer storm event, leaving a total of seven streams that have the potential of receiving and conveying sediment to the river. Three of those streams are small enough that they will probably be dammed and pumped past the construction site (less than 0.3 CFS) and the other streams are quite small and of low gradient. Construction will be limited to widening on one side of the road. Proposed in-

stream work would be done during low summer flows to minimize impacts. Some of the streams crossed would be dry during the construction period. The perennial streams would be temporarily diverted around the construction area. Under these circumstances, releases of fine sediments is unlikely and if they do occur, they would be very small and difficult to measure against background levels of sediment present in these streams. Turbidity would be monitored during construction work and work stopped and preventive measures taken if turbidity increase above a state mandated level above base line. Stream crossing #2 is the only location where any slight increase in construction related turbidity could occur and this would be extremely short-term and not above maximum levels normally occurring during stream freshets.

Comment *002-001G*

Impacts on habitat and on the economics of DNR-managed trust lands from using Exit 38 and the Fire Training Center road for site access under Alternatives 3 and 4.

Comment *002-010*

The Fire Training Road is on DNR land which is under a seventy year Habitat Conservation Plan (HCP) with the US Fish and Wildlife Service, as well as being managed according to the DNRs Forest Resource Plan (FRP). The Habitat Conservation Plan (HCP), was approved in September 1997, designates this area as nesting, roosting, and foraging habitat (NRF) for the Northern Spotted Owl and other older-forest-dependent species. Widening and improving this road to handle the truck haul proposed would have to be evaluated for impacts to habitat protected under the HCP. Increased road use in this area would also have to be analyzed for impacts to adjoining wildlife habitat and recreational use of Olallie State Park. In addition, there are thirteen stream crossings and a bridge across the Snoqualmie River and tributaries that would require upgrades to protect fish habitat and water quality.

The proposal to use Exit 38 should include additional analysis by qualified wildlife and fisheries experts to adequately address this issue.

Response

The FEIS evaluated potential impacts to habitat protected under the HCP that may result from widening and improving the Fire Training Road. The FEIS also evaluated the increased road use with regard to: (1) impacts to adjoining wildlife habitat and recreational use of Olallie State Park; and (2) the need to upgrade protection of fish habitat and water quality due to the Fire Training Roads' 14 stream crossings of the South Fork of the Snoqualmie River and its tributaries. The principal impacts from the road construction (such as widening and improvement) are the release of fine sediment into streams, temporary loss of riparian habitat and permanent loss of stream channels. Approximately 180 feet of stream channel and riparian habitat would be affected. All best management practices (BMPs) and appropriate standards will be followed during road construction to prevent the release of fine sediment into those streams crossed. Additionally, culverts will be upgraded at the time of construction to allow fish passage (a net improvement in fisheries habitat).

Based on methodology developed in a University of Washington research project (Horner, Richard R. 1985, Washington State Highway Runoff Water Quality Research Implementation. Washington State Department of Transportation, Olympia, Washington), there will be an insignificant impact to water quality and fisheries/aquatic resources from increased traffic on SE Grouse Ridge Road.

With regard to nesting, roosting and foraging habitat (NRF) for the northern spotted owl, the FEIS explains that WDNR land in the project area is not currently northern spotted owl habitat. In time, and with no harvest activity, the WDNR land could become suitable northern spotted owl habitat, although this is unlikely to occur during the 25-year life of the proposed mine.

With regard to the impacts from road construction to the northern spotted owl and other older forest-dependant species, activities at the Mats Mats rock quarry in Jefferson County were surveyed and used as a basis for discussion in the FEIS. The survey suggested that the following observed species were generally tolerant to the regular steady operation of the rock quarry: American crow, American robin, black-tailed deer, belted kingfisher, coyote, double-crested cormorant, Douglas squirrel, great blue heron, harbor seal, herring gull, northern alligator lizard, northern pintail, northern shoveler, pacific tree frog, raccoon, red-tailed hawks, river otter, and winter wren; quarry staff also reported bald eagles and osprey.

Comment *139-006* Wildlife - There is nothing but negative effects on the environment and wildlife when a gravel mine is introduced.

Response Comment acknowledged.

Comment *019-696* The DEIS failed to address the worst-case scenario to the entire ecosystem (insects, fish, birds, plants, elk, cougar, bear, etc.) for all alternatives.

Response The alternatives analysis addressed the No Action alternative, three action alternatives, and a restoration scenario. The FEIS includes additional analysis of wildlife impacts for each of the alternatives. Cumulative impacts to wildlife over time was also analyzed further using information gained from the additional biological surveys conducted in December 2000 and February 2001.

Comment *002-018* Alternatives that use Exit 38 will requite additional analysis to provide for appropriate resource protection and consistency with DNR's Habitat Conservation Plan and Forest Resources Plan. Economic impacts/benefits to state trust lands also need to be considered.

Comment *012-132* The DNR implemented a Habitat Conservation Plan (HCP) for its commercial forest lands within the range of the northern spotted owl. In DNR's HCP, their lands to the east of the project area are designated as habitat for the northern spotted owl. SE Grouse Ridge Road passes through these lands between the project area and Exit 38 on the Snoqualmie Pass Highway, 1-90.

Given that the DNR HCP documents the possible presence of Northern Spotted Owl within or adjacent to the project, more detailed analysis must be done to determine the impacts on this endangered species; mitigations must be proposed.

Comment *055-012* The second to last paragraph states “No status species, would be affected by the project”. The next paragraph states that the DNR has implemented a Habitat Conservation Plan for lands east of the project area for the Northern Spotted Owl. Why would the DNR implement this in an area that didn't have the Northern Spotted Owl? Did the DNR incorrectly establish this zone, does the DEIS base its conclusions on limited data or does the Owl recognize land boundaries. Please explain what is meant by “status” species would not be affected by the project. Is the Northern Spotted Owl not a “status” species?

Comment *127-008* The next thing I would like to address is Page 3.5-11 under threatened and endangered species. It says the DNR implemented a habitat conservation plan point HCP for its commercial forestland within the range of the Northern Spotted Owl. In DNR HCP their lands to the east of the project area are designated as habitat for the Northern Spotted Owl. Southeast Grouse Ridge Road passes through these lands in the project area and Exit 38.

Now the fact that the DNR has designated this as a Spotted Owl conservation area did not keep Weyerhaeuser from logging this land adjacent to this road to the north, did not prevent the DNR from logging land just last year adjacent to this road to the south. It is not going to prevent Cadman from building a pit at the end of this road. All it means is that you can't haul gravel over this road so you have to use a big conveyor belt to take it down to Exit 38.

Now keep in mind that Jennifer Belcher of the DNR signed an agreement to promote this project, along with King County and some others, and so what we are up against now is the DNR is going around trying to trash every other plan other than this one.

Response

The Washington Department of Natural Resources (WDNR) prepared a multi-species Habitat Conservation Plan (HCP –DNR 1997) for state trust lands to comply with the Federal Endangered Species Act (16 USC 1531 et seq.). An HCP is a long-term plan to conserve threatened and endangered species. The plan covers lands managed by WDNR within the range of the northern spotted owl. The WDNR plan allows continued timber harvests and other management activities while providing for the conservation of species listed under the Endangered Species Act. While motivated by the requirement to address spotted owl issues and management, the HCP also addresses a number of other species including bald eagles and marbled murrelets. Under the HCP, WDNR managed lands were assigned roles in the management of spotted owl habitat. Lands were assigned to one of the following categories:

- Nesting, roosting, foraging, (NRF) habitat
- Dispersal habitat
- Lands without a spotted owl role

Within designated NRF areas, the management objectives are to maintain or restore spotted owl nesting-roosting-foraging habitat. Forest management activities are severely constrained and forest harvest may be eliminated. Dispersal habitat is managed to provide the minimum forest conditions that would permit spotted owls to disperse. Other portions of WDNR lands are designated as having no role in spotted owl management and are managed for forest production and harvest, mining, or other uses. A map of land use designations of WDNR lands in the Project vicinity shows land adjacent to SE Grouse Ridge Road is primarily WDNR land and is designated as NRF habitat, from Exit 38 to approximately 1500 feet from the Fire Training Center. Additional field investigations to survey wildlife habitat were conducted in December 2000 and February 2001. A map showing the current vegetation cover types along SE Grouse Ridge Road is included in the Plants and Animals chapter of the FEIS. Dominant vegetation cover types include mixed deciduous and coniferous forest, deciduous forest, and recent clear cut harvested areas. No spotted owl nests are known in the area because the current forest patches are not suitable habitat. They do not contain the old-growth components that compose owl habitat. The area, in time and with no harvest activity, could become suitable nesting/foraging habitat.

Comment *020-049*

Two “small ephemeral streams” (1,800,000 ft 3 / yr?) Northeast of the lower site wetland (pg. 3.5 - 4) will fill the “passive freshwater storage pond”.

Comment *020-833*

The FEIS should discuss the probable significant adverse environmental impacts of each alternative on the two “small ephemeral streams” (1,800,000 ft 3 / yr) Northeast of the lower site wetland [DEIS pg. 3.5 - 4], which will fill the “passive” freshwater storage pond, on the hydrology of the area.

Response The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. The proposed water source is a well.

Comment *019-613* The DEIS should address and identify the riparian habitat and zones and the potential impacts (direct or indirect) for all alternatives.

Comment *019-695* The DEIS failed to address and identify the riparian habitat and zones and the potential impacts (direct or indirect) for all alternatives.

Comment *020-840* The FEIS should address and identify all affected riparian habitat and zones and the potential impacts (direct or indirect) for all alternatives.

Response Small pockets of riparian habitat occur at the Lower Site and along SE Grouse Ridge Road. The Lower Site contains patches of riparian vegetation associated with the wetland and stream buffers located in the northeast corner of the proposed project area. Depending on the extent of road widening required along SE Grouse Ridge Road, as much as 30 feet of riparian habitat could be clear cut along six fish streams and eight non-fish streams. One of the fish-bearing streams flows through a field and two of the other streams (including a non-fish bearing stream) flow through a clear cut at the crossing. The loss of 10 to 20 feet of riparian habitat along one tributary stream will occur in Alternatives 3 and 4.

Comment *024A-061* Please discuss the above in reference to both Alternative 3 and Alternative 4 which would lack the conveyor belt and therefore would not impact elk or other wildlife movement or migration. (Comment refers to impacts of conveyor belt.)

Response The alternatives analysis addresses the no action alternative and three action alternatives. The FEIS notes the conveyor would not be built under Alternatives 3 and 4.

Comment *024A-128* Alternative 3 and Alternative 4 will require substantial road improvements on S.E. Grouse Ridge Road to access the Upper Site

Response The alternatives analysis addresses the No Action alternative and three action alternatives, including the impacts of improvements to SE Grouse Ridge Road.

Comment *024A-127* Alternative 4 will not result in loss of vegetation at the Lower Site. There would be no effect on elk or other wildlife. There would be no need for a conveyor which could disrupt animal movement and migration.

Response Comment acknowledged.

Comment *055-014* This section also only addresses the Bull Trout, for which the DEIS determines this is not Bull Trout habitat. Why does this not address the other fish species? Is the DEIS not concerned about non-”status” fish populations? Sedimentation and petroleum contamination to streams and rivers is not addressed and it should be.

Response The DEIS fisheries sections reported the results of stream surveys in the vicinity of the project area. A stream system on the north side of the ridge was found to contain

populations of cutthroat, rainbow and brook trout. Three tributaries of the South Fork of the Snoqualmie River crossed by the SE Grouse Ridge Road were found to contain rainbow, cutthroat, and sculpin populations. The DEIS addressed potential impacts to these streams from impacts to perched aquifers (stream on north side of ridge) and road construction impacts (loss of riparian habitat, siltation, and chemical contaminants).

Comment *127-078*

Another thing that bothers me, linguistic detoxification program that you all have. Settling ponds for one. Now it is called passive fresh water pond. Therefore, it doesn't require a CUP because it is called a different thing. Cadman tried to, I think, pervert the intention of the King County Council in their setback requirements for the mine. It should be from a residence, and a residence should be defined as the property line, not someone's doorstep. When you make it the doorstep, you make a person's private property the company's buffer zone. Five to ten acre lot, you put next to mine, my ten acres becomes your buffer?

Response

The applicant has removed the freshwater storage pond from the proposal. Water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit at the Lower Site. Settling ponds would be built at the Upper Site. KCC 21A.08.090(B) states that mining operations are permitted on forestry lands if mining activities are more than ¼ mile "from an established residence." The location of the residence, not the residential lot line, triggers the requirement for a Conditional Use Permit.

3.5.2.1 Construction Impacts

Comment *075-002*

Volume 1 3.0 Existing Conditions 3.5.2.1 Construction Impacts

Terrestrial Resources -

Alternatives 3 and 4 would require widening of SE Grouse Road from the project area to Exit 38 over 1-90

Aquatic and Riparian Resources -

For Alternatives 3 and 4, the road widening and construction required to reach the upper site and bypass the Washington State Patrol Fire Training Academy would require instream work at stream crossings 1 through 11 and 13.

Response

No in-stream work will occur at stream crossing #1 (South Fork of Snoqualmie River). There is a potential for in-stream work to occur at stream crossings #2 through #11 and #13. Seven of these channels would be dry during construction. Of the remaining streams, stream #2 is the only stream that could not be easily diverted around the construction area by a dam and pump arrangement (less than 0.5 CFS flow) during low flow periods. Two of the six fish bearing streams do not contain fish populations above the road. If road widening occurs at any of the six fish-bearing streams, culverts currently blocking access to the streams above the road will be replaced with culverts that allow fish passage (increasing available spawning area for South Fork trout).

Comment *023-027*

Hence, we are concerned that vegetation will significantly be affected by the grading that would occur in this scenario. Vegetation removal is a key consideration since the DEIS repeats how trees will be preserved and branches will cover the road and conveyor, etc. If these statements are received without the benefit of a true grading

plan, based on accurate topographic mapping, the reader is not given a complete picture. Hence, by WAC 197-11-400, the DEIS is inadequate.

Response Engineering studies and detailed designs are not required for an EIS (WAC 197-11-055). A grading plan would be required as part of the permit process.

Comment *055-017* There is a quality of work error in the document Page 3.5-14 has a duplicate statement "No status species would be affected by the project" is written twice.

Response Comment noted.

3.5.2.2 Operation Impacts

Comment *012-137* [DEIS §3.5.2.2; p. 3.5-15] In apparent reference to Raedeke Associates Inc. (1998), the DEIS states "If the survey had been conducted during the breeding season, many more species would have been encountered." This is pure speculation on the part of the DEIS authors and is not supported by the cited study nor any other research by reputable scientists. The opposite is the case: breeding behaviors are often negatively impacted by even subtle changes to the surrounding environment including perturbations due to noise and light. Before presentation of a final EIS, a thorough review of noise impacts on wildlife, especially birds, must be done taking into account the substantial body of scientific research on the topic such as the resources cited in the References section herein (see the References section on "Noise Effects on Wildlife," p. 54).

Response The FEIS evaluates the impact of noise on wildlife, including birds, in Chapter 5 "Noise" and Chapter 7 "Plants and Animals".

Comment *055-018* Wildlife community descriptions in the middle of page 3.5-14 reference dates of up to 16 years old. The area with 5 square miles of Grouse Ridge has changed dramatically in the past 16 years. This data is not current, unless the DEIS assumes that the Ecological characteristics of the area have not changed. It is recommended that wildlife descriptions be based on current (within 2 years) data. This updated data will clearly find that the descriptions have changed. There is potential that certain species, such as the elk are at a threshold of human tolerance. A significant activity such as the proposed mine may push species tolerance beyond their thresholds.

Response King County (1987) provides a species habitat matrix that identifies the species that are likely to be found in various vegetation cover-types in King County. This matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats found throughout the county. The King County matrix currently serves as a standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. Species which occurred in second-growth forests 14 years ago would be the same species in second-growth forests today. The Plants and Animals Technical Report of the FEIS (Appendix B), is the principal table from King County's Wildlife Habitat Relationships (1987). It has been edited to include only the cover-types found in or proximate to the project area. The wildlife species present within the project area can be represented by identifying what type of vegetation cover types exist (e.g. seedling shrub, sapling, pole, etc.) and in how large an area.

Two additional field visits were conducted after the publication of the DEIS to conduct additional wildlife habitat and vegetation surveys. Wildlife species encountered during those visits are documented in the table as well as wildlife species reported by local residents in the comment letters and public meetings.

No extensive stands of old-growth forest remain in the project area or in the vicinity. WDFW Priority Habitats and Species Program maintains maps of old-growth in the state that are based on 1988 and 1989 LandSat MSS Data. These maps show two small patches of old-growth/mature forests within the project lease area boundary in the Upper Site. Field investigations found that one of the patches had been harvested since the time of the LandSat analysis. The other patch is found in the southwest corner of the Upper Site. This area contains down woody debris and snags, has an open canopy and several other old growth components. This patch of mature forest is located outside the project boundary in the buffer and will therefore be retained as high value wildlife habitat.

Comment *017-006*

Streams, wetlands, ponds and wells to the North of the Upper site are effected by the springs on the North face of Grouse Ridge. Valley Camp is very concerned that the volume and quality of water from these springs not be effected by the gravel operation. Page 3.5-15 'Aquatic and Riparian Resources' section needs further study: It is the Opinion of Valley Camp, after 44 years of knowledge of activity in the area that the majority of the supply of water during the dry months for the streams, wetlands and ponds to the North of the upper site come from the springs on the North face of Grouse ridge. A reduction in flow from these springs will have a major negative impact on all plants and animals. Valley Camp is concerned that the depth of the upper site not be lowered below the proposed 1535 foot elevation. "Page 3.5-9 states "A few residents recall seeing Elk during Summer". The Elk herd has been for years a Summer resident of this area. Elk are seen almost daily year a round. This herd is made up of over 30 animals and can at times block the roads in the area as they cross.

Response

Comment acknowledged. The Plants and Animals chapter analyzes the potential impacts of the Proposal and alternatives in the Springs. Changes in Spring flows fed by perched aquifers are not likely to have significant impacts on wildlife.

Comment *020-853*

The FEIS should discuss in detail the environmental impacts associated with the fact that "some areas would experience noise increases of more than 10 dBA, considered significant to animals by EPA." [DEIS, pg. 3.5 - 14]

Response

Mining noises can discourage wildlife species from using portions of the project site. In general, however, most species will habituate to mining activities and continue to use the habitat areas adjacent to mining activities. Animals are generally tolerant of regular steady noise such as would be produced by the steady operation of mining machinery. Noise levels in adjacent areas due to mining operations would not exceed Ecology's Environmental Designation for Noise Abatement (EDNA) levels, which are well below noise levels known to affect animals during laboratory studies. However, some areas would experience increases of more than 10 dBA, which is considered significant under EPA guidelines. Mitigation of these noise impacts is feasible and is discussed in the North Bend Gravel Operations Noise Technical Report.

A study by Raedeke Associated Inc. (1998) for the Mats Mats quarry in Jefferson County, indicated that habituation of wildlife to rock quarry including the blasting at the quarry face. The Mats Mats rock quarry surveyed during normal periods of operation in early September. The following activities were in progress at the time of the site visit: drilling for explosive charges, rock crushing, hauling of materials in large off-road

trucks, large front-end loaders moving material and loading trucks and operation of conveyor belts. No explosives were set off on the days of the surveys. Under these conditions, the following species were encountered: American crow, American robin, black-tailed deer, belted kingfisher, coyote, double-crested cormorant, Douglas squirrel, great blue heron, harbor seal, herring gull, northern alligator lizard, northern pintail, northern shoveler, pacific tree frog, raccoon, red-tailed hawk, river otter and winter wren. The onsite staff at the Mats Mats quarry reported that bald eagles and osprey were also frequent visitors. If the survey have been conducted during the breeding season, many more species would likely have been encountered.

Comment *071-008*

Explanation of how tributaries of the Snoqualmie River as well as the main forks will be monitored for wildlife for the duration of the project.

Response

Any in-stream work on the tributaries of the South Fork of the Snoqualmie River would include monitoring below the construction site for water turbidity until construction is completed and the site has been revegetated. Springs fed by perched aquifers on the Upper Site would be monitored for adequate flow for the duration of the project.

Comment *115-051*

p. 3.5-14 Regarding habituation of wildlife to quarry activities: When animals have been forced out of their homes and have nowhere else to go, of course they will be seen passing through a quarry site, not likely staying for any length of time.

Response

The impacts of construction and operation will result in a temporary loss of wildlife habitat associated with the forestlands in various stages of harvest and regeneration. Wildlife would be displaced from areas in active mining and in areas used for facilities. When wildlife is displaced, it usually moves to adjacent suitable habitat. However, if adjacent or nearby habitats are at their carrying capacity for a particular species, then the arrival of displace wildlife may cause stress in the affected populations, resulting in a temporary decrease in productivity, health, and an increase in mortality for the displaced populations. Additional wildlife analysis has been conducted in preparation of the FEIS and is included in the Plants and Animals chapter of the FEIS and in the Technical Report. Mitigation measures have also been updated to respond to comments. A map of vegetation cover types can be found in the Plants and Animals chapter of the FEIS. The map indicates that the majority of the existing vegetation that will be affected is seedling shrub habitat, or replanted clear cut areas, and pole stage second growth timber. Seedling shrub areas do provide foraging habitat for some mammals and birds. The patches of pole timber have minimal wildlife habitat due to the lack of understory vegetation and the high density of trees that inhibit passage. The areas of high wildlife value, such as riparian areas and a patch of mature forest adjacent to the Upper Site, are in the project buffer and will not be affected. After the 5-year period, the area will return to working forest and be replanted.

Comment *104-003*

Page 3.5-13 & 14: Mining operation noises discourage breeding wildlife species from using the project sites. Adverse effects include avoidance behavior and stress-related effects. Animals are generally tolerant of regular steady noise such as would be produced by the steady operation of mining machinery. Many of these species (present in the area that is not an active quarry) will tolerate or habituate to the disturbances of human activities and persist as long as appropriate habitat is present. No explosives were set off on the days of the surveys. If the survey had been conducted during the breeding season, many more species would have been encountered. The displacement of wildlife from the project site into nearby habitats may cause stress in the affected populations.

There is no question that the local wildlife will be affected by these mining operations. At the very least, surveys should be conducted during the breeding season to find out about the many more species that would be discouraged from using the project sites.

Response It is acknowledged that wildlife would be affected by the proposed project. To determine what species currently use the project site, the King County Habitat Matrix (1987) was used. The matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats throughout the county. The King County matrix currently serves as a standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. The matrix is attached to the Plants and Animals Technical Report. It has been edited to include only the cover-types found in or proximate to the project area. The wildlife species present within the project area can be represented by identifying what type of vegetation cover types exist (e.g., seedling shrub, sapling, pole, etc.) and in how large an area.

After the publication of the DEIS, two additional field visits were conducted to survey wildlife habitat and vegetation. Wildlife species encountered during those visits are documented in the table as well as wildlife species reported by local residents in the comment letters and public meetings. The project area is generally highly disturbed, early second growth, commercial forest composed primarily of Douglas fir, but with some western hemlock, western red cedar, red alder, big-leaf maple, and other species. Over most of the area, there is infrequent down woody debris other than tree stumps, few to no snags, and no large stature mature trees. The exception to this general observation is the area indicated as mature forest in the map of existing vegetation provided in the FEIS. This area contains down woody debris and snags, has an open canopy and resembles old-growth forest in its composition. This patch of mature forest is located outside the project boundary in the buffer and will therefore be retained as high value wildlife habitat. Over most of the project area, the absence of woody debris, snags, and old-growth like trees precludes the presence of most cavity nesting or cavity dependent bird species. While grasses, forbs, and shrubs are present in the seedling/sapling areas, the remainder of the pole and early mature forests are in the stem exclusion stage of forest development and are almost devoid of understory vegetation. Photographs of the different vegetation cover types can be found in the Plants and Animals Technical Report of the FEIS. A map of vegetation cover types is in the Plants and Animals chapter. The map shows that the majority of existing vegetation that would be affected is seedling shrub.

Comment *045-051* Page 3.5-16, Terrestrial Resources: It is not a fact that only "50 acres [of habitat loss would occur] at any given time." Even if the phased "mining areas [were] reclaimed in a timely and appropriate manner (as required by the East King County Ground Water Management Plan, July 1996), it takes a long time for true habitat to return. And optimal habitat would not return as long as adjacent heavy operation activities continued (for 25 years).

Response Comment acknowledged.

Comment *115-052* p. 3.5-15 Aquatic and Riparian resources: "These changes in stream flows are unlikely to have significant impacts..." Sounds like this major mining project is not likely to have very many significant impacts. This draft needs to be reworked.

Response Potential impacts to streams are discussed in the FEIS.

Comment *020-780* The FEIS should address the effects of 24-hour light pollution on the local wildlife to include the resident elk herd.

Response A description of the lighting anticipated at the site is in the Aesthetics, Light, and Glare chapter. Impacts of lighting on wildlife are expected to be low. Wildlife, although initially disturbed by lighting, generally adapt to lighting as they do to noise.

Comment *020-781* The FEIS should address the effect of 24-hour light pollution on the local plant life.

Response The intensity of light from this project on surrounding local plant life is too low to affect photosynthesis and respiration. No effects should be expected.

Comment *020-829* The DEIS is seriously flawed in that it fails to adequately discuss indigenous fish population impacts from alterations in groundwater discharge to springs, streams, and the Middle and South Forks of the Snoqualmie Rivers. Furthermore adverse impacts on the habitat, and short and long-term preservation of the resident elk herd/herds of the Upper Snoqualmie Valley were inadequately reviewed.

Response There is a possibility that mining may penetrate perched aquifers areas that supply water to springs in the headwaters of streams on the north and south sides of Grouse Ridge. Water from springs on the south side of Grouse Ridge and spring S-10 on the north side of Grouse Ridge flows through surface channels for 50 to 100 feet before flowing subsurface with no surface connection to the lower reaches of the streams where fish populations are present. A cluster of springs (springs S-1, S-2, S-3 and S-4) draining the north side of Grouse Ridge has an intermittent surface connection to the lower reaches of the stream during periods of stormwater runoff. A cluster of springs (springs S-6 and S-7) farther to the east has a similar intermittent surface connection to the lower reaches of the stream. The headwater channels and riparian areas fed by these springs either have no surface connection to lower stream reaches or are connected by intermittent channels which only carry water during periods of stormwater runoff. No downstream drift of food organisms (macroinvertebrates) or transport of woody debris occurs from these isolated stream channels to fish-bearing stream reaches at lower elevations. Headwater springs on the north side of Grouse Ridge are estimated to contribute approximately 10 percent of the total flow in the stream basin draining the north side of Grouse Ridge. Monitoring of the flow rates for the past two years of these headwater springs and intermittent measurements of the lower, fish-bearing reaches of streams flowing north from Grouse Ridge has shown no direct correlation between flow rates from headwater springs and stream flows in the lower fish-bearing reaches. While there is a slight potential for the extreme headwater portions of streams draining north from Grouse Ridge being impacted if mining operations alter the direction of flow from perched aquifers, fish-bearing portions of the streams will not be impacted by the proposed project. Impacts to aquatic riparian resources are discussed in the FEIS. A supplemental discussion and analysis of impacts to elk is included in the FEIS.

Comment *038-002* Conveyor Belt - Considering no plans have been submitted for the proposed conveyor belt, how can we accurately assess the impacts it will have on aesthetics and wildlife? Not only will it be an eyesore and impact the aesthetics of the hillside, but it will also significantly affect the migratory patterns of the elk. It's depicted as a straight line on all the maps, but without a thorough engineering study of the rugged terrain, it's difficult to assess the path of the belt and the resulting impacts. How many trees will have to be cleared to accommodate a belt 36” to 48” wide? Being covered with a non-glare surface and an occasional tree branch will hardly preserve the aesthetics of the area.

Response Additional visual simulations of the conveyor have been incorporated into the Final EIS. Refer to the Aesthetics, Light and Glare chapter for detail. The worst-case scenario for the conveyor alignment analyzed in the FEIS shows a grading limit of 70 feet to 110 feet (Figure 3-2). The proposal includes revegetating disturbed areas or both sides of the road.

Smaller animals would be able to cross under the conveyor belt. The maintenance road would pass under the conveyor in two locations, and an existing forest road would pass under the conveyor in one location, providing access for deer and elk. The underpasses would provide passage for deer and elk. Regarding noise associated with the conveyor belt, observation at the Mats Mats Rock Quarry and the Maury Island Gravel Quarry (Raedeke Associates Inc. 1997 and 1999) indicate that animals habituate to the sounds of mining activity, including the sound of conveyor belt, and would use the mine and buffer area.

Comment *024A-141* Wildlife Appendix E. page 23, section 3.1.2 states in reference to Alternative 4 "Impacts to plants, fish and wildlife resources during construction are similar to those during the operation of the facility, although, this sentence is deleted in the DEIS Volume 1 Wildlife Section. It is confusing and again demonstrates the failure to accurately assess the different alternatives distinguish in the assessment between the Lower Site and the Upper Site. There will be no impact on wildlife on the Lower Site in Alternative 4 other than as relates to the development of a well and pipeline.

Response Comment acknowledged.

Comment *020-841* The FEIS should conduct field observations for Endangered and Threatened species in greater depth, conditions and times for proper identification and evaluation.

Comment *020-842* The FEIS should conduct field surveys of the Pileated Woodpecker in species analysis.

Comment *020-843* The FEIS should perform comparisons and impacts of these observations for each alternative

Comment *055-006* Approach to wildlife assessment is not scientific. "Potential impacts to plants, fish and wildlife from the project were qualitatively assessed .... " A thorough plants, fish and wildlife inventory and cataloging should occur to accurately understand the base line of plants and animals. "Qualitatively assessed" is not the same as "quantitatively assessed". The establishment of this baseline is essential to measure future damage. How can we say "the Elk herd has decreased or increased xx% since the inception of this mine?" based on no measurable baseline.

Response The alternatives analysis addressed the No Action alternative, three action alternatives, and a restoration scenario. The FEIS has been updated to include additional analysis of wildlife impacts for each of the alternatives. Cumulative impacts to wildlife over time was also analyzed using information gained from the additional biological surveys conducted in December 2000 and February 2001.

Comment *012-139* [DEIS §3.5, p. 3.5-13] affirms when wildlife species are displaced, suitable adjacent habitat may be used as an alternative." However, this is not necessarily accurate. Adjacent habitats may or may not be available and/or suitable for displaced species. The DEIS makes no assessment of adjacent areas for impacted species. Available areas

need to be studied to determine if they can sustain additional populations. Smaller species may not be capable of migrating due to distances or terrain.

***Comment** 019-584*

"Excavation at the upper site may modify discharge from perched aquifers..." [DEIS vol. II, appendix E, sec. 3.3, Cumulative Impacts, pg. 27] and "Excavation at the Upper Site may modify discharge from perched aquifers feeding the middle and east fork of the unnamed tributary of the Middle Fork of the Snoqualmie River and the stream flowing directly south of the Washington State Patrol Fire Training Academy into the South Fork of the Snoqualmie River." [DEIS vol. II, appendix E, sec. 3.3, Cumulative Impacts, pg. 27].

***Comment** 019-607*

The FEIS should require the entire site be mapped to avoid serious and irreversible adverse impacts to fish and wildlife. "In the study area, groundwater discharges from aquifers into the Middle and South Forks of the Snoqualmie River." [DEIS vol. II, appendix. D, page 9, Discharge]. "The loss of groundwater from a breached aquifer could also cause permanent changes in groundwater flow to streams and springs" and "... any groundwater seeps or springs could be a factor in slope failures". [Hart Crowser Report page 18].

***Comment** 055-019*

Terrestrial Resources: On page 3.5-14 the bottom third of the paragraph states that a survey was conducted "during a normal period of operation in early September". The sections continues stating that the "onsite staff reported that bald eagles and osprey were also frequent visitors. If the survey had been conducted during the breeding season, many more species would have been encountered". This is a subjective statement and not scientific. In fact, according to "Bird Behavior, Volume III" by Donald & Lillian Stokes, copyright 1989, on page 84, it states that the Bald Eagle breeding period is in early September. The DEIS presents data based on unscientific observations.

Response

To adequately respond to comments, supplemental wildlife habitat surveys were conducted after publication of the DEIS. A map of existing vegetation cover-types was developed to assess wildlife habitat in the project area. This is included in the Plants and Animals chapter of the FEIS with a table showing the approximate area of each cover type. A wetland delineation was also performed for the FEIS. A wetland report and assessment of impacts is provided in Plants and Animals Technical Report. Additional stream surveys for fish habitat assessment were also conducted. The analysis of impacts in the FEIS has been supplemented with the survey results.

It is acknowledged that wildlife will be affected by the proposed project. To determine what species currently use the project site, the King County Habitat Matrix (1987) was used. The matrix compiles the experience gained over many years by many observers, and incorporates several other studies that surveyed what species were found in the different habitats throughout the county. The King County matrix currently serves as a standard for an accurate inventory of wildlife species and their habitats as it is more comprehensive than isolated field visits conducted for specific projects. The matrix is attached to the Plants and Animals Technical Report. It has been edited to include only the cover-types found in or proximate to the project area. The wildlife species present within the project area can be represented by identifying what type of vegetation cover types exist (e.g., seedling shrub, sapling, pole, etc.) and in how large an area.

***Comment** 012-005*

Failure to cite authoritative research on the impact of traffic and industrial noise on bird populations (see [DEIS §3.5.2.2; p. 3.5-15], commented on here in section 10.4, "Operation Impacts"). (Comment refers to exclusion of primary research.)

Response

Mining noises can discourage wildlife species from using portions of project sites. In general, however, most species will habituate to mining activity and continue to use the

habitat areas adjacent to mining activity. Animals are generally tolerant of regular steady noise such as would be produced by the steady operation of mining machinery. Noise levels in adjacent areas due to mining operations would not exceed the Ecology's Environmental Designation for Noise Abatement (EDNA) levels, which are well below noise levels known to affect animals during laboratory studies. However, some areas would experience increases of more than 10 dBA, which is considered significant under EPA guidelines. Mitigation of these noise impacts is feasible and is discussed in the North Bend Gravel Operation Noise Technical Report. A study by Raedeke Associates Inc. (1998) for the Mats Mats quarry in Jefferson County, indicates the habituation of wildlife to rock quarry including blasting at the quarry face. The Mats Mats rock quarry was surveyed during a normal period of operation in early September. The following activities were in progress at the time of the site visit: drilling for explosive charges, rock crushing, hauling of material in large, off-road trucks, large front-end loaders moving material and loading trucks and operation of conveyor belts. No explosives were set off on the days of the surveys. Under these conditions, the following species were encountered: American crow, American robin, black-tailed deer, belted kingfisher, coyote, double-crested cormorant, Douglas squirrel, great blue heron, harbor seal, herring gull, northern alligator lizard, northern pintail, northern shoveler, pacific treefrog, raccoon, red-tailed hawk, river otter and winter wren. The onsite staff at the Mats Mats quarry reported that bald eagles and osprey were also frequent visitors. If the survey had been conducted during the breeding season, many more species would likely have been encountered.

Comment *055-013*

Aquatic and Riparian Resources: DEIS states "The road is paved and it is unlikely that truck traffic on this road would release any significant amount of fine sediment into the streams". No consideration has been given to petroleum leaks that would collect on the road surface and then washed into the riparian areas during this region's frequent rainfall unless Cadman can assure that no vehicles will leak. The second point is that there is significant fine sediment around Cadman's Issaquah operations. The road is paved leaving the plant. Since there is sedimentation there, but it is unlikely that sedimentation will occur on Grouse Ridge, please outline what specifically will cause the sedimentation to be "unlikely".

Response

Traffic related release of fine sediment into streams is generally associated with the erosion of non-paved road surfaces caused by truck traffic on forest and rural roads. In areas of high vehicle usage on non-paved roads, paving the surface is the best (although most expensive) method of reducing or eliminating this erosion of the road surface and subsequent release of fine sediments. It is true that higher traffic levels on roads also increase the amount of chemical contaminants from oil leakage, exhaust, and tire wear. This represents a slight cumulative impact to streams from surface water runoff from the road surfaces. Mitigation measures applied during road construction and widening are designed to avoid, minimize, or eliminate impacts to the aquatic environment due to the release of sediment into streams. These measures and Best Management Practices include sediment barriers to fence off the stream, construction during low flows or dry periods, minimal disturbance to the stream corridor, replacement of culverts that restore fish passage, revegetation and stabilization of streambanks after construction, and turbidity monitoring before and during construction. Additional information may be found in Section 7.3.3 of the FEIS. It is extremely unlikely that any measurable effect to fish and macroinvertebrate populations in project vicinity streams will occur.

3.5.3 Cumulative Impacts

Comment *019-593*

The DEIS did not and the FEIS should provide the cumulative adverse impacts to the local Elk herd due to displacement:

a. Reduction in calving number
b. Mortality rates caused by predators or traffic accidents

Response

In response to concerns regarding elk displacement and disturbance, additional research and habitat analysis was conducted. Additional field investigations by biologists surveyed existing vegetation specifically for elk habitat value. Washington Department of Fish and Wildlife biologists were contacted for additional information regarding the local herd. Elk have historically been associated with undeveloped areas with few open roads and little human disturbance. More recently, some elk populations have become habituated to rural developments and now reside at the edge of developed or developing areas.

Impacts will result in a temporary loss of habitat. Suitable adjacent habitat may be used as an alternative and the displacement of wildlife from the project site into nearby habitats may cause some stress in the affected populations. Rocky Mountain elk using the Lower Site as winter range would be displaced to similar habitat in adjacent areas. If these animals attempt to occupy habitat closer to residential areas, foraging on residential landscaping may increase. The proposed conveyor system extending from the Lower Site to the Upper Site will be built low to the ground, and deer and elk may not be able pass under the conveyor. The maintenance road would pass under the conveyor in two locations, and an existing forest road would pass under the conveyor in one location, providing access for deer and elk. Elk often use roads for travel corridors where available, especially in areas closed to hunting. Elk may use the underpasses for crossing under the conveyor belt. Other migratory routes through the project area, that do not cross the conveyor belt corridor, are also present. Elk may travel on the north side of the Lower Site, avoiding the conveyor belt, or through the southern portion of the Lower Site and along the south side of Grouse Ridge.

Comment *142-012*

3.5.3 4th Paragraph This whole paragraph describes how the whole area surrounding this proposed gravel mine is protected by National, Regional and local plans. That alone should tell you this needs to stay undisturbed. It goes on saying, “The development of the project will cause the temporary (25 years is not temporary) loss of 271 acres of actively managed and harvested forest plantations of low wildlife value”. It has been stated earlier that there's an abundance of wildlife in the area. Who are they trying to fool? It goes on saying “it is unlikely that the projects would contribute to any cumulative long-term impacts in the region” Well their temporary (25 years) impact will chase every wildlife known to man out of the area for multiple generations. “The wetlands and streams in the lower site may be impacted by the construction”. All this may or possibly impact seems to me that the engineers of the DEIS didn't want to say “IT WILL HAPPEN” Please don't let it happen!

Response

Comment acknowledged. Please refer to the Plants and Animals chapter of this FEIS for a discussion on wildlife impacts.

Comment *016-012*

Despite the impacts of past logging and excavation, the area still has value as wildlife habitat, especially at the upper site. Since Cadman is relying on restoration as part of its mitigation, the plans for the upper site must be more specific on types of wildlife that

would benefit and over what period of time. Clearly, a new forest will take more than a century to achieve late successional characteristics.

Response Comment acknowledged. Detailed mining and reclamation plans would be required for the grading permit.

Comment *115-053* p.3.5-17 A page and a half is devoted to explaining how the land use patterns are changing due to concerns about water quality, fisheries, and wildlife. However, we've been told throughout this document that this mine is not likely to have significant adverse impacts on anything (which I think is a bunch of bull.) Destroying the environment for 25 years (or more!) does not justify the ultimate end land use, which (supposedly) is to turn over the land to public ownership.

Response Comment acknowledged. The existing land use patterns in the area are described in the Land Use chapter of this FEIS. The land use pattern has been influenced by many factors including physical characteristics (rivers, hillsides and valleys), natural resource uses (logging), transportation systems, environmental constraints and governmental regulation.

Comment *104-002* "....management of much of private, state, and municipal forest has been modified due to the concerns for threatened and endangered wildlife. Under the Endangered Species Act, forest management plans have been developed which provide for the protection of threatened and endangered species. In view of the pattern of forest land ownership in the region, and the increased level of protection these lands will received (sic) under current or soon to be implemented forest plans, it is unlikely that the projects would contribute to any cumulative long-term impacts in the region.

Nest sites for both northern spotted owls and marbled murrelets have been located in the region. Currently, the project lands are neither suitable nesting nor foraging habitat for northern spotted owls nor suitable nesting habitat for marbled murrelets. The project lands are not within a flight corridor that either species would use."

This passage is very difficult to understand and makes a lot of assumptions with no evidence. It indicates first that forest management practices have been inadequate and are being improved to protect endangered species. It does not indicate how 25 years of gravel mining will result in increased protection. What is meant by cumulative long-term impacts in the region? Perhaps if the management of the property was immediately improved, it could become a suitable nesting habitat that would attract spotted owls and marbled murrelet. There is no evidence that neither species would travel within this "flight corridor.

Response WDFW Priority Habitat and Species maps (WDFW-PHS 2000) do not show any spotted owl territories on Grouse Ridge. The closest spotted owl territory is located to the east-northeast on the north side of Bandarra Ridge. Spotted Owl habitat as defined by Washington Forest Practices Rules (WAC 222-16) is divided into nesting-roosting-foraging (NRF) habitat, and dispersal habitat. NRF habitat is found in old-growth habitat and sub-mature habitat. The FEIS contains supplemental information and analyses to address cumulative impacts to plants and animals.

Comment *142-011* 3.5.3 Cumulative Impacts First paragraph…but a potential for cumulative impacts on the river from multiple sources of sediment discharge does exist." It goes on to say because of this and that "it is unlikely that significant impacts to the South Fork of the Snoqualmie would occur". They are contradicting themselves. This is a Class I river

according to King County, and has Bull Trout living in it. The silt runoff will destroy the habitat for this endangered species.

Response Comment noted. The potential exists if best management practices (which are required by code) are not implemented.

3.5.4 Mitigation Measures

Comment *019-590* The DEIS did not and the FEIS should provide adverse impacts and mitigations from increased Cougar presence near or within residential areas due to the project.

Comment *020-865* The FEIS should provide mitigations for the protection and well being of the public for the aforementioned predators due to displacement caused by the project. (Comment refers to cougars and bears.)

Response The Washington Department of Fish and Wildlife has observed a steady increase in the cougar population in the region. This is due to a reduction of harvest or hunting and the increase of urban development into forest lands that provide suitable cougar habitat (Spencer, pers. comm. 2001). The Washington State referendum that discontinued the use of dogs for hunting cougars has resulted in a population boom. An increase in the number of cougar sightings is a result of the increased cougar population. The population has been concentrated into a smaller area due to urban development into previously forested lands. The proposed gravel operation will not result in any additional impacts to cougar in the region than those that currently exist. Land use has been commercial forest harvest that involves a continual alteration of the landscape and habitats over time. The gravel mine land use will have a similar pattern of habitat alteration and regeneration due to the phased sequence of mining operations. The proposed gravel operation also would not result in any additional impacts to bear in the region than those that currently exist. Bear habitat has also been affected by this pattern of land use and will not incur any additional losses in value or concentrations.

Comment *019-594* The DEIS did not and the FEIS should provide adverse impacts and mitigations from increased Elk presence near or within residential areas due to the project.

Response Impacts will result in a temporary loss of habitat. Suitable adjacent habitat may be used as an alternative and the displacement of wildlife from the project site into nearby habitats may cause some stress in the affected populations. Rocky Mountain elk using the Lower Site as winter range would be displaced to similar habitat in adjacent areas. If these animals attempt to occupy habitat closer to residential areas, foraging on residential landscaping may increase. No mitigations are proposed.

Comment *012-062* The fourth paragraph on [DEIS p. 3.5-13] should clearly state that any filling of wetlands requires mitigation by creating new wetlands prior to their impacts. There should be no net loss of wetlands at any time during this proposed operation.

Comment *045-053* Page 3.5-20, 7th bullet: The statement that "replacement [of wetlands] may be allowed off-site if... greater biologic and hydrologic functions will be achieved" indeed cannot be achieved. It has been proven all over the U.S. that artificially-created wetlands do not reach the function and condition of natural ones (WetNet; Audubon Society; many other reports).

Response Elimination of wetlands as a result of this project will likely be avoided. Thus, compensatory mitigation via wetland restoration, enhancement, or creation will likely be unnecessary. If compensatory mitigation is required, wetland creation may be a feasible option. However, wetland creation is typically much more costly and less successful at offsetting losses in wetland functional performance than wetland restoration and enhancement. Thus, wetland restoration and enhancement options will be given greater preference if compensatory mitigation is required. Wetland functional performance may be used as the unit by which no net loss of wetlands can be gauged instead of wetland acreage. According to the Corps and the US Environmental Protection Agency (EPA), the objective of compensatory mitigation is to provide, at a minimum, full replacement of wetland value (Corps and EPA, 1990). Hence, gain or loss of wetlands can be measured in terms of value, the goods and services that wetlands provide to society, rather than only in terms of acreage. Functional performance may be used as a surrogate for value since wetland value depends largely upon underlying functions and is more difficult to assess than wetland functional performance.

Comment *104-001* I am writing to state some of my concerns about the DEIS for the Grouse Ridge Cadman mining proposal. On page 3.5-18 there are several statements that are confusing and unclear, and in some instances appear to contradict other statements on the same page.

"The development of the project will cause the temporary loss 271 acres of actively managed and harvested forest plantations of low wildlife value." In whose opinion are these acres of low wildlife value? It is indicated that a variety of animals, fish, and amphibians inhabit this area. If there are no proven endangered species in residence, it does not necessarily follow that the wildlife value is low.

Response Comment acknowledged. The project area is a portion of the plateau west of Bandarra Ridge, east of Edgewick Road, and between the Middle and South Forks of the Snoqualmie River and is composed of second growth coniferous, mixed, and deciduous forest. In the early 20th Century the region would have been old-growth coniferous forest composed of western hemlock, Douglas fir, and western red cedar with a minor component of deciduous trees including red alder, big-leaf maple, and black cottonwood. These forests were harvested between about 1915 and 1925. A second generation of forests replaced the old-growth forest. The second-generation forests have been harvested over much of the area and only a few relic patches of the old-growth and/or mature forest remain. No extensive stands of old-growth forest remain in the project area or in the vicinity. WDFW Priority Habitats and Species Program maintains maps of old-growth in the state that are based on 1988 and 1989 LandSat MSS Data. These maps show two small patches of old-growth/mature forests within the project lease area boundary in the Upper Site. Field investigation found that one of the patches had been harvested since the time of the LandSat analysis. The other patch is found in the southwest corner of the Upper Site. This area contains down woody debris and snags, has an open canopy and several other old growth components. This patch of mature forest is located outside the project boundary in the buffer and will therefore be retained as high value wildlife habitat. Generally, managed timber lands do not provide high quality wildlife habitat due to the lack of diversity of vegetation species, lack of shelters for animal species and interruption to wildlife corridors.

Comment *012-142* No provision is made for the control of noxious weeds during the reclamation period. The areas near the project are heavily infested with plant varieties included in the King County Noxious Weeds 2000 List (see King County DNR 2000b). By definition these varieties readily spread and adapt to less than optimal conditions, thus they will be the first species to appear in mined-out areas and for many years will be a threat to displace native plants used in reclamation.

This is a non-trivial issue given that (1) State law mandates all counties to manage noxious weeds, (2) King County has been the target of a lawsuit and is under court order to control noxious weeds, and (3) county residents currently have a noxious weed assessment as part of their property taxes. The invasive nature of plants like Scot's Broom can already be seen today in the Lower Site area and along logging roads throughout the Snoqualmie Valley. If noxious plants are not properly managed during the early reclamation phases, King County could ultimately acquire hundreds of acres of land overrun with invasive, non-native plants. Thus the DEIS needs to list the noxious weeds found in the area, assess their impact and provide mitigations.

Response A mitigation measure in Plants and Animals chapter of the FEIS calls for consultation with King County regarding control of noxious weeds.

Comment *012-083* [DEIS pp. 2-20 to 2-26 and 3.5-21] describe phases of operations that contain a good deal of discussion regarding landscaping, re-planting and other vegetative re-generation activities, including a seemingly ambitious schedule to obtain 30-foot Douglas fir trees. What quantities of water will be used to sustain plants until they are established?

Response No water is expected to be needed to re-establish vegetation. If ground cover planting occurs prior to first fall rains and evergreen planting occurs in early winter, adequate precipitation would be available for reforestation. Annual rainfall is estimated at 80 to 90 inches, with a minimum of four inches monthly during 10 months of the year.

3.5.4.1 Alternative 1 – No Action

No comments were received on this section of the DEIS.

3.5.4.2 Alternatives 2, 3, and 4

Comment *012-122* Reclamation plans should thus take into account the quantity of topsoil needed to support new plantings. What varieties, quantities, densities and distribution of plants will be used? And more importantly, how will new plants receive adequate watering to ensure survival during early months or years? Since the site is to revert to DNR stewardship upon termination of mining activities, the agency could inherit hundreds of acres of land with smallish plants unable to maintain soil stability and prevent erosion and run off. How is the Proponent's reclamation responsibility enforced once mining has ceased and the site reverts to public ownership?

Response Planting of groundcover seeding mixtures and Douglas fir seedlings are discussed in the Revised Draft Reclamation Plan. The applicant estimates excavation of 130,000 cubic yards of topsoil on the Lower Site. No water is expected to be needed to re-establish vegetation. If ground cover planting occurs prior to first fall rains and evergreen planting occurs in early winter, adequate precipitation would be available for reforestation. DNR will regulate the reclamation of the mine.

3.5.5 Significant Unavoidable Adverse Impacts

Comment *045-052* In general, I am aware of, and accept reasonable temporary loss of, wildlife and plant habitat due to most kinds of construction/development. However, such an intrusive, noisy, glaring, overwhelming change in such a large area for 25 years is a lot more than a temporary loss.

Response Comment acknowledged.

Comment *020-866* The DEIS cites "Proposed areas of disturbance at the proposed project site include approximately 260 acres at the proposed upper ridge gravel deposit and 40 acres at the proposed lower processing. A conveyer belt traveling Southeast to Northwest is proposed to carry material from the upper ridge deposit to the lower processing facility. The conveyor belt will occupy approximately 0.5 acres. Habitats that will be directly and/or indirectly affected by the proposed project are described below". [DEIS, Vol. II, app. E, sec. 2.0, Affected Environment, subsec. 2.1 Fish and Wildlife Habitat, pg. 5, para. 1]. The DEIS did not provide size specifications, impacts analysis or comparisons for the maintenance road, for the conveyor belt, and for the water pipe that will pump supply and waste water to and from the upper ridge.

Response The conveyor is described in Chapter 2, Project Description and Alternatives of the FEIS. Impacts of the conveyor pipeline and road between the Upper and Lower sites are analyzed in Chapters 3, 7, and 12. Detailed designs are not required for an EIS (WAC 197-11-055).

3.6 ENERGY

Comment *019-651*

The DEIS states in the Energy Section, Fuel, that "the study area does not contain any existing fuel storage or dispensing facilities. Does this account for the 14,000 gallons of fuel that will be stored onsite as stated in the DEIS Energy Section - Fuel "Fuel for Onsite Uses" Cadman Inc. is initially planning to install only one 14,000 gallon fuel tank" The FEIS should identify, examine, and discuss the potential adverse impacts that could arise from these two fuel sources which will both be located on the lower site.

Response

In Section 3.6.1.3 – Fuel, the DEIS describes the current fuel supply in the area, stating that there are no "existing fuel storage or dispensing facilities" onsite. In Section 3.6.2.2 – Fuel for Onsite Uses, the DEIS describes future onsite fuel storage planned by the proponent. Potential impacts are addressed in the Environmental Health chapter. This is a new chapter in the EIS, consolidating information on hazardous materials that was previously found throughout the DEIS.

Comment *020-199*

The FEIS should explain what fuel and/or propane containers will be on site and should specify where the fuel and/or propane storage containers will be located.

Response

Fuel and propane containers located onsite will conform to applicable standards for spill control and safety. Potential impacts are addressed in the Environmental Health chapter. This is a new chapter in the EIS, consolidating information on hazardous materials that was previously found throughout the DEIS. Exact locations and design of the containers would be determined during the design stage of development.

Comment *024A-069*

Please provide a breakdown of the energy use for the different operations.

Response

A detailed breakdown of energy use is not necessary at this stage of the proposed project. The EIS describes major energy users and potential sources. This information is sufficient to identify and describe potential impacts resulting from energy use.

3.6.1 Existing Conditions

Comment *045-054*

Page 3.6-3, 3rd para.: Check to see that no part of the entire Project operation will ever cross over, cause vibration of, or affect in any other way, the natural gas pipeline near the Project. Not being "on-site" is not a good enough guarantee that the pipeline won't be affected by normal (or substandard) operating practices.

Response

A 4-inch gas main is located along 468th Avenue SE and terminates at Seattle Truck Town East, near Exit 34. The gas line does not enter into the boundaries of the Upper or Lower Sites. The gas line would not be impacted by truck traffic.

Comment *020-819*

What exactly is the current operational demand on the PSE substation? The FEIS should not accept "approximate" estimations.

Response

The power demand on the PSE substation has been updated in the FEIS (see Section 8.1.1 of the FEIS to reflect 2001 conditions.

Comment *024A-067* On page 3.6-3 the DEIS states that a new 25 MW substation is planned to be operational by spring of 2000. Is this operational, if not, when is it currently proposed to be online.

Response The status of the new 25 MW substation has been updated in the FEIS to show that December 2001 is the projected date to have the substation operational.

Comment *017-007* Correction to page 3.6-4, the Texaco station at Seattle East does also sell Diesel.

Response The correction has been made to the FEIS.

Comment *019-659* The FEIS should examine the alternative of extending PSE's 4-inch gas main, which terminates at Seattle Truck Town, or, a separate feed from PSE, and identify the potential adverse impacts of using this form of energy in place of Propane, the favored alternative of the applicant. The safety factors that arise as a result of placing a 10,000-gallon propane tank on site vs. those created by using a natural gas pipeline should be carefully considered.

Comment *020-815* The FEIS should examine the alternatives of extending Puget Sound Energy's (PSE) 4-inch gas main, which terminates at Seattle Truck Town, or a separate feed from PSE. The FEIS should identify the potential adverse impacts from using this form of energy rather than Propane, the favored alternative of the applicant. The safety factors that arise as a result of placing a 10,000-gallon propane tank on site as compared to those created by using a natural gas pipeline should be carefully considered.

Response Puget Sound Energy has stated that extending natural gas service to the site is not an option because of limited supply. Therefore, using natural gas for power needs is not an alternative for the proposed project. To address safety, Cadman, Inc. would comply with all applicable regulations regarding the storage and use of propane gas.

Comment *019-643* The DEIS section on Energy mentions three potential sources for the supply of electricity to the site, yet fails to identify which alternative will be used, or, examine the potential adverse impacts associated with each alternative source. There is no mention of the extremely unreliable electrical supply to the surrounding area. In its current configuration there are frequent brown outs, power outages, and extreme voltage fluctuations. Attachment A (log from Uninterruptible Power Supply (s) - Schramm household - WoodRiver highlights voltage spikes of up to 138 volts, with dropouts as low as 6 volts over 57 times in a six-month period. Tanner Electric, who obtains their power from Bonneville Power, supplies power to WoodRiver. Given that the supplier isn't identified, nor, the potential adverse impacts of choosing each supplier, the public cannot provide commentary on the adverse impacts, nor their relation to project alternatives.

Comment *019-646* The FEIS needs to identify the source of electrical power to be used by the site.

Comment *020-802* The DEIS section on Energy mentions three potential sources for the supply of electricity to the site, yet fails to identify which alternative will be used or examine the potential adverse impacts associated with each alternative source. There is no mention of the extremely unreliable electrical supply to the surrounding area. In its current configuration there are frequent brown outs, power outages, and extreme voltage fluctuations. (See Addendum A). The nearby community of WoodRiver experienced voltage spikes up to 138 volts, with dropouts as low as 6 volts over 57 times in a six-

month period, according to local residents. This power comes from Tanner Electric who obtains their power from Bonneville Power.

***Comment** 020-805* The FEIS should identify the specific source of electrical power to be used by the site.

***Comment** 020-806* The FEIS needs to clearly identify, analyze, and discuss the potential adverse impacts for each alternative source for electricity.

***Comment** 020-825* The DEIS failed to adequately discuss the source of electrical power for the Project.

***Comment** 024A-068* Since there are currently problems in the local neighborhood with voltage fluctuation please discuss the impact of the project's proposed 3.5 MW demand on the 8 MW circuit that currently runs from the PSE North Bend substation. Several potential sources of electricity are offered on page 3.6-6 of the DEIS. Please clarify this issue. What mitigations are proposed to prevent serious problems in the area if the new substation is not built?

Response The source of electricity will be determined at a later date based on rates and competitive bidding. The energy provider and the proponent will have to abide by industry standards for power quality. Mitigation measures in the EIS are suggestions to help achieve that standard. The EIS does not set forth requirements for the project; it is a document used to identify potential impacts. Cadman would choose the electric supplier based on rates and competitive bidding. Cadman plans to discuss power needs with the suppliers if the project is approved.

3.6.2 Environmental Impacts

***Comment** 012-117* The EIS must provide a detailed description of the potential risks related to the onsite storage of propane, diesel fuel and other petroleum products as well as mitigation measures. WAC 197-11-440, section 6(c)(ii) stipulates Describe and discuss significant impacts that will narrow the range or degree of beneficial uses of the environment or pose long term risks to human health or the environment, such as storage, handling, or disposal of toxic or hazardous material.

***Comment** 019-639* The DEIS Section on Energy is extremely detailed, and well written in certain areas, yet extremely vague in other, more troubling areas. While the Energy section goes into great depth regarding the energy use from truck traffic, and to a lesser degree, electricity, it fails to consider, placing a 10,000-gallon propane tank on the site to fuel the Asphalt processing plant (Cadman's preferred alternative) could pose a potential adverse impact!

***Comment** 019-640* Is it not a “potential adverse impact” if 10,000 gallons of energy in the form of propane were to explode? This should have been identified in the Energy section as a “potential adverse impact” and then examined and studied in the Public Utilities section of the DEIS, but it is not.

***Comment** 019-644* The FEIS needs to clearly identify the all of the potential adverse impacts of using 10,000 gallons of propane to fuel the asphalt processing plant.

***Comment** 019-645* The FEIS needs to outline in detail the effects of an explosion of the propane source, fully filled. How large would the impact crater be? What would the circumference of the blast defined in areas the blast caused property and personal damage. What other facilities would be destroyed? Would the blast ignite other fuel sources on site? How

would fire equipment reach the site? How large an area would sustain property damage from a blast of that size?

***Comment** 019-661*

The FEIS should discuss in detail the effects of an explosion of 10,000 gallons of propane on these same 52 residences that are within a 1/2 mile radius of the site.

***Comment** 020-733*

The DEIS addresses the proposal to use propane for Asphalt Batch Processing (vol. II, app. K, Fuel, pg. 3-3). The projection is to use a 10,000-gallon storage tank with an annual estimated usage of 300,000 gallons. The FEIS should address the location, safety monitoring methods and frequency and plans to be implemented in emergency situations.

***Comment** 020-734*

The DEIS addresses the proposal to use diesel for "vehicle" refueling (vol. II, app. K, Fuel, pg. 3-3) requiring an on site 14,000 gallon tank. An additional proposal is included to use Diesel fuel, in lieu of propane, for Asphalt Batch Processing requiring and additional 15,000 to 20,000-storage tank. The FEIS should address the location, safety monitoring methods and frequency and plans to be implemented in emergency situations for each tank. The FEIS should indicate what the fueling stations would be required to protect the public and environment. For example, impervious surfaces, runoff containment and disposal.

***Comment** 020-799*

The DEIS Section on Energy is extremely detailed, and well written in certain areas, yet extremely vague in other more troubling areas. While the Energy section goes into great depth regarding the energy use from truck traffic, and to a lesser degree electricity, it fails to consider the probable significant adverse environmental impacts of placing a 10,000-gallon propane tank on the site to fuel the Asphalt Processing Plant (Cadman's preferred alternative) that could pose a potential adverse impact. Is it not a "potential adverse impact" if 10,000 gallons of energy in the form of propane were to explode? This should have been identified in the Energy section as a "potential adverse impact" and then examined and studied in the Public Utilities section of the DEIS, but it is not.

***Comment** 020-803*

The FEIS needs to clearly identify all of the potential adverse impacts associated with the storage on site of 10,000 gallons of propane to fuel the Asphalt Processing.

***Comment** 020-804*

The FEIS should outline in detail the effects of an explosion of a fully filled propane tank. How large would the impact area be? What would be the circumference of the blast area? What damage would occur to private and business property? What would be the risk to individuals in the surrounding residential and business community? What other on site facilities would be destroyed, and what would the impacts of this be? Would the blast ignite other fuel sources on site? How would fire equipment reach the site?

***Comment** 020-817*

The FEIS should discuss in detail the effects of an explosion of 10,000 gallons of propane on these same 52 residences that are within a 1/2 mile radius of the site.

***Comment** 020-824*

The DEIS failed to adequately discuss the potential adverse impacts of on-site fuel/propane storage.

Response

The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal

includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman, Inc. in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities (see Chapter 15, Environmental Health). Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project. Potential impact areas and mitigation are included in these planning efforts. The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

Comment *019-641*

The Energy section in the DEIS states that there will be no cumulative effects from the increase in Energy consumption, or energy fuel sources on site. However, the "cumulative effects" of the aforementioned explosion might have the cumulative effect of setting forest fires, or secondary ignition of 15,000 gallons of fuel stored onsite, the inability of emergency vehicles to reach the site, or the effect of this cumulative impact on the hundreds of residential, and commercial buildings within a one mile radius of the site. All of these could, and should, be considered as a potential.

Comment *020-800*

The Energy section in the DEIS states that there will be no cumulative effects from the increase in energy consumption or energy fuel sources on site. However, the "cumulative effects" of an explosion could be (1) forest fires, (2) secondary ignition of the 15,000 plus gallons of fuel stored onsite, (3) difficulty of emergency vehicles reaching and/or accessing the site due to heavy traffic congestion, and (4) the potential damage or loss of an undetermined number of residential and/or commercial buildings within the potential area of impact. All of these could, and should, be considered as a potential "cumulative effect.

Response

The gravel mining activities of the proponent are not expected to pose a significant additional risk of brush or forest fires. The gravel extraction activities require removal of the vegetative cover that could provide fuel for a brush fire, creating large fire breaks around the mining facilities and the machinery operated within the site. The excavations will be recessed about 50 feet below existing grade and surrounded by berms (up to 35 feet high) and ridge lines, creating a buffer area between forested portions of the property. County fire service providers have noted some mitigation-related considerations during the EIS process, but have not indicated that this proposed operation poses any significant risk compared to existing residential/commercial activities in this area.

Comment *019-648*

The FEIS needs to clearly identify, analyze, and discuss the potential adverse impacts for each alternative for electricity.

Response

The source of electricity would determined at a later date based on rates and competitive bidding. The energy provider and the proponent would have to abide by industry standards for power quality. Mitigation measures in the EIS are suggestions to help achieve that standard. The EIS does not set forth requirements for the proposed project; it is a document used to identify potential impacts and associated mitigation.

Comment *019-647* The FEIS Section on Energy needs to address all of the project alternatives. In the discussion on project alternatives in the Energy section, it refers to Alternative 3, but never distinguishes between Alternative 3a or 3b. These are distinctly different in scope, and need to be called out, as do all proposed project alternatives. As distributed, the section on Energy is misleading to the reader, and makes it difficult to provide meaningful commentary from the public.

Comment *020-807* The FEIS should address all of the Project's alternatives. In the discussion on project alternatives it refers generically to Alternative 3 but never distinguishes between the two very distinct versions of this Alternative.

Response The FEIS has been updated so that it does provide clearer distinctions for all of the alternatives at enough detail to allow an impact analysis comparison (see Sections 2.2 and 2.4). As described in Chapter 8 of the FEIS, fuel use in Alternative 3A would be less than in Alternative 3 because less gravel would be removed from the Lower Site under Alternative 3A.

Comment *012-119* The National Fire Protection Association recommends that for a "bulk storage facility with a capacity of more than 4,000 gallons of propane in heavily populated or congested areas" a fire safety analysis should be performed as described in Section 3.10 of the Liquefied Petroleum Gases Handbook. Given the approximately 240 homes within a one-mile radius of the Lower Site, such an analysis should be part of the DEIS.

Response A NFPA safety analysis, if required, would be a part of the design phase and not part of the EIS.

3.6.2.1 Construction Impacts

No comments were received on this section of the DEIS.

3.6.2.2 Operation Impacts

Comment *020-823* The DEIS states, “There are two alternatives for bringing power to the Upper Site. PSE has an existing 34-kV, 3-phase supply to the site. BPA has existing high voltage power lines that run through the Upper Site. Both of these sources require additional infrastructure to deliver power to the site.” [DEIS page 3.6-9, section 3.6.2.2]. What exactly would those “additional infrastructure” requirements be, and what would their environmental impacts be?

Response The exact nature of additional infrastructure requirements would be determined at the design phase of the project. Impacts to electrical power supply would be mitigated by complying with applicable regulations. Construction impacts would be mitigated by implementation of best management practices and compliance with permit conditions.

Comment *019-652* The FEIS needs to clearly identify the “exact number of trucks and vehicles” that would be used in each alternative. The section below, taken from the DEIS Section on Energy leaves the reader with the impression that there would be 720 trucks, PLUS 936 heavy trucks and vehicles, or, 1656 trucks and vehicles coming to and from the operation each day. Which is it? A total of 936, or 936 plus 720?

Volume 1 of the DEIS Section on Energy, Fuel, page 3.6-8 states that "Alternative 3's energy use would include onsite transportation to the lower sites batch plants and offsite traffic to transport aggregate and products to other facilities. Alternative 3 would increase the volume of traffic along the existing road linking the sites, as aggregate must be hauled approximately 8 miles from the upper site to the asphalt and concrete batch plants at the lower site. Based on estimates prepared by Heffron Transportation (1999), 118 trucks per day would travel between the sites to provide aggregate to the batch plants."

An additional 568 gravel truck loads would leave the extraction site each day to supply aggregate to Cadman's facilities in Issaquah and Redmond, while 152 trucks would be hauled directly to project sites as fill. These 720 gravel trucks would Exit via the Upper Site, traveling on SE Grouse Ridge Road to Exit 38. This route is approximately 8 miles longer than the Exit 34 route used in Alternative 2.

Additionally, a total of 936 heavy trucks and vehicles would be added to 1-90's base traffic flow by this alternative.

Response The FEIS (see Section 8.2) more clearly identifies the number of vehicles to be used under each alternative. For Alternative 3, the fuel consumption calculations were based on: (1) 118 trucks per day travelling between the Upper and Lower sites; (2) 156 loads of concrete and 60 loads of asphalt per day hauled from the Lower Site; and (3) 720 trucks per day hauling aggregate from the Upper Site either to Cadman, Inc.'s facilities in other cities or directly to Cadman, Inc.'s customers. Therefore, the total number of daily one-way truck trips would be 1,054.

Comment *020-818* The DEIS states, "The electrical load at the proposed gravel operation would be approximately 3.6 MW (3600 kW). This load represents approximately 1,200 average houses (3kW per house) in North Bend. This represents 15% of PSE's 25 MW substation, which is currently operating at approximately 50%." [DEIS, page 3.6-5, section 3.6.2.2]

Response This statement is correct. (See responses to Comments 020-820, 019-653, and 020-811).

Comment *020-820* The FEIS should analyze, quantify, and verify the exact percentage of power to be taken from the PSE substation by the Project.

Response The PSE substation may or may not be the source of power for the proposed project. The rate at which power will be used for the proposed project will be a factor when determining which source will be used.

Comment *024A-070* Please discuss the impacts for Alternative 3 with a draw of 3.4MW and Alternative 4 with a draw of 2.2MW when the processing plant would be located at the Upper Site and would therefore be a substantial distance from a substation thus potentially causing greater electrical fluctuations. Please breakdown the energy use at the Lower Site as different from the Upper Site for Alternative 3.

Response Acceptable levels of electrical fluctuations are regulated by the Washington Administrative Code. The proposed project would be required to meet these standards. The proposed project is located close enough to the existing substations that unacceptable fluctuations should be avoidable. The electrical draw estimates are based

on other similar sites. Detailed electrical requirements for individual pieces of equipment will not be determined until the design phase.

Comment *045-055*

Page 3.6-6, 6th para.: Potential spills, leaks, or explosions of large propane and/or diesel fuel tanks on-site should be addressed in the Spill Prevention and Emergency Response Plan. (Again, a few sponges, a pair of gloves, and a phone call won't fix it.) It is an extremely serious public health and safety issue. I am sure there are State and County Health Dept. regulations that should be written into the permit. And I believe that OSHA also has relevant regulations that apply to on-site fuels.

Response

A Spill Prevention and Emergency Response Plan would be prepared at a later stage of project development. Impacts of potential spills are addressed in the Environmental Health chapter of the FEIS (see Section 15.2). This is a new section of the EIS, consolidating information on hazardous materials that was previously found throughout the DEIS.

Comment *127-100*

Specifically now, I would like to address the traffic and the energy use. They say that 16 percent -- there will be a 16 percent increase in the amount of energy used up the I-90 corridor.

Response

There will be a 16% increase in energy usage per mile along the I-90 corridor at Exit 34 under Alternative 2. The FEIS presents the impact of the proposed project, but does not assess which conditions are acceptable and which are not. The EIS merely presents the potential impacts for the ultimate permit decision and public awareness and debate.

Comment *142-013*

3.6.1.2 According to their estimates a round trip truck from North Bend to Seattle (72 miles) would burn 8.33 miles per gallon. That's 8.64 gallons per trip; multiply the potential 900 trucks a day, that's 7,779 gallons of fuel a day. In my opinion that's an unacceptable waste of fossil fuel, let alone the air pollution it will create in the

Response

There will be a 16% increase in energy usage per mile along the I-90 corridor at Exit 34 under alternative 2. The FEIS presents the impact of the Project, but does not assess which conditions are acceptable and which are not. The EIS merely presents the potential impacts for the ultimate permit decision and public awareness. Air quality impacts are discussed in the Air Quality Chapter of the FEIS. Emissions related to the increased truck traffic are not predicted to result in exceedances of National Ambient Air Quality Standards.

3.6.3 Cumulative Impacts

Comment *019-658*

The FEIS should identify, analyze, and discuss the potential adverse impacts, by alternative, to the proposed new schools located within 1/4 mile of the proposed site (approximate distance based on legend in Energy Analysis Study Area - Figure 3.6-1) Specifically, the FEIS should describe in detail how the energy requirements for the project will be designed such that it not interfere with the energy requirements of the proposed schools.

Comment *019-660*

The FEIS should clearly document and examine the potential adverse energy impacts to the 52 residences that are within 1/2 mile of the proposed site. How will the site

insure that these "close neighbors" retain the same level of services across all energy sources?

Comment *020-814* The FEIS should identify, analyze, and discuss the potential adverse impacts, by alternative, to the proposed new schools located within 1/4 mile of the proposed site (approximate distance based on legend in Energy Analysis Study Area-Figure 3.6-1) Specifically, the FEIS should describe in detail how the energy requirements for the project will be designed such that it not interfere with the energy requirements of the proposed schools.

Comment *020-816* The FEIS should clearly document and examine the potential adverse energy impacts to the 52 residences that are within one half mile of the proposed site. How will the site insure that these "close neighbors" retain the same level of services across all energy sources?

Comment *020-821* The FEIS should address the fact that Tanner Electric provided electrical power to 1680 homes and businesses as of February 2000. Therefore, the proposed mining operation would use 71% of the power that the total residential and businesses currently utilize.

Comment *020-822* The FEIS should address the fact that the percentage of available power fails to include the Middle and Elementary schools, as well as the new commercial park located just North of the Project and all other planned residential and commercial developments.

Response The EIS does not serve as a master planning document for the entire community; rather it examines potential impacts of the proposal. The eventual electrical utility that the proposed project uses to provide site power will have sufficient capacity to suit both the needs of the proposed project and the needs of the community at large without compromising power quality standards.

3.6.4 Mitigation Measures

3.6.4.1 Alternative 1 – No Action

No comments were received on this section of the DEIS.

3.6.4.2 Alternative 2, 3, and 4

Comment *019-642* More puzzling however, is that Section 3.6.3 of the DEIS Energy Section states that there will be no cumulative impacts, yet in Section 3.6.4.2 it recommends mitigation for the cumulative effects of energy consumption? Clearly these issues need to be consistent, and examined carefully in the FEIS, and should have been so in the DEIS if the objective of the report was indeed to engage the public in a meaningful discussion in regards to the potential adverse impacts of the project.

Comment *019-655* The FEIS should state why Section 3.6.3 of the DEIS Energy Section states that there will be no cumulative impacts, yet in Section 3.6.4.2 it makes recommends mitigation for the cumulative effects of energy consumption?

Comment *019-656* The DEIS Energy section states "no secondary, or cumulative impacts from the proposed development were identified during the energy analysis.

Comment *019-657*

Yet in Section 3.6.4.2 it states "Cumulative energy use by heavy truck and passenger vehicle traffic associated with each project alternative would be mitigated by factors such as the following:"

a. Specific transport vehicles "should" have fuel efficiency improvements
b. There should be road improvements for more efficient transportation
c. Car pooling (passenger vehicles only) should be encouraged
d. Transportation methods and routes should be optimized

Comment *020-801*

The DEIS states, "No specific secondary or cumulative impacts from the proposed development were identified during the energy analysis." [DEIS page 3.6-10, Section 3.6.3]. However, under Mitigation Measures the DEIS proposes mitigation measures to ensure that power quality remains unchanged for area consumers. [DEIS, page 3.6-10, Section 3.6.4.2]. Why would mitigation be required when there are no secondary or cumulative impacts? This question must be examined carefully in the EIS.

Comment *020-813*

The DEIS Section on Energy, Section 3.6.3 states "no secondary, or cumulative impacts from the proposed development were identified during the energy analysis. However, in Section 3.6.4.2 it states "Cumulative energy use by heavy truck and passenger vehicle traffic associated with each project alternative would be mitigated by factors such as the following:"

a. Specific transport vehicles "should" have fuel efficiency improvements
b. There should be road improvements for more efficient transportation
c. Car pooling (passenger vehicles only) should be encouraged
d. Transportation methods and routes should be optimized

Response

Mitigation is not recommended because of cumulative effects; rather, mitigation is recommended to reduce energy. No cumulative impacts were identified. The language in the FEIS has been clarified so that it is not confusing. In general, mitigation is a recommended method of reducing or eliminating potential impacts. It is not intended to imply that secondary or cumulative impacts will occur as a result of the Project. Factors b, c, and d will also be mentioned in the Transportation chapter.

Comment *019-653*

The FEIS should re-examine the potential adverse effects of Cumulative Impacts from all energy sources, given the information provided in Attachment A. Given that the existing Tanner, and thus, BPA electrical sources cannot currently maintain the 2% standard as a part of their level of service, the cumulative effects of adding the sites electrical requirements, to their current customer demand, is not tenable.

Comment *020-811*

The FEIS should re-examine the potential adverse effects of Cumulative Impacts from all energy sources, given the information provided in Addendum A. Given that the existing Tanner and BPA electrical sources cannot currently maintain the 2% standard as a part of their level of service, the cumulative effects of adding the Project's electrical requirements is not tenable.

Response

The source of electricity will be determined at a later date based on rates and competitive bidding. The energy provider and the proponent would have to abide by industry standards for power quality. Mitigation measures in the EIS are suggestions to help achieve that standard. The EIS does not set forth requirements for the project; it is a document used to assist the decision-maker on the permit through the disclosure of probable significant impacts and identified mitigation measures.

Comment *019-654* The FEIS should change the language contained in Energy, Section 3.6.4.2 in all discussion of project alternatives. Whenever the word "should" is used, it should be replaced with "to approve the grading permit requires the following condition". Simply saying that the project "should" renders these "mitigations" as simply suggestions.

Comment *020-812* The FEIS should change the language contained in Section 3.6.4.2 in all discussions of project alternatives. Whenever the word "should" is used, it should be replaced with "to approve the grading permit requires the following condition." Simply saying that the project "should" renders these "mitigations" as simply suggestions.

Response The FEIS does not impose conditions; it documents issues and whether mitigation can prevent impacts. Permit conditions would be determined after completion of the FEIS.

Comment *024A-071* Please provide a monitoring program that will ensure local users do not experience increased voltage fluctuations due to the project.

Response Development of a monitoring plan is not necessary for an EIS. The proponent is aware that appropriate measures would be required to protect power quality for the proposed project and to other businesses and residential users. The electrical utility and the proponent would meet industry standards, including those related to voltage fluctuations, during the design and operating phases of the proposed project.

Comment *020-809* The FEIS should impose as a condition of the grading permit that should the project select Tanner Electric or Bonneville Power, and that the level of service exceeded the 2% standard that the mining operation would terminate or reduce production until the appropriate standard could be maintained.

Response The FEIS does not impose conditions; it documents issues and evaluates whether mitigation can prevent impacts. The electric company providing power to the proposed project and proponent will be held to all applicable industry standards.

3.7 LAND USE

3.7.1 Existing Conditions

Comment *024A-074*

Our review of past County land use decisions in the area near the Lower Site indicates that this area has had a checkered past as regards long-term planning. First, the truck stop went in and areas nearby were allowed to be designated and zoned for commercial and industrial uses. Then, when the plan for the area was being revised several years ago, local residents requested a moratorium on processing of plat divisions. The request was denied and several large and small subdivisions were approved in the area. Thus, instead of forestry and large lot residential development surrounding the previously designated commercial and industrial pocket, there is a hodgepodge of land uses.

Response

The comment relating to and development zoning history is acknowledged.

Comment *024A-079*

Please provide a complete description of past and current arrangements to deed or sell land on the mining properties and land adjacent to them and on Middle Fork Road to The Mountains to Sound Greenway Trust, the County, or State. Please describe which properties have already been purchased or acquired and what the criteria are for sale or gift of the other properties. Please describe the conditions established in the MOU requiring The Mountains to Sound Greenway Trust or other parties not to contest the current project proposal.

Response

On April 29, 1998, an agreement, a Memorandum of Understanding (MOU) was entered into by Weyerhaeuser, the Greenway Trust, King County, the State DNR and the Trust for Public Lands for permanent protection of the forested gateway to the Middle Fork Valley and the high mountains of the Greenway immediately east of North Bend. The gateway properties include two large, commercial-quality gravel deposits on land currently permitting mining (Upper and Lower Sites). Weyerhaeuser has entered into a lease agreement with Cadman, Inc. to develop the North Bend mining sites. The MOU includes commitments to protecting the Middle and South Forks of the Snoqualmie River and to protect, as far as possible, the view from I-90. When permits have been issued for the mine, the Greenway Trust will have a 2-year option to purchase properties determined not to be needed for the mining operation. As mining is performed in segments, each completed segment will be reclaimed, replanted, and donated to the State DNR in trust for King County. When mining has been completed, all of the mine parcels will have been donated to DNR in trust for King County. Figure 2 in the Land Use Technical Report depicts property ownership. Please refer to Appendix A of this Final EIS for a copy of the MOU.

3.7.1.1 Project Site

No comments were received on this section of the DEIS.

3.7.1.2 Site Vicinity

Comment *020-710*

The DEIS accurately states “The North Bend area is experiencing rapid growth”. “Growth is also occurring in the immediate area of this project, including a new school, and a commercial office park near Truck Town (vol. II, app. K, pg. 2-3; vol. II, app. L,

pg. 2-10 table 2 and vol. II app. K, pg. 2-31, sec. 2.6.2, 2.6.2.1, 2.6.2.2 and page 2-32 sec. 2.6.2.2).

Response The additional rapid development of the North Bend area referenced in this comment is noted in the FEIS.

Comment *012-026* Clearly, the intent of SEPA is that EIS analyses take into account the existing and future setting. DEIS preparers ignore the presence of established residences and commercial establishments that surround the proposed project. They also disregard "magnitude and duration" factors. Population within a few miles of the proposed mine has more than doubled in the past five years and will likely do so again in the next five-year period. The area is an established residential and commercial area. SEPA requires that the EIS evaluate impacts with this context and future

Response Please see the FEIS Land Use chapter for a discussion of project impacts upon residential and commercial land use near the proposed project.

Comment *012-025* Virtually the entire DEIS is in violation of SEPA 1998 by ignoring the established rural and residential nature of the existing environment as required by WAC 197-11-794, paragraph (2) which, in part, reads:

Significance involves context and intensity (WAC 197-11-330) and does not lend itself to a formula or quantifiable test The context may vary with the physical setting. Intensity depends on the magnitude and duration of an impact.

Response The FEIS discusses the project impacts upon the established rural and residential nature of the existing environment in Chapter 9 (Land Use).

Comment *018-007* The DEIS does not consider the "context" of the surrounding environment as outlined by SEPA, and as such, does not begin to address the integrity, and preservation of our residential neighborhood.

Response Chapter 9, Land Use of the FEIS discusses the project's impacts upon the established rural and residential nature of the area.

Comment *002-015* This Interstate 90 exit serves industrial uses, commercial uses (including a major truck stop), residential neighborhoods, and recreational uses and is the portal entrance to the Middle Fork Snoqualmie Valley. Designs should not only improve access and safety for all users but should also include aesthetic enhancements for the community.

Response Comment acknowledged. As indicated in Chapter 2 of the FEIS, methodology for the proposed mining plan was based on a number of meetings between Weyerhaeuser and the Mountains to Sound Greenway Trust. The goal of these discussions was to minimize visibility of mining activities from I-90 and surrounding areas, and to allow for public ownership and open space. The proposed project also includes the construction of landscaped earthen berms to further minimize visual impacts of the mining activity . However, as indicated in the Recreation and Aesthetic chapters of the FEIS, even with implementation of the proposed mitigation measures, some of mining activity will still be visible from higher elevations and the Lu residence accessory structure. Please refer to the Aesthetics, Light, and Glare chapter of this FEIS for detail on visual impacts.

Comment *045-070* Please consider seriously for a moment your planned vision for this area for the next quarter of a century. The area for miles around the Project is full of scenic resources; the aesthetics right now are breathtaking. Think of the County Council's recent acquisition of 418 acres of land near the Middle Fork of the Snoqualmie River, east of North Bend, located near Oxbow Reach and the Buddhist residence on Middle Fork Road. It covers 3.5 miles of river frontage and adjoins the Mount Si Natural Resource Conservation Area. This acquisition will create contiguous public ownership of land from the Middle Fork to the North Fork, including Mount Si. Greenway Trust executive Nancy Keith said, "The Middle Fork area is a huge resource.., to preserve the wildlife habitat and recreational viability in the area." A Greenway Trust task force "identified the property as significant and strategically important to the regional watershed management plan." County Councilman Larry Phillips said, "This is a spectacular addition to preservation efforts in the Middle Fork, especially around Mount Si." (quotes from Snoqualmie Valley Record, July 27, 2000).

And consider the vast new area near the Middle Fork that is to be created as a one-of-a-kind Open Space for local, County, regional, and national citizens to enjoy. Councilmen Irons and Phillips, among others, can be thanked for the excellent final plans for this site: not too large, not too developed, just right. The three bears might even live there if we let them).

The area is full of Open Space, recreational opportunities, and beautiful waterways both small and large. Most local roads are still amenable to bicycle riding and pedestrians. People can inner-tube, canoe, swim and fish :in the rivers. The undeveloped portions of the area can be used for hiking and camping. And most importantly, County planning has been working to make this an area where, all of us can escape from the noises, lights, traffic, and crowds that have taken over many of our urban areas. Yes, all of us. Right now, urbanites, ruralites, tourists, adults, children, and even wildlife and fish can enjoy these wonderful lands and waters thanks to the County Council's persistence and foresight.

Response Comment acknowledged.

Comment *024A-072* This chapter should begin with a clear map and inventory of all residences within one mile of both the Lower and Upper Sites. It is imperative that decision-makers have a clear picture of the communities that will be affected by the noise, visual changes, traffic, dust, and other changes at each site. We requested that a local resident count the residences within one mile of each site. For the Upper Site she counted 35 residences. Of those 35, 15 were on the Middle Fork side. Of the 20 residences to the south, six are occupied on a year-round basis, and 14 are seasonally used.

Comment *024A-073* For the Lower Site, she counted 226 residences within one mile. She also calculated the number of local residents using the two freeway exits. She determined that 20 residences, only 6 of which are used year-round, use Exit 38 while 347 residences use Exit 34 (and this was very conservative as it was based on a mailbox survey. The DEIS should confirm these numbers. It is evident that the number of residents affected by Alternative 4 is very small when compared to those affected by the Lower Site.

Comment *115-056* It would be nice to include a more detailed map of the residences in the area, with a larger, more complete view of the Riverbend, Edgewick, WoodRiver, and other residences more clearly delineated, not to mention the Buddhist temple. An indication of the total number of people likely to be affected should also be included.

Comment *136-010* Hundreds, maybe a thousand people living so closely plus a school environment for children.

Response Based on comments received on the DEIS, further discussion on the number of households and residents in the vicinity of the Upper and Lower Site areas has been added to the Land Use Technical Report and the Land Use chapter of the FEIS. As indicated in the resident count discussion, the area in the vicinity of the Lower Site portion has a significantly higher population and number of households than does the vicinity of the Upper Site. The Land Use chapter of the FEIS includes an aerial photograph showing the land use pattern in the vicinity of the site.

3.7.1.3 Existing Land Use Designations

Comment *020-193* The FEIS should address the statement within the King County Comprehensive Plan of 1994 states that "mining and agriculture should be permitted with the Forest Protection District when managed to be compatible with forest management." [DEIS 3. 7-4]. The FEIS should explain how this mining project is compatible with forest management when the Upper Site will use 260 acres for mining from an existing 578-acres of forest production land?

Response The Proposal would result in the clearing of approximately 40 acres of the 115-acre Lower Site and approximately 231 acres of the 578-acre Upper Site. The proposed phased reclamation would include the revegetation of all mined areas with native trees. Because proposed mining would retain over 50 percent of the existing site vegetation and would revegetate the mined areas with new trees, proposed mining would be considered compatible with forest production land.

3.7.2 Environmental Impacts

Comment *073-322* (6) [Eligible Projects] Protection of scenic, historical, recreational, cultural, natural, and archaeological resources in an area adjacent to a scenic byway.

Hmmm... resources in an area adjacent to a scenic byway...sounds like that is a land use restriction within a scenic corridor."

The Program [National Scenic Byway Program] does not place, restrictions on land use within scenic corridors. This statement in DEIS 3.9.1, Land Use, National Scenic Byway Program, is a direct contradiction of adjacent in the TEA-21.

"Resource protection applies only to those properties that contribute to the qualities [see DEIS 3.10.1.1, Aesthetics, Existing Visual Character] for which the highway has been designated as a scenic byway. The properties must be located directly adjacent to the scenic byway. Resource protection includes use restrictions that are in the form of easements. However, the purchase of the resource can be considered eligible only after it has been determined that all other protection measures are unsuccessful. Protection of a resource does not include rehabilitation or renovation of a property."

After 25 years of mining activities, the rehabilitation, renovation and reclamation of the property will still be a federal funding inconsistency."

The extent to which the project helps maintain or protect the environment.

Explain how the permanent topographical alteration, a Significant Unavoidable Adverse impact, and a Significant Unavoidable impact on scenic views, and the destruction of a natural resource area that is directly adjacent to Interstate 90, National Scenic Byway is construed as an act of preservation and protection of scenic, natural and recreation resources by a gravel mining, asphalt and concrete operation.

Response Consistent with the MOU between Weyerhaeuser the Mountains to Sound Greenway Trust, King County, Department of Natural Resources (DNR), and the Trust for Public Lands, the applicant proposes to mitigate mining activities and protect scenic values in the corridor. Please refer to the Soils and Geology, Air, Plants and Animals, Land Use, and Aesthetics chapters of the Final EIS for mitigations identified to protect scenic values. The National Scenic Byways Program does not place restrictions on land use within scenic corridors.

Comment *014-003* The Greenway Trust believes that phased land reclamation and subsequent donation of each parcel to State DNR is a major public benefit and worthy of inclusion in the EIS analysis of "Phasing" (para 2.2.6), "Land Use" (para 3.7), and "Recreation" (para 3.9). Specifically, we suggest that the FEIS should include an explanation that areas no larger than 50 acres will be mined at any given time and, as each of these areas are reclaimed, they will be donated to State DNR as permanent public forestland. Clearly, this forestland will have a positive impact on long term land use, recreation, aquifer recharge, wildlife, and more, and this public benefit should be noted in the FEIS.

Response Comment acknowledged. A statement reflecting the donation of reclaimed mining segments to the DNR has been added to the FEIS. The FEIS now indicates that as mining is performed, each completed segment will be reclaimed, replanted, and donated to the State DNR in trust for King County. The 50-acre limitation on mining at any given time has been added to the Project Description chapter in the FEIS.

Comment *024A-075* Now the County is considering allowing a large scale resource extraction project near these previously approved residential developments. While such a project may be consistent with the Forest zoning, this assumes that areas zoned Forest would be bordered by low density residential development or other development that would be little affected by gravel mining and processing. This is not the case for the Lower Site given past County land use decisions.

Response Comments acknowledged. As indicated in the Land Use chapter of the FEIS and illustrated in Figure 3.7-2, the zoning in the area to the north and west of the Lower Site allows commercial use and residential use at densities ranging from one dwelling unit per 10 acres to one dwelling unit per 2.5 acres. The area to the northeast, east and

south of the Lower Site and the area surrounding the Upper Site is zoned Forestry that allows residential use at a density of one unit per 80 acres. As indicated in the Land Use chapters of the FEIS, the number of residences and overall residential density is greater in the vicinity of the Lower Site than in the vicinity of the Upper Site. However, the referenced residential densities (ranging from one unit per 2.5 acres to 10 acres) are rural zoning classifications, which are low density residential uses.

Comment *039-004* North Bend has become the gateway to Seattle. Do we really want people's first impression to be a gravel pit. No Impact?

Response Comment acknowledged. Refer to the FEIS Aesthetics chapter for an analysis of potential visual impacts from I-90.

Comment *020-196* The FEIS should address the issues of the conveyor system, maintenance road, and water pipelines transiting through sensitive areas of State owned land? (See explanation in Technical Discussion)

Response The potential environmental impacts associated with the conveyor, including the maintenance road and water pipeline, are identified in the Soils and Geology; Noise, Plants and Animals; Energy; and Aesthetics sections of the EIS. Where impacts are identified, appropriate mitigation is proposed.

Comment *020-635* Determine how long will the roadway construction will take and what will the economic impact be on the businesses located at or around Ken's truck town, such as the Edgewick Inn.

Response The time length needed to complete roadway construction is unknown. SEPA requires the analysis of environmental impacts. Economic impacts are not within the scope of environmental review addressed within an EIS (WAC 197-11-448).

Comment *020-918* The FEIS should address the economic impact to those businesses already located at Exit 34, especially Truck Town that has an historic and cultural relationship to the Upper Snoqualmie Valley and the national trucking community.

Response SEPA requires the analysis of environmental impacts. Economic impacts are not within the scope of environmental review addressed within an EIS (WAC 197-11-448). No historic properties that would be potentially impacted by the proposed project were identified during the course of the study. Please refer to the Transportation section of this Final EIS for a discussion on potential traffic impacts to the area in the vicinity of Exit 34.

Comment *097-007* Evaluate impacts to the landowners and residents resulting from implementation of the project?

Response Both the DEIS and FEIS analyze Project impacts to various elements of the environment that may be experienced by landowners and residents. The comment is too general to respond more specifically.

***Comment** 097-012*

Determine specific estimates of the number of willing and unwilling home sellers for each alternative? Use a statistically reliable survey instrument and provide a sample survey?

Response

SEPA requires an EIS to analyze the environmental impacts of a proposal. The market analysis requested by this comment is not within the scope of environmental review addressed within an EIS (WAC 197-11-448).

***Comment** 097-013*

Provide local costs to King County and/or its residents resulting from implementations of any alternative?

Response

The eventual permit decision will determine appropriate mitigation or permit conditions. The financial obligation to satisfy or complete these conditions will be the applicant's if the project is approved.

***Comment** 037-005*

Lowering of property values. The additional noise, pollution, and traffic will detract from the residential character of this area and make it a less desirable place to live.

***Comment** 039-005*

Does the increase in tax base really outweigh the scaring of a mountain face and the decline of residential property values which in turn affect the influx of people? No Impact?

***Comment** 055-001*

What sort of assurances or mitigating actions does Cadman offer that any action other than no action will not affect property values of nearby residents? This includes effects directly (such as noise, dust traffic) or indirectly (such as aesthetics) of the mine. Secondly, how do all the parties plan to deal with certain lawsuits in the event values do decline and can be linked to the mine? I am planning to pay for appraisals on a 6 month interval from now until further notice. When and if my property value uncharacteristically declines due to the mine, I will initiate my lawsuit. The process starts with this email being part of the documentation.

***Comment** 056-003*

Home owner impact: Additional noise, traffic and the impact of nearly a thousand gravel truck trips would detract from the residential character of this area affecting our property values. The potential decrease in values would reduce the revenue from property taxes. I just purchased a home last fall and would consider legal options to recover depreciation uncharacteristic of the region. My family has worked all our lives for this home. We need to protect it.

***Comment** 069-007*

This gravel strip mine proposal has seriously depressed our home values, and will continue to do so.

***Comment** 127-139*

On the DEIS it makes the point that this is a controversial issue. One thing I would like to note in there is home property values. Nothing has been addressed that is this going to degrade our property values?

When I bought my house, which was last September, I had no clue this was going in. I went to talk to a neighbor and I said what is up with this flack? Well, we have a mine going in here. I will talk to my real estate agent later.

But the point is I have a very serious investment in my home and I bet the rest of you guys do too. So you need to do this not just for the noise and not just for the aesthetics. I think there is some money on the line as well as all the other great issues. So if you have something to say, please come up and say it. Thanks for hearing.

Comment *127-157* And I think one of the main reasons why people like to come out here to recreate and live is because of the beauty of the area. I have been in real estate for 25 years and I know it is going to affect the value of the people's property, because when you change the character of the area the way this will do, it will change the values and the reason people want to live here. People have talked about wanting to move away from here, and I think it is way out of proportion of what is appropriate for this area.

Comment *139-005* Property Value - living near a gravel pit will DECREASE our quality of life and therefore DECREASE our property value. That's not fair! It's hard enough to "make it" in King County anyway.

Response SEPA requires an EIS to analyze the environmental impacts of a proposal. WAC 197-11-448 states, "The EIS provides a basis upon which the responsible agency and officials can make the balancing judgment mandated by SEPA, because it provides information on the environmental costs and impacts." Housing values are a function of numerous factors, including in part nearby land uses and their associated environmental impacts. While the EIS addresses the Project's environmental impacts within affected areas, the evaluation of how those impacts may or may not impact property values in the project vicinity is beyond the scope of environmental review provided in an EIS.

Comment *002-011* The economic impacts or benefits to the DNR-managed trust lands needs to be analyzed. Pre-existing or future easements and agreements in this area may be affected to some extent by the use of Exit 38 as an access route. In addition, normal DNR business activities that utilize this route will need to be considered in light of the proposed uses, to determine impacts to DNR business needs.

Comment *020-638* Determine what the applicant can do to compensate businesses and residents for missed business/inconvenience?

Comment *097-008* Determine potential direct or indirect loss to local businesses and residences for each alternative?

Response SEPA requires the analysis of environmental impacts. Economic impacts are not within the scope of an EIS (WAC 197-11-448).

Comment *097-010* Determine number of business impacted due to specific alternative features or performance?

Response Businesses in the area are described in the Land Use chapter of the FEIS. SEPA requires the analysis of environmental impacts. Economic impacts are not within the scope of an EIS (WAC 197-11-448). Environmental impacts of the Project that may be experienced within the property vicinity are addressed in the EIS.

Comment *097-011* Was a Socioeconomic Impact Analysis prepared assessing the existing sense of well being and community togetherness?

Response SEPA rules state, "The term 'socioeconomic' is not used in the statute or in these rules because the term does not have a uniform meaning and has caused a great deal of uncertainty." Economic impacts are not within the scope of an EIS (WAC 197-11-448). Analysis of the relationship of the proposal to the overall land use character of the area is provided in the Land Use Chapter of this FEIS.

Comment *071-004* "…analysis of the controversy generated in the community as an 'impact'…"

Response Analysis of the degree of community controversy associated with a Project is beyond the proper scope of a SEPA EIS.

Comment *135-004* What kind of environments that school children who will be attending at the planned school site? Rites for Buddhist residence? Home owners? IT would most definitely hurt home values, but more importantly hurt the quality of life for people who live here. Think about law suits should health issues come into being!

Response Comment acknowledged. Discussion on anticipated impacts to schools from proposed mining activity is included in the Air Quality, Noise, Land Use and Transportation chapters of this FEIS. The Land Use Chapter discusses impacts on the rural and residential nature of the area, and the Environmental Health Chapter discusses potential impacts to environmental health from materials proposed for onsite use.

Comment *020-224* For each alternative the DEIS failed to compare and measure the differences for each phase of the operation.

Comment *020-225* The DEIS failed to adequately address how would the proposal affect area land uses, including residential, commercial, religious, and recreational uses.

Comment *020-226* The DEIS failed to adequately or fairly address what land use changes would occur directly or indirectly, to the project sites and adjacent lands, as a result of mining and processing under the proposed project.

Comment *020-227* The DEIS failed to adequately or fairly address what land use changes would occur directly or indirectly, to the project sites and adjacent lands, as a result of mining and processing under the proposed project.

Response The Land Use section of the DEIS describes the compatibility of the proposed land uses with surrounding uses, identified the potential for change in general land use character, and describes the potential to induce spin-off growth (indirect impacts). The land use analysis included a discussion on impacts to residential, commercial and recreational uses (the Recreation chapter provides more detailed discussion on recreational use impacts). As indicated in the Land Use section of this FEIS, the proposal is not expected to change the land use character of the area. Land use conditions under proposed mining do not significantly differ by phase.

Comment *020-392* The EIS should identify, assess, measure, and quantify the Grouse Ridge projects Compliance with the Federal Highway Administration's suggested residential and commercial land use levels.

Response The Proposal does not require or include federal Highway Administration (FHWA) project approval. FHWA criteria are therefore not applicable .

3.7.2.1 Construction Impacts

Comment *020-202* The DEIS discusses construction impacts under the Environmental Impacts section. Under this section the DEIS states that under Alternative 1 "a potential land use would be the harvesting of trees on the site." [DEIS 3. 7-7]. This alternative should be addressed as to its feasibility and/or probability since the land has had prior mining activities as stated in the DEIS. The site also contains sensitive areas including steep slopes. [See Addendum's A and B in Soils and Geology Chapter]

Response The No Action Alternative (Alternative 1) generally describes conditions without the proposed mining. Under this alternative, forest practices may continue under the F zoning. As indicated throughout the DEIS, impacts under this alternative would be less than under the Proposal. As with any development on the sites, existing environmental and sensitive area regulations would be applicable. Approved mining and processing activities may be allowed on steep slopes under King County Code.

Comment *020-203* The DEIS under Alternative 2 or 3 states that "The phased clearing of vegetation and establishment of processing facilities on the sites would result in an intensity level similar to those of historical forest practices." [DEIS 3. 7-7]. What are the intensity levels of historical forest practices (logging) and how would those practices impact the adjacent environment?

Response The primary land use impacts from logging or clearing prior to mining would relate to noise, air quality and traffic. As indicated in the Air Quality, Noise, and Transportation sections of the DEIS, clearing of the sites would not be anticipated to result in significant impacts. Table 7-1 in FEIS Chapter 7, Plants and Animals, shows existing vegetation cover types. Approximately 136 acres are seedling/shrub stands which were recently clearcut, and 234 acres are saplings, 1 to 4 inches in diameter. Figures in the chapter show locations of the vegetation cover types.

Comment *020-204* The DEIS states that under Alternative 2 or 3 that "Phased clearing and construction of processing facilities on both the sites would increase levels of noise, dust, and truck traffic, which would impact adjacent land uses. Construction activities would be short-term and are not anticipated to result in significant land use impacts." [DEIS 3. 7-7]. The FEIS should explain how 25 years of phased construction is considered short-term.

Response The cited statement refers to the clearing of the site prior to the initiation of mining activities. The clearing of the sites would be phased and would be anticipated to occur over a period of several months per phase. Because clearing/mining activity would be limited to approximately 35 percent of the Lower Site and approximately 40 percent of the Upper Site, the amount of site area cleared for mining would likely be less than under logging of the sites.

Comment *020-207* The FEIS should address the statement that under Alternative 4 "Construction impacts on the Upper Site would be similar to those under Alternative 2." [DEIS 3. 7.8]. The FEIS should explain how exactly this impact would be the same when according to the DEIS the vast majority of businesses and residencies are at the Lower Site. The FEIS

should further discuss the impact difference between construction impacts on Alternative 4 versus Alternative 2 or 3?

Response The cited discussion states "no construction impacts related to the Proposal would occur on the Lower Site." Construction impacts on the Upper Site would be similar to those with Alternative 2. Overall, construction impacts under Alternative 4 would be less than with Alternative 2.

3.7.2.2 Operation Impacts

Comment *020-197* The FEIS should discuss all of the probable significant adverse environmental impacts of moving mining materials from one site (Upper Site) to a separate noncontiguous site (Lower Site).

Response The environmental impacts of moving materials between the Lower and Upper Sites with the conveyor (Soils chapter) and haul trucks (Transportation chapter) are discussed in the Earth, Air Quality, Noise, Energy, Land Use, Aesthetics, Recreation and Transportation chapters of the FEIS. No significant unavoidable adverse impacts related to the movement of material between the Upper and Lower portions of the site were identified.

Comment *024A-007* The analysis of project alternatives is inadequate. As stated above, the DEIS under-reports the impacts resulting from operations at the Lower Site. Conversely, it frequently assigns impacts to Alternative 4 that are considered to be "equal" to the impacts resulting from the proposed project. For example, it calls the noise impacts resulting from trucks to be significant for both alternatives, but ignores how many people would be affected by the two alternatives. The DEIS does not provide a full comparison of the severity of the impacts and the number of people that would be affected by the various alternatives. Once the DEIS is revised to accurately describe the impacts resulting from the proposed project, it should be further revised to provide a thorough comparison of the impacts for the alternatives.

Response Comment noted. The FEIS Land Use chapter discusses land use impacts, including residences within proximity of the Lower and Upper Sites. Impacts to nearby residents are also described in the Air Quality, Noise, Aesthetics, and Transportation chapters of this EIS.

Comment *115-057* p. 3.7-9 "The intensity level on the sites during mining and processing would be substantially greater than the existing intensity levels of the residential and recreational uses in the area." This is why people live and play here - for the peace and quiet, which will be ruined by this project. Not to mention the fact that area residents will see their property values go down as a result of this mine. Any plans to mitigate this? Or do we just have to accept this?

Response Comment acknowledged. As indicated in the Land Use section of the DEIS, the intensity level of land uses on the sites during mining and processing would be substantially greater than existing intensity levels of the residential and recreational uses in the area. Measures identified to minimize land use impacts include: phasing to limit the amount of mining at any one time; providing vegetated buffers around the perimeter of the sites to limit view and noise impacts; and, shielding lights to avoid glare onto surrounding properties. SEPA requires an EIS to analyze the environmental impacts of a proposal. Analysis of economic impacts is beyond the scope of an EIS.

WAC 197-11-448 states, "The EIS provides a basis upon which the responsible agency and officials can make the balancing judgment mandated by SEPA, because it provides information on the environmental costs and impacts." Housing values are a function of numerous factors, including in part nearby land uses and their associated environmental impacts. While the EIS addresses the project's environmental impacts within affected areas, the evaluation of how those impacts may or may not impact property values in the project vicinity is beyond the scope of environmental review provided in an EIS. Mitigation measures identified for traffic, noise and air quality would minimize traffic, noise and air quality impacts to surrounding land uses. Please refer to the Air Quality, Noise, Land Use and Transportation chapters of this FEIS.

Comment *014-010*

Requiring use of Exit 38/Olallie State Park as a haul route may affect the future public acquisition of the Edgewick property (the planned lower mine site). Weyerhaeuser has committed to donate this site for public ownership as permanent forestland after the mining operation is complete. If the Exit 34 location is not used for the mining or processing of gravel, the company is not obligated to donate this land and would likely seek an alternative development plan that would permanently preclude its use as public forestland.

Exit 34 is already one of the biggest, busiest truck stops in the state of Washington with a long history of truck usage. Cadman can easily access its gravel operation directly across the street from Truck Town, less than 600 feet from the westbound Interstate 90 on-ramp. In addition, Cadman intends to complete road improvements that would ensure a better and safer traffic flow than now currently exists, even with the added gravel truck traffic. Using Exit 34, gravel trucks would pass by no homes, no schools, no parks, no rivers, and no trailheads. The additional traffic would be confined to a small area already characterized by and built for truck usage.

Response

It is acknowledged that if no mining activity occurs on the Lower Site there is no obligation to donate the parcel to the WDNR in trust for King County as public forest land. Mountains to Sound Greenway Trust (and, in turn, WDNR and King County) would have the option to purchase those lands if they are not needed for mining activities.

Comment *020-214*

The DEIS states that "If mining permits were to be approved, the Weyerhaeuser Company would identify site lands not needed for mining. The Mountains to Sound Greenway Trust would have a 90-day option period to notify the Weyerhaeuser Company if it intends to purchase the excess lands at the appraisal price. If the Mountains to Sound Greenway Trust does not purchase the excess land, the Weyerhaeuser Company may use or sell the lands at its discretion." [DEIS 3. 7-9]. If this is a true statement then the FEIS should explain why the Weyerhaeuser Company sold the land "not needed for mining" to King County for $2,533,850.00 on June 26, 1998. [See Addendum 13 and C, Warranty Deed 9806261702].

Response

The land King County acquired was part of a joint purchase with WDNR for biosolids and forestry, as contemplated in the biosolids agreement with WDNR and Weyerhaeuser Company. These lands were separate properties purchased for a specific program. Additional lands were acquired by the Trust for Public Land (TPL) for habitat preservation and passive recreational use. King County later acquired these lands from TPL for habitat preservation under Waterways 2000.

Comment *020-472* Because the degradation of air quality will be long-term and extensive, the DEIS should contain an accompanying outline of the economic impact to both businesses and residences within a 5-mile radius resulting from this decline.

Response Analyzing the economic impact of reduced air quality is difficult and prone to subjective interpretations. This type of analysis is outside the scope of analysis provided in an EIS. SEPA requires the analysis of environmental impacts. Economic impacts are not required in an EIS (WAC 197-11-448). As indicated in the Air Quality chapter of this FEIS, significant unavoidable adverse air quality impacts are not anticipated.

Comment *024A-076* Added to this situation is the proposal to construct a new school in the area. Again, a type of land use not typically situated near a large industrial operation. Finally, the area is a major gateway to recreational areas. Long-term plans have been developed to construct a major "gateway center" in the area. Again, this is a land use not typically found adjacent to a large industrial facility.

Comment *107-005* As a teacher I am very concerned about the new school that will be built near the proposed site. The district will not be able to change the site as land has become very expensive. I imagine it would be next to impossible to sell the present site.

Comment *126-007* This site is in close proximity to the future middle school. This operation poses many health and safety issues to these children. From the dust and noise to the trucks. This isn't an appropriate neighbor for a school.

Comment *127-006* Monroe School District built a high school right adjacent to our Sky River Plant, and the noise must not have been too bad, because they just built a brand new school up on the hill from us. So obviously it is not affecting the schools. So as far as that goes, what they say they are going to do, they will do. And they will go by the guidelines that you guys set up for them or whoever sets it up for them. And that is about all I have to say.

Comment *127-063* Monroe School District built a high school right adjacent to our Sky River Plant, and the noise must not have been too bad, because they just built a brand new school up on the hill from us. So obviously it is not affecting the schools. So as far as that goes, what they say they are going to do, they will do. And they will go by the guidelines that you guys set up for them or whoever sets it up for them. And that is about all I have to say.

Comment *136-008* School to be built nearby- Health and traffic issues!

Response The potential for land use impacts from proposed mining on the Lower Site to the future school site is primarily a function of noise, air quality, and traffic congestion and safety. With the approximately 2,000 feet of separation, the intervening commercial uses, and distribution of the majority of truck traffic to I-90 via Exit 34, it is not anticipated that the future school use would be significantly impacted by air pollution, noise or truck traffic generated by proposed mining activity. Please refer to the Noise, Air Quality and Transportation chapters of this FEIS for more detail on the potential for noise, air pollution, and truck traffic impacts to the planned school.

Comment *024A-077* We request the DEIS to discuss this land use history and the existing and proposed land uses in the area to determine how the proposed project "fits" with the existing and planned character of the area. How does the project, with its attendant noise, traffic,

dust, visual changes, etc. blend with rural residential, suburban residential, visitor serving facilities, park centers, and schools. Is this project which will endure for 20-30 years actually consistent with reasonable land use planning?

Response As indicated in the DEIS, the relationship of the proposed uses with surrounding land uses is primarily a function of the intensity of the proposed uses (i.e. level of noise, dust, traffic), intensity of the surrounding uses, proximity of proposed uses to surrounding uses, and existence of buffers or barriers between proposed and surrounding uses. Phased clearing and long-term mining and processing operations on the sites (including sand and gravel mining on both the Upper and Lower Sites, and eventual asphalt and concrete processing on the Lower Site) would result in increased levels of noise, dust and truck traffic compared to existing conditions. The intensity level on the sites during mining and processing would be similar in character to the intensity level of I-90 and somewhat greater than that of the commercial area along 468th Avenue SE. The intensity level on the sites during mining and processing would be substantially greater than the existing intensity levels of the residential and recreational uses in the area. The clearing of vegetation on the sites would result in an intensity level similar to those of historical forest practices. Mining and processing would result in a higher level of intensity, and for a longer period of time, than would forest practices. Uses of the type and scale proposed do not, however, typically generate spin off uses, Mining would not be expected, for example, to create a significant demand for commercial or residential uses to support and service planned operations or to house employees. Similarly, mining is not expected to generate cumulative adverse land use impacts. It would not, for example, be expected to change the general land use character of the area. Mining is a resource land use that is comparable with historical forest production activities.

Comment *024A-078* This overall impact on the character of the community should then be compared to the effects on the community if Alternative 4 were selected as the preferred alternative.

Response As indicated in Land Use Technical Report , land use impacts from noise, air quality, and aesthetic changes related to mining on the Lower Site would not occur under Alternative 4. Under this alternative, the potential for land use impacts would be isolated to the vicinity of the Upper Site and would be generally less under Alternative 4 than under Alternative 2. With truck traffic utilizing Exit 38, impacts related to increased traffic volumes, traffic and pedestrian safety, and traffic noise to Olallie State Park would be greater under Alternative 4 than under Alternative 2.

Comment *026-019* Please review the land use chapter in terms of the temporary conversion of forest use. The Aesthetics chapter makes the following statement "Development of the Proposal would temporarily convert approximately 231 acres of the 578 acre Upper Site and approximately 40 acres of the 115-acre Lower Site from existing forest production land to sand and gravel mining and processing use." In other words, temporary conversion is only 35% of the lower site and 40% of the upper site. Establishing wide buffer areas and restricting processing operations to the smallest possible area mitigate lower site conversion. Upper site conversion is mitigated by the phased mining and reclamation plan that has only 50 acres open for mining at any one time. Viewed in this context, the temporary conversion of forestland is being held to the base minimum, is effectively mitigated, and does not pose more than a moderate impact to the environment.

Response Comment acknowledged. The Land Use chapter has been revised to reflect the fact that only a portion of the Upper and Lower Sites would be converted to mining use. Please refer to the Land Use chapter of this FEIS.

Comment *026-020* Add this sentence under the Alternative 4 description: "Under alternative 4, the Lower Site area will not be donated by Weyerhaeuser for public ownership.

Response Comment acknowledged. The discussion on Alternative 4 in the Land Use chapter has been revised to reflect the fact that the Lower Site would not be donated by Weyerhaeuser for public ownership. Please refer to the Land Use chapter of this FEIS. The MOU does not address specific alternatives, as it was drafted prior to development of the EIS. Weyerhaeuser Company has agreed to offer to Mountains to Sound Greenway Trust any lands contained in the MOU that they do not need for the mining operation.

Comment *002-019* Preservation and enhancement of the rural nature of the valley.

Comment *020-211* The DEIS states that "... mining is not expected to generate cumulative adverse land use impacts. It would not, for example, be expected to change the general character of the area." [DEIS 3. 7-11]. The FEIS should discuss in detail how the addition of a 24 hour-a-day 25 year mining operation with nearly 1000 truck trips-a-day in the mist of businesses, schools, and residencies are not "expected to change the general character of the area."

Comment *134-002* The mine pit should be located further from such a residential area and tourist area. It is too close to a large number of people and to a community rapidly growing in population along the I-90 corridor. Industry should not be places so closely to civilization.

Response The Land Use section of the DEIS contains detail on the existing land use character of the area and the potential for impacts under mining. As indicated in the Land Use chapter, the King County Comprehensive Plan and Zoning Code consider resources uses such as mining a permitted use within forestry lands when managed to be compatible with forest production. Although the proposed mining would generate impacts to area land uses including noise, visual, and traffic impacts, the proposed project is not expected to change the general rural character of the area.

Comment *020-191* The DEIS accurately expresses the philosophy of the community when it states that "The intensity level on the sites during mining operations and processing would be substantially greater than the existing intensity levels of the residential and recreational uses in the area." [DEIS 3. 7-9].

Response Comment acknowledged.

Comment *115-012* p. 2-27, 2.5.1. "Compared to the proposal..." Land use impacts from harvesting are not similar, they are completely different from mining impacts. In harvest, topography is not as drastically altered as it is in mining.

Comment *115-059* p. 3.7-11 "Mining is a resource land use that is comparable to historical forest production activities." Mining is not anything like forest harvest, as was mentioned earlier in this comment chapter.

Response The cited statement is from the analysis of Alternative 4 and is as follows "compared to the Proposal, land use impacts from harvesting would be similar to those anticipated from clearing land prior to commencement of mining activity." The cited statement refers to the clearing of land prior to mining. As indicated on page 3.7-9 of the DEIS, mining and processing would result in a higher level of intensity, and for a longer period of time, than would forest practices.

Comment *127-035* The most immediate impact is that the next middle school in our school district, which is rapidly growing, will be on that campus with about 600 students which will be driven by the population growth within the valley that is being caused by just increased housing, and that is something that is very hard to predict. Our current capital facilities plan suggests that in the year 2004 those students will be occupying that site.

Response The Land Use chapter of the FEIS indicates that the 1999 Snoqualmie Valley School District Capital Facilities Plan identifies the undeveloped parcel at the northeast corner of 468th Avenue SE and SE Middle Fork Road as the site for a new middle school. The potential for impacts to the school from the proposed mining facility are discussed in the Air Quality, Noise, Land Use and Transportation sections of this FEIS.

Comment *127-036* That time frame between 2000 and 2004 is an area of great concern to us, because we have understood from the beginning that the State Environmental Protection Act does not require the developer to mitigate future impact on future schools.

Even though there is clear evidence, and it is a certainty that the schools will be there and the students will be there, there is no requirement that those be mitigated and that the DEIS is not required to analyze the potential impact. We have understood that from the beginning, but we were very pleased both with the county executive's encouragement at the beginning of this project and also the developer's encouragement, that those school impacts would be addressed, even though there was a legal ability to disregard them.

It seems clear now in the Draft Environmental Impact Statement that that is the position that will be taken, is that legal technicality will be employed and school impacts will be ignored. We are concerned about that.

And we understand that you may very well not be in a position to legally mandate any of that, but I think that the political process within the community and the moral imperative is that we not strictly -- we encourage the developer to reconsider and address those issues, because those children are going to be there occupying that site. And that is the one observation.

Response As indicated in the Land Use chapter of the FEIS, the potential for land use impacts from proposed mining on the Lower Site to the future school site is primarily a function of noise, air quality and traffic congestion and safety. With the approximately 2,000 feet of separation, the intervening commercial uses, and distribution of the majority of truck traffic to I-90 via Exit 34, it is not anticipated that the future school use would be significantly impacted by proposed mining activity. However, the future school is included in the revised transportation analysis. Please refer to the Air Quality, Noise, Land Use and Transportation sections of this FEIS.

Comment *073-289*

If the DEIS considers the proposed gravel mining, asphalt and concrete manufacturing operation a "continuation of residential development," (see Enhancing The Area) the above questions should be addressed in the FEIS.

Response

The Land Use section of the DEIS does not state or intend to infer that the proposed mining operation is considered a continuation of residential development.

Comment *020-192*

The DEIS states that "The intensity level on the sites during mining and processing would be similar in character to the intensity level of 1-90 and somewhat greater than that of the commercial area along 468th Ave SE." In order to truly assess the probable significant adverse impacts of the proposal on adjacent land uses, the FEIS should discuss exactly what is meant by the term "somewhat greater" than the commercial area.

Response

The statement that the intensity (levels of noise, dust and traffic) of the proposed mining and processing would be somewhat greater than the commercial area is intended to indicate that the effective difference in intensity level between commercial and residential uses would not be as great as the difference in intensity level between mining and residential use.

Comment *020-210*

The DEIS states "...the approximately 2,000-foot separation, it is not anticipated that the future school use would be significantly impacted." [DEIS 3. 7-10]. The FEIS should specify exactly what distance would impact the schools, and further, how noise, dust, air quality, traffic, and emergency response will be monitored to see if the schools are being significantly impacted The FEIS should also discuss what level of impact is tolerable, and what measures will be taken to remedy the situations if an impact does occur.

Response

The 2,000-foot separation, along with intervening uses and distribution of the majority of truck traffic away from the school, act in concert to limit air quality, noise and traffic impacts to less than significant levels. Each situation is unique and there is no set distance that limits impacts to less than significant levels. Noise impacts are not projected to affect the school site (please refer to the Noise section of this FEIS). Traffic analysis including associated impacts upon proposed schools is included in FEIS (please refer to the Transportation chapter of this FEIS). No significant air quality impacts are anticipated anywhere outside the project's borders (please refer to the Air Quality section of this FEIS).

Comment *020-212*

The DEIS states that "Mining is a resource land use that is comparable to historical forest production activities." [DEIS 3. 7-11]. The FEIS should discuss the similarity of mining with forest production activities. Is mining a renewable land use similar to forest production?

Response

The King County Comprehensive Plan and Zoning Code define mining as a resource use. Sand and gravel would not be considered a renewable resource. The cited reference states that the "clearing of vegetation on the sites would result in an intensity level similar to those of historical forest practices." The Land Use section of the DEIS indicates that mining activities would result in an activity level significantly greater than that of the residential and recreational uses in the area.

Comment *020-213*

The DEIS states that "Weyerhaeuser has committed to offer to donate all of the Lower and Upper Sites to public ownership." [DEIS 3. 7-9]. Yet, it qualifies this statement with "No permitted uses on the Lower and Upper Site would be permanently foreclosed." [DEIS 3. 7-9]. The FEIS should discuss whether or not this means that Weyerhaeuser is proposing to donate the land with restrictions to allow itself future usage for either forestry or mining operations. The FEIS should further discuss the maximum timeframe for mining 25 years and whether or not Cadman would have the opportunity to continue mining after the quoted 25-year timeframe.

Response

Because proposed reclamation would result in a vegetated site with no permanent structures, future uses of the site would not be physically foreclosed by mining activity. However, because the MOU controls future use of the sites after mining, the ultimate use of the mining sites would likely be forestry or open space use. Cadman, Inc. has stated the overall life of the project would not exceed 25 years. After a 50-acre segment is mined, it would be reclaimed. Weyerhaeuser Company, the property owner, would offer to donate the segment to WDNR in trust for King County. The only reservation of right by Weyerhaeuser is the reservation of operational easements on adjoining lands that may be needed as the individual segments of land are being conveyed.

3.7.3 Relationship to Existing Plans and Policies

Comment *024A-134*

We are concerned that the County has not required a CUP for the project when it appears evident that the criteria for such a permit are met by the project.

Response

Comment acknowledged. The proposed mining site is located within the Forest zone. King County Zoning Code generally allows Mineral Extraction and Processing as an outright permitted use within the Forest Zone. King County Code section 21A.08.090 does require a conditional use permit if mining activities are either located 1/4 mile or less from an established residence or would use local access streets that abut lots developed for residential use. The applicant has removed the freshwater storage pond from the proposal. Mining operations under Alternative Options 2A and 3A would be more than a 1/4 mile from an established residence and would not use local access streets that abut lots developed for residential use. These options would not trigger the CUP requirement.

By contrast, Alternative 2 (the proposal) and 3 both include mining activities within a 1/4 mile of an established residence. If development of the site proceeds under either of these alternatives, or if the project is otherwise modified or conditioned to include mining activities within the quarter mile area, a CUP would be required under the King County Zoning Code.

Comment *027-002*

As we all realize now the Growth Management Act, chapter 36.70A RCW (G.M.A.) set fourth the ground work for orderly growth within the larger more populated areas situated within the State of Washington. King County has adopted plans and polices which do comply with the Growth Management Act.

The King County Comprehensive Plan which was adopted on November 28, 1994 under ordinance no. 11575 does just what the G.M.A. mandates, provide for controlled and orderly growth. I urge you to look past the smoke and mirrors of the anti-development, anti-growth/nimby (not in my back yard) community and look to the goals and polices contained with this adopted Comprehensive Plan. I'll list just of few of these goals or policies which support this project, V-305, RL-101, RL-102, RL-103,

RL-104, RL-105, RL-108, RL-109, RL-113, RL-401, RL-402, RL-403, RL-404, RL-405, RL-409, RL-410, RL-411, RL-413, and RL-414.

Response The comment related to GMA and King County policies supporting the Proposal is acknowledged. The cited policies generally describe polices and uses compatible with rural lands, including natural resource-based uses.

Comment *115-060* p. 3.7-13 here we are supposed to accept that mining is a more noble land use that urban growth!

Comment *142-025* King County supports designation of the Middle Fork of the Snoqualmie River under either the National or State Wild and Scenic River programs. (SQP-151) Locating an ugly, noisy, dusty, smelly, gravel mine at the entrance to that wilderness is not consistent with that objective.

Response Comments acknowledged. Aesthetics, noise and air quality impacts of the proposal are discussed in the Aesthetics, Noise and Air Quality chapters of this FEIS.

Comment *142-024* The area between Tanner and the Edgewick interchange, south of SE 140th and North of 1-90, is appropriate for non-retail commercial and light industrial land uses. Commercial and light industrial uses shall be limited to uses that do-not require sewers, do-not impact groundwater and are not related to resource based shipping, distributing and trucking-related industrial development (SQP-84) Here are 3 do-nots that would occur if the gravel pit is permitted. Consistent application of the Comprehensive Plan requirements is essential.

Response Comment acknowledged. The area between Tanner and the Edgewick interchange is located west of 468th Avenue SE and does not include the site area; this policy is not directly applicable to the Proposal. However, the Proposal would not require sewers and would not be anticipated to adversely impact groundwater. The Proposal is located in a designated resource area and would include resource based shipping.

Comment *013-005* We are also alarmed at the creative and novel interpretations of King County Code 21A 08 B90(B)(9) which allows mining operations as a permitted use in the F zone if "mining activities" are more than 0.25 mile (one-quarter mile) from an established residence and do not use local access streets that abut lots developed for residential use. In recent determinations, the County seems to be excluding the placement of settlement ponds, surface drainage swale, and the building of berms from the definition of "mining activities" when it comes to applying this quarter mile rule. However, King County Code 16.82.060, which sets forth the requirements for every mine in King County, includes settlement ponds, surface drainage swale, and the building of berms under the definition of "mining activities". While we are not immediately affected by the County's interpretation of the quarter mile rule in current Grouse Ridge mine proposal, we are very concerned about a precedent being set that may very well adversely affect our community (and the rest of King County) in the future. Also, the County appears to believe that the rule denotes a measurement of one-quarter mile from "mining activities" to the front porch of a residential dwelling. This is an absurd view and it is clearly the intent of the law to establish a quarter mile buffer to residential property lines. With no effective enforcement of King County Code 214 08 B90(B)(9) in this case, the door is opened to essentially put any kind of mine right next to residential properties anywhere in King County.

***Comment** 020-186*

The King County Zoning Code should implement the King County Comprehensive Plan's policies and objectives. The proposed Lower and Upper Site are zoned F (Forestry) which includes mining and processing as a permitted use. It states that "mining operations are permitted on Forestry lands if mining activities are more than one-quarter mile from an established residence and do not use local access streets that abut lots developed for residential use. Otherwise, a CUP is required." [DEIS 3.7-41].

***Comment** 020-209*

The DEIS states that "Proposed mining and processing activity on the Lower Site would occur approximately 1300 feet (0.25 mile) from two residences ..."' [DEIS 3. 7-9]. The FEIS should clarify whether this includes all facets of the mining operation, including the berms (for noise and aesthetics concerns), the fresh water ponds (pumped for active mining operations), and the access road (used by mining and processing vehicles)? The FEIS should further specify just what exactly is meant by the term "approximately."

***Comment** 024A-080*

Please describe how the project is consistent with County Comprehensive Plan Policy 407 that requires a CUP for projects that include mining operations within 0.25 miles of a residence. Please provide a discussion of whether that permit is required only if mining operations are within 0.25 miles of an existing residence or a residential property line. It is interesting to note that the DEIS does note that Policy requires a CUP for mines within 0.25 miles of a residence and that Appendix G, p. 17 does state that the Lu residence is an established residence as determined by King County and that it is within 0.25 miles. Given this statement, why does not the DEIS state that a CUP would be required?

***Comment** 045-057*

Page 3.7-9, bottom para.: The fact that the Lower Site operations would "occur approximately 1,300 feet (0.25 mile) from two residences," and that one of the ponds is proposed to be located within 50-100 feet of the Lu property, should require a CUP.

***Comment** 127-013*

First, passive fresh water pond, as no CUP, has been required as yet for this critical part of the operation. I wish to state my reasons for this necessity. The location for this pond, which sole purpose is to provide usage for the mining operation at both the lower and upper sites, falls within the one-quarter mile boundary of a residence that must be maintained in order to avoid the issuance of a CUP.

***Comment** 142-020*

Consistent application of the Comprehensive Plan requirements is essential.

Response

The proposed mining site is located within the forest zone. King County Zoning Code generally allows mineral extraction and processing as a permitted use within the Forest Zone. KCC 21A.08.090 requires a Conditional Use Permit (CUP) if mining activities are located 1/4 mile or less from an established residence or would use local access streets that abut lots developed for residential use. As indicated in the Land Use Technical Report, King County has determined that the residential accessory structure on the adjacent Lu property is an established residence for the purposes of measuring the 1/4 mile CUP threshold distance set forth in KCC 21A.08.090(B)

While the active use of a freshwater storage pond in mining operations would qualify as a “mining activity” under KCC 21A.08.090(B), and while the applicant had initially proposed to locate such a pond within 1/4 mile of an established residence, the applicant has since deleted that feature from its proposal.

CUP permit approval is not required for the placement of passive, noise attenuation berms within the adjacent 1/4-mile area. Such berms do not constitute “mining activities” for purposes of KCC21A.08.090(B), as these passive features neither play an active role in the mineral excavation or processing operation nor generate mining

activity impacts which the CUP 1/4 mile threshold was intended to address. Berms are included under all action alternatives.

Alternatives 2 and 3 would include mining activities within a 1/4 mile of an established residence. If development of the site proceeds under either of these alternatives, CUP would be required under the King County Zoning Code. However, mining and processing activities under Alternatives 2A and 3A would not occur within 1/4 mile of an established residence because the footprint of the Lower Site is smaller than under Alternatives 2 and 3. Therefore, a CUP would not be required for Alternatives 2A and 3A.

Comment *126-006*

Regardless of the zoning for this property, residential neighborhoods were built here and the original zoning should be amended to conform with the evolving land use surrounding this site. This site would reduce the property values of a lot of hard working families (who have been paying increasingly higher property taxes).

Response

The comment related to rezoning the site is acknowledged. The King County Comprehensive Plan and Zoning Code contain policies and regulations that maintain and enhance resource-based uses (including mining) while minimizing impacts to surrounding land uses. The sites are located within the Forest Production District that permits mining and limits residential density. However, it is acknowledged that the proposed mining and processing activity at the Lower Site would result in a more intensive site use than the single-family residential uses to the north and northwest. Comments regarding the impact of the project on property values are beyond the scope of environmental analysis covered in the EIS.

Comment *020-194*

The FEIS should address whether the King County Comprehensive Plan of 1994 is the most current Plan to address F Zone usage

Response

The King County Comprehensive Plan implements the planning conducted by King County in compliance with the provisions of the Growth Management Act. The 1994 King County Comprehensive Plan is the appropriate planning document.

Comment *142-018*

According to the King County Comprehensive Plan 2000 recommended by Executive Ron Sims and the Office of Regional Policy and Planning:

Under R-258 conditions and mitigations for significant adverse environmental impacts associated with mining operations should be required, especially in the following areas: Air quality; Environmentally sensitive and critical areas, such as surface and ground water quality and quantity, wetlands, fisheries and wildlife habitats; Noise levels; Vibration;. Light and glare; Vehicular access and safety; Land and shoreline uses; Traffic impacts; Visual impacts; Cultural and historic features and resources; Site security and others unique to specific site and proposals

Response

Comment acknowledged. Policy RL-411 lists the areas of mitigation for mining projects. Please refer to response to Comment LU-20. The EIS uses the following format to describe each element of the environment: existing conditions, environmental impacts, mitigation measures, significant unavoidable adverse impacts. Conditions would be implemented as part of the permit, if approved.

Comment *073-308* The Middle Fork/Grouse Ridge Project may be consistent with the Memorandum of Understanding; however, neither the project nor the Memorandum of Understanding are consistent with TEA-21.

Response The Transportation Equity Act for the 21st Century (TEA-21) provides authority for the National Scenic Byways Program. The program does not place restrictions on land use within scenic corridors such as I-90.

Comment *029-005* I believe this proposed operation is important to our region's future. It is designed to meet the needs of a growing community and appears to have been modified to reasonably meet environmental concerns. It also appears to be consistent with the zoning and comprehensive plan for the area in which it proposed.

Response The comment is acknowledged.

Comment *020-195* The FEIS should address the permitting issues of entry and egress of the Lower Site through State owned land? (See explanation in Technical Discussion)

Response Weyerhaeuser has the right to necessary operating easements for the mining operations according to the MOU. No state or local access permits are required.

Comment *026-021* The FEIS should make note of the important public notice function that the mineral resource designation serves, and that this designation has been assigned by King County at the proposal site since 1994. The King County Comprehensive Plan states in this regard that: "Identification of Potential Mineral Resource Sites satisfies GMA Requirements to not knowingly preclude opportunities for future mining and to inform nearby property owners of the potential for future mining use of these areas in order to prevent or minimize conflicts."

Response Comment acknowledged. The Land Use chapter has been revised to provide additional detail on designated Potential Mineral Resource Sites. Please refer to the Land Use chapter of this FEIS.

Comment *142-019* Under E-107 The protection of lands where development would pose hazards to health, property, important ecological functions of environmental quality shall be achieved through acquisition enhancement, incentive programs, and appropriate regulations. The following natural landscape features are particularly susceptible and should be protected:

b. Slopes with a grade of 40% or more (the road and convey belt)
c. Wetlands and their protective buffers
d. Streams and their protective buffers
g. Critical aquifer recharge areas

Response Comment acknowledged. The mining plan includes design features to minimize adverse impacts to steep slopes, wetlands, streams and aquifer recharge areas. Mitigation measures to minimize impacts to these environmentally sensitive areas have also been identified. Please refer to the Soils and Geology; Plants and Animals; and Water chapters of this FEIS for detail. Approved mining and processing activities may be allowed on steep slopes under King County Code.

***Comment** 126-004*

My property is within 1/4 mile of this site. But the applicants contest that somehow this isn't considered part of my residence. Does King County have the same interpretation of what constitutes a "residence"? This is a complete abomination if so!

Response

KCC 21A.08.090(B) states that mining operations are permitted on forestry lands if mining activities are more than 1/4 mile "from an established residence." It is the location of a residence, and not the residential lot line, that triggers the requirement for a CUP. King County has determined that the residential accessory structure on the Lu property is an established residence for purposes of this section.

***Comment** 020-189*

The FEIS must explain why the location of the access roads used for mining and gravel truck traffic do not initiate the need for a CUP.

***Comment** 020-190*

The DEIS fails to adequately address the portion of the Code stating "mining operations are permitted on Forestry lands if they do not use local access streets that abut lots developed for residential use." Access onto the Lower Site is through a local access street that abuts two residentially zoned parcels. Utilities have been extended to the boundaries of these parcels.

Response

As indicated on page 3.7-11 of the DEIS, "although this roadway (SE 146th Street) abuts two residentially zoned parcels, the residential parcels contain no structures and would not be considered developed for residential use." Because the portion of SE 146th Street used for access to the Lower Site does not contain parcels developed for residential use, site access would not trigger the requirement for a CUP.

***Comment** 020-208*

The King County Comprehensive Plan states that, "Asphalt and concrete processing activities are permitted only if they are accessory to a primary mineral extraction use..." [DEIS 3. 7-4]. The FEIS should discuss the definition of "accessory" and whether or not the processing facilities are accessory to the primary mineral extraction that is located at the Upper Site

***Comment** 021-001*

On behalf of the Edgewick Inn, we submit the following additional comments on the DEIS for the North Bend Gravel Operation. In our opinion, the Alternatives 2 and 3 do not comply with the zoning code and therefore are not viable alternatives. King County Code (KCC) 21A.08.090A provides that asphalt and concrete plants are a permitted use only when they are in compliance with KCC 21A.O8.09OB.8. This latter chapter states that such uses must be accessory to a primary mineral extraction use. Primary and accessory use requirements of the zoning code must be independently met on the parcels that are to be utilized as the upper and lower sites. In Alternatives 2 and 3, the lower site is proposed to have asphalt and concrete plants that will be the primary use on that site, This is a violation of KCC 21A.08.090B.8 that only allows these uses as accessory uses in the Forest zone. The DEIS should analyze the requirement of comprehensive plan amendments and rezones if Alternatives 2 and 3 are to be consisted.

Response

King County Code Chapter 21A.08 defines permitted uses within specified zoning districts. Proposed mining and asphalt/concrete mixing and blocking uses would occur within the Forest zone district. King County Code 21A.08.090(B) provides that Asphalt/Concrete Mixtures and Block uses are permitted in the Forest zone "[o]nly as accessory to a primary mineral extraction use or as a continuation of a mineral processing use established prior to the effective date of or consistent with this code." While the term "accessory" is not specially defined, the term contemplates a use that is subordinate and incidental to a principal or main use. Proposed asphalt/concrete

mixing and blocking would occur only in conjunction with the primary excavation activity conducted for this project within the same zone district. Sand and gravel material used in such activity would be excavated from the upper and lower portions of the site. Excavated material would be transferred from the upper to lower site areas by way of a conveyor. The conveyor would be located within an easement area which was retained by Weyerhaeuser to maintain the connection between upper and lower portions of the site for purposes of the proposed gravel mining operation. The use is thus accessory to the primary mineral extraction use contemplated and is therefore allowed.

Comment *021-002*

Further, according to KCC 21A.08.090.A and -.B.9 mining activities in the Forest zone must avoid using local access streets which abut lots developed for residential use. The proposed project does not meet this requirement with Alternatives 2 and 3. For purposes of this requirement, the Edgewick Inn should be considered a residential use both because it is used by guests for residential purposes and because the manager of the motel uses the motel as his residence. SE 146th Street is the local access street for access to the Edgewick Inn. Therefore, new mining activities that use SE 146th Street are not allowed by the zoning code and Alternatives 2 and 3 must be rejected.

Response

Section 21A.08.030 of the King County Zoning Code, considers a Hotel/Motel use (SIC #7011) as a commercial use that is only permitted in the Neighborhood Business (NB), Regional Business (RB) and Office (O) zones. Motel/hotel uses are not a permitted use in any of the King County residential or resource zoning designations and are not considered a residential use in respect to the King County Zoning Code. The Edgewick Inn is not considered a residential use and Lower Site access from SE 146th Street would therefore be consistent with the provisions of KCC 21A.08.090A.

3.7.4 Cumulative Impacts

Comment *024A-114*

What are the growth-inducing impacts of the availability of this substantial amount of aggregate, asphalt, and concrete on neighboring communities? Will not the availability of these materials result in substantial new development? If the answer is that these products would be produced elsewhere, then please provide the source of those materials. If those materials are being produced elsewhere, then please provide a full discussion of the need to develop these two sites.

Response

As indicated in the Land Use section of the DEIS, proposed mining is not expected to result in spin-off uses. Mining of sand and gravel resources on the sites would not be anticipated to induce development in the area to any greater degree than logging of forestry resources.

Comment *024A-115*

Please provide a full discussion of the cumulative impacts on noise, air quality, views, ground and surface water, biotic resources, traffic, and public services if the 30 acres to the north of the Lower Site is developed with industrial uses.

Response

The property in question is not associated with the Proposal and no development applications for this property are on file with King County. A cumulative impact analysis considering development of this property is not required or appropriate for this EIS.

Comment *024A-086* Please address the cumulative impact that the project will have on the industrial land to the north on 468th Avenue S. E. The intensity of the heavy industrial use of the project could induce heavy industrial development on such lands rather than light industrial or commercial parks or even residential which would be more in keeping with the overall existing and proposed neighborhood, including suburban-residential, a school, commercial and rural residential development.

Response The industrial property in question is not associated with the Proposal and no development applications for this property are on file with King County. As indicated in the Land Use section of the DEIS, proposed mining would not be anticipated to result in spin-off uses. Mining of sand and gravel resources on the site would not be anticipated to induce industrial development in the area to any greater degree than logging of forest resources.

Comment *024A-085* We request that the DEIS revisit its conclusions on p. 3.7-19 regarding the intensity of impacts on surrounding users given the revised analyses of noise, air quality, and other impacts. We believe that this revised analysis will clearly show that the impacts will be moderate to high for many local residents. Again, this analysis should clearly explain the differences in impact.

Response As indicated in the Noise, Air and Transportation sections of the DEIS, significant impacts to the residential areas surrounding the sites would not be anticipated. However, as indicated in the Land Use section of the DEIS, the proposed mining and processing activity at the lower Site under Alternatives 2 and 3 would result in a significant unavoidable adverse land use impact because of the 25-year conversion of forest use. The Aesthetics section of the DEIS also states that significant unavoidable adverse impacts to some viewpoints would exist until mining on the sites ceased and reclamation activities were complete.

Comment *004-008* There is very little commercial development east of Exit 34. We are concerned that the Exit 38 Alternatives could lead to more development in the area. Exit 34 represents a better option for truck haul-out as the area just off the freeway is already used for commercial and industrial purposes, and it is one of the state's busiest truck stops.

Comment *024A-113* What is the status of the 30 acres immediately north of the Lower Site that is designated for industrial development? Is it not possible that the presence of aggregates, asphalt, and concrete production next door will "induce" development of this site? And that such development may be of an intensity that would be greater than might otherwise occur given existing and proposed surrounding land uses. Please address the growth-inducing impact.

Response The comment related to Exit 34 being preferable to Exit 38 for truck access is acknowledged. Resource uses of the type and scale proposed do not typically generate spin-off uses. Mining and processing would not be expected, for example, to create a significant demand for commercial or residential uses to support and service operations or house employees. The Proposal would not be anticipated to induce development changes that would affect the overall land use character of the area.

Comment *019-353* The DEIS did not and the FEIS should address the impacts of the project on future growth of schools, commercial businesses and residences.

Response Impacts to future growth, including residential and school uses, are discussed in the Land Use section of the DEIS. Please also refer to the Air Quality, Noise, and Transportation sections of this FEIS for detail on impacts to school and residential uses in the vicinity of the site.

3.7.5 Mitigation Measures

Comment *115-058* Any plan for mitigation to the incredible damage to be caused to the Lu residence? Or is that just the way it goes? Also, the casual dismissal of impacts to the WoodRiver subdivision is par for the course for this DEIS.

Response Mitigations to reduce impacts of the proposal and alternatives are presented in the EIS.

3.7.6 Significant Unavoidable Adverse Impacts

Comment *045-073* The DEIS admits that "the forest lands character of portions of the [area] would temporarily change (for up to 25 years)." (They call 25 years temporary, I do not.)

Response Comment acknowledged. The word "temporary" was used to indicate that the Proposal would not permanently change the land use character as would a comprehensive plan or zoning designation change. It is acknowledged that 25 years is a significant amount of time. Please note that the change in use for 25 years is identified as a Significant Unavoidable Adverse Impact in the Land Use chapter, indicating the significance of the impact related to the temporary change in use.

Comment *012-175* [DEIS §3.7.6; p. 3.7-14] The discussion of Land Use concludes, "The proposed mining and processing activity at the Lower Site under Alternatives 2 and 3 would result in a significant unavoidable adverse impact because of the temporary conversion of forest use."

Although Alternative 2 is the preferred option throughout the DEIS, clearly the conclusion related to land use suggests that Alternatives 2 and 3 are unacceptable from an environmental standpoint. Alternatives 1 and 4 would greatly reduce the adverse impacts on the over 500 homes and businesses, and future school, located in the proximity of the Lower Site. Nevertheless, these two alternatives are never given serious consideration.

Response The DEIS does indicate that, in general, Alternatives 1 and 4 would have lesser impacts in regards to land use compatibility than under Alternatives 2 and 3. For example, the Land Use section of the DEIS states that under Alternative 4, "forest production activities on the Lower Site would occur over a significantly shorter period than mining/processing under Alternative 2, and overall land use impacts would be less."

3.8 Historical, Cultural, and Archaeological Resources

3.8.1 Existing Conditions

Comment *020-920* The DEIS failed to adequately assess the potential for historic, archaeological, or traditional resources located within or adjacent to the project area.

Response No historical properties that would be potentially impacted by the proposed undertaking were identified during research and survey of the project areas, and the likelihood for encountering these resources is low. Nevertheless, it is possible that buried archaeological resources could be inadvertently exposed during ground-disturbing activities. In such a case, project activities in the vicinity of the find would be temporarily halted until a qualified archaeologist, in consultation with the State Office of Archaeology and Historic Preservations, King County, and local Native American representatives, assesses the significance of the find and determines appropriated mitigation actions.

3.8.1.1 Prehistory

No comments were received on this section of the DEIS.

3.8.1.2 Ethnography

Comment *020-913* The FEIS should address if the historic Indian Trail over the Snoqualmie Pass transits through the Lower Site and/or Upper Site. What means was used to evaluate this for the entire project site?

Response No information was found on the presence of a potential historic Native American trail through the project areas. Refer to the discussion of methodology in the Historic, Cultural and Archaeological Technical Report and to the list of references.

Comment *020-912* The FEIS should reveal the responses submitted by the Puyallup, Snoqualmie, Tulalip, and Muckleshoot Tribes as referenced by the DEIS. [DEIS 3.8-2].

Comment *020-921* The DEIS failed to provide the Native American responses to the proposed project for the public to review.

Response The Snoqualmie Tribe, together with the Tulalip, Puyallup, and Muckleshoot Tribes were contacted by King County and given an opportunity to comment on the DEIS. No comments were received.

Comment *012-176* [DEIS §3.8.1.4; p. 3.8-3] states:

Despite the fact that much of the ground surface could not be readily examined, the project area does not appear to contain a high likelihood of containing significant archaeological resources.

This conclusion ignores the still-disputed ownership of large regions of the Snoqualmie Valley including the Grouse Ridge area (see Corsaletti 1999). Although the 1855 Point

Elliott Treaty ceded most of these lands to the federal government, the Snoqualmie's were never paid. Some tribal members contend ownership never changed hands and are considering legal appeals.

Comment *070-007*

The DEIS does not acknowledge the fact that the Snoqualmie River and its tributaries are considered to be the religious origin of the Snoqualmie (i. e., their "creation story" is centered on the existence of this river). The DEIS does not address the issue of whether running bulldozers up and down Grouse Ridge might be seen by members of the Snoqualmie in roughly the same fashion an Israeli might view bulldozers running up and down Mt. Sinai: i. e., rape of their religious rights. [If you think I am verging on poetic license, please call the Reverend Jon Magnus on (608-262-3014) - a noted Lutheran expert on this subject - and get ready for a sermon the likes of which you will never forget.]

Comment *070-005*

The manner in which your Department has conducted this DEIS, during the time period concerned, represents multiple violations of the sovereign rights of the Snoqualmie Tribal Organization, the US National Historic Preservation Act, as well as "RCW 27.44", particularly as it concerns the concepts of "due diligence", "stop, look and listen", and "due process" [e. g., at a minimum, you should be already aware of the contents and implications of the Department of Interior's seventy-nine page "Technical Report", published October 6, 1999, on the "Final Determination to Acknowledge The Snoqualmie Tribal Organization", as well as the content and implications of the entire "opinion" of the US Court of Appeals for the Ninth Circuit, "Muckleshoot Indian Tribe V. US Forest Service", Case No. 98-35043, as filed on May 19, 1999].

Response

Comments acknowledged.

Comment *070-006*

The DEIS is in conflict with information currently available in the state of Washington's Northwest Ethnohistory Collection (formerly with Western Washington University and now with the Center for Pacific Northwest Studies), particularly "Boxes" "17", "22" as well as "24".

Response

The comment is not specific and cannot be responded to directly. Please refer to the Historic, Cultural and Archaeological Resources chapter of the FEIS and the technical report for a discussion of methodology. No historical properties that would be potentially impacted by the proposed undertaking were identified during research and survey of the project areas.

3.8.1.3 History

No comments were received on this section of the DEIS.

3.8.1.4 Survey Results

Comment *020-914*

The FEIS should allow an independent and unbiased review of the Lower and Upper sites to evaluate any historic, cultural, or archaeological resources. The occasional examination by "footwear" from the evaluating agency is grossly incomplete. [DEIS 3.8-3].

Response

The Upper and Lower Sites were subjected to archaeological survey in conformance with applicable local, state and federal cultural resources guidelines. No historical, cultural, or archaeological resources were identified during the survey, and the

likelihood for encountering these resources is low. Refer to the Historic, Cultural and Archaeological Resources chapter of the FEIS and the technical report for a discussion of methodology. Nevertheless, it is possible that buried archaeological resources could be inadvertently exposed during ground-disturbing activities. In such a case, project activities in the vicinity of the find would be temporarily halted until a qualified archaeologist, in consultation with the State Office of Archaeology and Historic Preservations, King County, and local Native American representatives, assesses the significance of the find and determines appropriate mitigation actions.

3.8.2 Environmental Impacts

Comment *020-911*

The Greenway Trust is working to preserve and mark many of the historic places as described in Snoqualmie Pass, by Yvonne Prater. Mr. James Ellis in his eloquent forward states that "In cooperation with landowners, cities, counties, the State of Washington, and the U.S. Forest Service, the Trust is also stimulating the public purchase of key resource lands, the reopening of historic paths, and the development of new trails. We are also helping the cities and towns along the way to maintain their historic identities and to strengthen their economies."

If this statement by Mr. Ellis were accurate then why would The Greenway Trust compromise these ideals by supporting a mining project that will irrevocably alter the Upper Snoqualmie Valley? This mining project will permanently compromise the visual and aesthetic character of the Upper Snoqualmie Valley for at least a generation. It will compromise the recreational usage by altering the inherent beauty of the area. It will mine within 5 feet of (by their own admission may breach) an aquifer(s) that supplies water resources to hundreds of thousands of residents. It may impact water levels in Class A and AA rivers, excellent habitat for fish spawning and recreation according to the Department of Ecology. It will alter the economic viability of the Exit 34 business community while benefiting only large corporations that have no vested interest in the historic, cultural, or archaeological resources of the area. In fact, Weyerhaeuser has benefited entirely by the systematic destruction of this pristine wilderness area.

"After all the changes that have occurred, it is a wonder there are any traces left of the old routes. The region has seen floods and fires; railroad, dam, road, and powerline construction; and the drastic changes brought about by logging." [Snoqualmie Pass, by Yvonne Prater].

If the drastic changes to the environment that Ms. Prater addresses and Mr. James Ellis endorses were assumed true, then why would King County allow the further destruction of this ecosystem by allowing a generation of mining? A mine that would continue to degrade views from historic recreational areas, such as Iron Horse Trail; that would permanently displace the historic and cultural resident Elk herd; and that would deface for a generation or more the beauty of a federal scenic byway.

Response

No historic properties that would be potentially impacted by the proposed project were identified during the course of the study.

Comment *073-314*

Explain how a gravel mining, asphalt and concrete manufacturing facility will maintain the scenic, historical, recreational, cultural, natural, and archaeological characteristics of the Interstate 90 corridor and increase tourism with related amenities.

Response Please see the EIS for discussions related to mitigation for scenic, historical, cultural, recreational, material, and archaeological impacts. The FHWA (through WSDOT) has reviewed the DEIS. Although they are concerned with the scenic values along the I-90 corridor, the FHWA does not have jurisdiction over private property along I-90.

Comment *097-002* Historic and cumulative loss to adjacent areas.

Response No historical or archaeological resources were identified within the project areas. As a consequence, no alternatives would result in cumulative impacts to identified historic properties.

3.8.3 Cumulative Impacts

No comments were received on this section of the DEIS.

3.8.4 Mitigation Measures

Comment *020-917* The FEIS should address how a historic, cultural, or archaeological site will be actually managed if discovered and how the site will be monitored for compliance until actually examined by professionals. Identify who will be contacted if a discovery is found?

Comment *115-061* p. 3.8-3 You may want to mention what would happen should a culturally significant site be discovered during excavation.

Response As stated in the summary of mitigation measures, it is possible that buried archaeological resources could be inadvertently exposed during ground-disturbing activities. In such a case, project activities in the vicinity of the find would be temporarily halted until a qualified archaeologist, in consultation with the State Office of Archaeology and Historic Preservation, King County, and local Native American representatives, assesses the significance of the find and determines appropriate mitigation actions.

Comment *020-915* The FEIS should address who will independently monitor and how often they will monitor the Lower and Upper Sites to evaluate if historic, cultural, or archaeological resources are being impacted.

Response Monitoring for archaeological resources during initial ground disturbing activities is not recommended. However, if archaeological resources are found, subsequent monitoring may be appropriate. In addition, project activities in the vicinity of the find would be temporarily halted until a qualified archaeologist, in consultation with the State Office of Archaeology and Historic Preservation, King County, and local Native American representatives, assesses the significance of the find and determines appropriate mitigation actions. To reduce the likelihood of encountering previously unidentified resources, resurvey of the sites following removal of vegetation is recommended.

Comment *020-916* The FEIS should address how construction and operations crews are to be trained to recognize indications of archaeological sites. What will that training actually consist of, who will provide that training, and how often will that training will be updated?

Response

It is recommended that construction and operation crew supervisors be trained in recognition of cultural features, materials, and other indicators of archaeological deposits. Training would be provided by a qualified professional archaeologist and be updated as appropriate, including following replacement of key personnel. Facility operations plans would specify an appropriate archaeologist to conduct training activities.

3.9 RECREATION

Comment *073-325* [Eligible Projects] Development and provision of tourist information to the public, including interpretive information about a scenic byway.

It is very clear this type of development and provision would include adjacent areas. Explain how the proposed project will develop and make provision for tourist related activities.

Response Specific provisions for tourist-related activities are not included in the proposal and are not within the scope of this EIS. When proposed mining activities are completed, the sites would be donated to and held by the Washington Department of Natural Resources in trust for King County.

Comment *108-005* Another plus, as each phase of the operation is completed the land will be re-claimed and will become publicly owned open space.

Comment *127-011* State parks are trying to have a nice recreational experience for everyone.

Response Comments noted.

3.9.1 Existing Conditions

Comment *115-062* p. 3.9-1 The sentence "In the drier months..." implies that all of the recreation occurs when the sun is out. Some of us who live here enjoy those activities year round. Please change this sentence so as to not be misleading.

Response The sentence has been revised to acknowledge year-round recreational activity in the project area.

Comment *073-304* If so, was there mention of a gravel pit to take the place of the Middle Fork of the Snoqualmie River Valley: River Corridor Public Use Concept Plan for 25 years prior to implementation of this Plan ["would enable the project to proceed at an earlier date"]?

Comment *073-305* If the Middle Fork of the Snoqualmie River Valley: River Corridor Public Use Concept Plan was not used, what was the Plan submitted for the Upper Snoqualmie Valley in the Corridor Management Plan for designation criteria?

Response Please see the FEIS Recreation chapter and Recreation Technical Report for a discussion of the Middle Fork River Corridor Public Use Concept Plan. The corridor management plan submitted by the National Scenic Byways program is not within the scope of this EIS.

3.9.2 Environmental Impacts

Comment *020-884* Although no authorized recreational uses occur on either of the proposed sites, a significant environmental impact would be felt by recreational users on a wide variety

of recreational facilities maintained by the U.S. Forest Service, Washington State Parks and Department of Natural Resources, as well as King County.

The Upper Snoqualmie Valley's extensive outdoor parks, recreation and open space facilities, including some of the most popular hiking areas in the region, will be specifically impacted. The DEIS substantiates increased levels of dust, noise, truck traffic and particularly changes in panoramic views as currently enjoyed from higher elevations.

The proposed project, as the DEIS describes, "delays" or rather eliminates for at least a generation the planned acquisition and improvement of the immediate area by the implementation of the River Corridor Public Use Concept Plan. A plan that when developed would add significant opportunity for development of hiking, biking and other recreational activities along the Middle Fork of the Snoqualmie River Valley. Approximately 2950 acres of private land on borders of the Mt. Si Natural Resources Conservation Area (NRCA) and Rattlesnake Mt. Scenic Area have been identified under planned acquisitions and improvements for recreational use; however, no data has been presented addressing potential impacts on recreational facilities or the future development of recreational facilities. [See Addendum A]

The DEIS acknowledges the ever growing popularity of the Upper Snoqualmie Valley due to its convenience to the Greater Puget Sound Region, yet, dismisses the Proposal's impact as "not anticipated." The present and future recreational users of the Upper Snoqualmie Valley deserve a more intensive study of all reasonable direct and indirect impacts.

Comment *020-885* The FEIS should address the potential recreational use of the private lands along the NRCA border identified for possible purchase by the DNR.

Comment *020-886* The FEIS should address the impacts of noise, dust, and the visual changes to those identified private lands along the NRCA border.

Comment *020-887* The FEIS should address the potential recreational uses of the private land along the boundaries of the Rattlesnake Mt. Scenic Area.

Comment *020-888* The FEIS should address the impacts of noise, dust, and the visual changes to those identified private lands along the borders of the Rattlesnake Mt. Scenic Area.

Response View of the sites from Mt. Si Natural Resource Conservation Area and Rattlesnake Mt. Scenic Area planned acquisition areas are addressed in the Recreation chapter. Refer to the Noise chapter and Air Quality chapter for discussion of potential noise and dust impacts. The proposal is not expected to have an impact on planned acquisitions or improvements identified in the Middle Fork Plan outside the proposal site.

Comment *012-155* The Middle Fork of the Snoqualmie River is heavily used for a variety of recreational activities. The impact on kayaking activities is not considered. Impacts on fishing are not discussed. The popular Gold Meir hot springs is not mentioned at all.

Response Discussion of Goldmyer Hot Springs and kayaking and fishing activity on the Middle Fork Snoqualmie River is included in the FEIS Recreation chapter. Impacts to these activities are not expected.

Comment *073-235*

Cedar Butte is a summit of 1,800 feet with "good views of Mount Si, Mount Washington, Rattlesnake Ledge (to the west), Mailbox Peak, Grouse Ridge and Chester Morse Reservoir to the south."

Additional viewpoints not included in DEIS Aesthetics area context or in the primary viewer group are Snoqualmie Point Scenic Overlook and Little Si with an estimated elevation of 1,389 feet. Also, there is Haystack Meadow; "over 100,000 people hike this trail each year," as posted at the Mount Si Trailhead.

"Managers estimate the trail [Mount Si] draws some 50,000 visitors a year, making it the most heavily used trail in the state - and likely one of the more popular in the nation."

Over the proposed project life of 25 years, the cumulative potential viewers would be 1,250,000. If only half reached the summit to take in the "spectacular views of Seattle, Mount Rainier and other Cascade peaks", a total 625,000 viewers would also be witness to the proposed project. Generously, if only 20% reached the top, 250, 000 people would see the gravel mining, asphalt and concrete operation.

Response

A view from Snoqualmie Point Scenic Overlook has been added to the FEIS analysis. The view from Mt. Si was analyzed in the Draft EIS. Refer to Aesthetics, Light and Glare chapter of the FEIS for new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/Haystack Meadow are addressed in the Draft EIS, Section 3.10. The Recreation chapter was revised to clarify discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas. These areas are addressed generally, based on topography. Further discussion of visual impacts to recreation areas is based on new viewpoints analysis. Recreational use in Ollalie State Park has been added to the chapter. Use data for King County recreation areas potentially affected by visual impacts is unavailable (Nora Gainer/Alan Sinsel, King County Parks, March 12, 2001).

Comment *073-241*

Decisions.

DEIS Aesthetics says, "However, mining activity and processing facilities would represent a significant" "unavoidable impact to some viewpoints in the vicinity,." particularly higher recreation areas (Mount Si Natural Resources Conservation Area)…

DEIS Recreation says, "The proposal would not result in any significant unavoidable adverse impacts on recreation area uses."

DEIS Recreation says, "Indirect impacts on recreational activities from the Proposal could occur in relation to increased noise levels, amounts of traffic, and changes in the visual conditions of the sites."

Response

Comment acknowledged. Refer to Aesthetics, Light and Glare, FEIS Chapter 12, for new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/Haystack Meadow are addressed in the Draft EIS, Section 3.10. The Recreation chapter was revised to clarify discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas.

These areas are addressed generally, based on topography. Further discussion of visual impacts to recreation areas in the FEIS is based on new viewpoints analysis.

Comment *012-153*

[DEIS §3.9] discusses impacts on Olallie State Park in some detail: it is mentioned no less than eight times. This is particularly interesting in that impacts there emphasize the negative effects of Alternative 4. But this entire section totally ignores other popular -perhaps more popular-trails and destinations like Twin Falls, Mailbox Peak, Bandera Mountain, Mount Teneriffe, Green Mountain, Mount Washington, McClellan Butte, Rattlesnake Ledge, Cedar Butte, etc. Some of these areas will have direct line-of-sight views onto the proposed mining operation. There are no documented figures comparing the recreational use of these areas. The DEIS needs to do an unbiased, comprehensive analysis of recreational impacts for all Alternatives. DEIS authors are directed to Manning (1993) for a survey of popular trails in the areas adjacent or near to Grouse Ridge.

Comment *073-232*

Recreation

DEIS Recreation is incorporated for the potential aesthetic impact on views to the proposed project from recreational areas at higher elevations.

"The primary recreational facilities in the vicinity of Grouse Ridge are managed by the U.S. Forest Service, Washington State Parks and Recreation Commission, Washington State Department of Natural Resources (DNR), and King County."

RCW 79A.05.010 (4) Public Recreation Lands, Definitions" Recreation" means those activities of a voluntary and leisure time nature that aid in promoting entertainment, pleasure, play, relaxation or instruction.

WAC 173-16-060 (21) Department of Ecology, The Use Activities Recreation is the refreshment of body and mind through forms of play, amusement or relaxation. Water-related recreation accounts for a very high proportion of all recreational activity in the Pacific Northwest. The recreational experience may be either an active one involving boating, swimming, fishing or hunting or the experience may be passive such as enjoying the natural beauty of a vista...

Natural Forests.
"Clinton Emphasizes Scenic Beauty- CNN - October 13, 1999. President Clinton announced steps to preserve 40 million acres of federally owned forest - an area the size of Virginia and West Virginia combined - as roadless areas protected from development. Clinton declared: "We will ensure that our grandchildren will be able to hike up to this peak. We will assure that when they get to the top they'll be able to look out on valleys like this, just as beautiful then as they are now.."..The plan would not require Congressional action, relying only on regulations to be issued by the U.S. Forest Service after a detailed review and public comments. "It would be one of the most significant land conservation actions by the U.S. government in history," said Richard Hoppe, a spokesman for the Heritage Forests Campaign."

U.S. Forest Service.
"Trails in the Forest and Wilderness Area that have potential for some distant views of the Lower and Upper Sites are the Mount Defiance/Mason Lake, Mount Defiance Trail, Thompson Lake Trail and the McClellan Butte Trail."

"Of the trails that have potential for views of the Lower and Upper Sites, the most popular (according to 1994 data) are the Mount Defiance/Mason Lake and McClellan Butte Trails."

"As of 1994, total use of the North Bend Ranger District was estimated at 3.7 million annual recreation visitor days (RVD is a 12-hour unit of time spent in a particular activity)."

Here is a quantitative measure. Why did the DEIS Aesthetics not use RVD or a derivative for all viewpoints to quantify the visual impact based on number viewers?

Response Recreational use in Ollalie State Park is included in the Recreation chapter. Use data for King County recreation areas potentially affected by visual impacts is unavailable (Nora Gainer/Alan Sinsel, King County Parks, March 12, 2001). Refer to the Aesthetics, Light and Glare chapter for further discussion of visual impacts. Updated user information for some USFS trails (potentially affected by visual impacts) and both passive and active recreation activities are addressed in the FEIS Recreation chapter.

Comment *004-009* Lastly, we would also comment on the general lack of discussion of impacts in Section 3.9 "Recreation." Discussion should have included a description of the road conditions near the Park, safety considerations for pedestrians, frequency of truck traffic, traffic schedule (times of day), noise level of trucks travelling near the Park, pedestrian and vehicular circulation in and around the Park, and considerations for how truck traffic would affect any future camping development at the Park. Further, we are concerned that no mitigation has been proposed for the impacts to Ollalie State Park from Alternatives 3 and 4.

Response The FEIS Transportation chapter includes a discussion of impacts to road conditions, pedestrian safety, truck traffic frequency and schedule, noise level of trucks, and circulation on roads serving Ollalie State Park and Twin Falls Natural Area and at Exit 34. Both the Transportation and Noise chapters of the FEIS address mitigation measures for impacts to Olallie State Park under Alternatives 3 and 4.

Comment *107-006* We are a rural recreation area. Please don't spoil the natural beauty that many come here to enjoy.

Response Comment acknowledged.

Comment *004-005* Noise, dust and truck emissions will degrade the quality of the recreational experience at Ollalie State Park.

Comment *020-909* The DEIS fails to address how the Proposal would impact the public's use and enjoyment of any formal or informal recreational sites in the area.

Comment *020-910* The DEIS fails to address how the Proposal would affect the demand for, and availability of, informal and formal public recreational uses in the site vicinity.

Comment *045-071* But that would all drastically change if the North Bend Gravel Operation described in this DEIS were to be permitted. For the next 25 years, the entire natural area would be filled with unnatural impacts. Visitors and residents could no longer enjoy the wildlife which would "temporarily, for 25 years" move to other areas to survive. The noise from the operation would be much louder and spread much farther than is estimated for

the Project (as was proven by independent studies and testimony done for the Ben Jones Pit near Carnation). The increased heavy truck traffic, including speeding and "over-the-center-line" turns extremely common among gravel trucks (sometimes necessary to even make a turn) would make it much more dangerous for bikers, hikers, pedestrians, and cars full of families touring the area. The point of taking a trip to the countryside "to get away from it all" would be defeated if we all had to fight the same amount of traffic (or more) that exists in the urban areas.

Comment *054-003* Mt. Si is the most popular and accessible hiking mountain in the state, just pick any weekend, or weekday to see the vast amounts of people that enjoy hiking to the top.

Comment *097-003* Impacts to recreational amenities currently enjoyed in the area.

Comment *115-064* p. 3.9-6."..proposed mining would temporarily delay the potential for the opportunity to develop the improvements identified in the Middle Fork Public Use Concept Plan." Thanks a lot, folks. We've been trying desperately to get a public use plan going in there.

Comment *127-020* North Bend is an increasingly popular recreation area for the entire county, and as such, people from all over the county have come up to the Rail Trail and the areas around there. This would greatly inhibit the beauty of the area and the ability of this region, this area of the county to continue to be a recreational draw, and I feel that that would inhibit the general well being of the entire county, not just North Bend. Thank you.

Comment *127-055* The whole idea about recreation, I mean I don't know if you realize this, but Exit 34 is used constantly for Twin Falls, for the Middle Fork Park. There is a brand new -- I see it, I am almost done -- I mean, you know, three minutes is not a long time. This affects our lives dramatically.

Response Comments noted. Please refer to revised and expanded discussion of potential recreation impacts in the FEIS Recreation chapter. The proposal would not cause the loss of any formal recreational facilities. Persons employed at the site could slightly increase demand on recreational facilities. Increased truck traffic due to the project could affect local travel. Noise and dust impacts on Olallie State Park would be greater under Alternatives 3 and 4 compared with Alternative 2.

Comment *012-008* positioning as fact the preparers' subjective opinion (see [DEIS §3.9.2.2; p. 3.9-5]) where it is claimed that logging impacts are the same as for sand and gravel mining; commented on here in section 12 below, "Recreation").

Comment *012-151* [DEIS §3.9.2.2; p. 3.9-5] Under Alternative 1, this section states "Harvesting of trees would generate a level of activity (such as levels of noise, dust and traffic) similar to that under proposed sand and gravel mining." But this conclusion is not based on any stated comparisons of any specific impacts such as decibel levels or particulate matter and fugitive dust measures. To say that traffic impacts would be the same would indicate a proposed logging activity requiring 1,000 logging truck trips into the area per day and occurring on 50 acres at a time, 24 hours a day. Is there or has there ever been a logging operation in the Snoqualmie Valley of this size.

Comment *012-152* The statement that "tree harvesting on the sites would occur over a shorter period of time than proposed mining" is an assumption not based on any stated, known logging plan.

***Comment** 020-891* The FEIS should address the specific data comparing the impact of historical forest practices versus the impact of clearing and construction of processing facilities on recreational uses within the U.S. Forest Service, Washington State Parks and DNR, and King County facilities.

***Comment** 020-892* The FEIS should address specific data comparing the impact of historical forest practices versus the impact of 24-hour mining and processing on recreational uses within the U.S. Forest Service, Washington State Parks and DNR, and King County facilities.

***Comment** 020-896* The FEIS should address the parameters of "temporary conversion" of forest conditions in terms clearly defining the extent of impact over time to recreational users. Specifically, what would be the 25-year impact to recreational usage?

Response The Recreation chapter includes revised text to clarify the difference between visual impacts from timber harvesting, proposed construction activities and mining operations, including discussion of the anticipated effect on recreational facilities. Refer to the Aesthetics, Light and Glare chapter for further discussion of visual impacts.

***Comment** 012-154* It appears that if any statistical comparisons are made, they are based on 1994 data [DEIS, p. 3.9-3]. Some use patterns have changed dramatically since then, especially in the Rattlesnake Lake area since its significant facilities upgrade in 1999.

Response Additional and more recent recreational use data is not available for the project area or Rattlesnake Lake since 1999 facility upgrades (Ruby, 2001).

***Comment** 020-893* The FEIS should address the degree of indirect construction impacts under Alternative 4 compared to the Proposal since the DEIS states that they "would be less."

Response The Final EIS (FEIS) Recreation chapter addresses the degree of indirect impacts anticipated under Alternative 4. Under Alternative 4, no indirect construction or operation impacts would occur at the Lower Site. Indirect noise and air quality impacts resulting from construction activities at the Upper Site would be minor. Pedestrian, bicycle and vehicle traffic would be adversely affected on SE Homestead Valley Road, Exit 38 and at the entrance to Olallie State Park. Indirect visual impacts would occur at recreation sites with views of the Upper Site.

***Comment** 020-895* The FEIS should address traffic impact specific to recreation users at Exit 32 for activities at Rattlesnake Mt. Scenic Area.

Response Refer to the FEIS Transportation chapter for a discussion of traffic impacts to recreation users at Exit 32. Recreationists using Exit 32 would not be affected by the proposed project.

***Comment** 020-901* The FEIS should address the economic impact due to potential loss of tens of thousands of recreational users on the Upper Snoqualmie Valley business community.

Response Comment noted. An economic analysis was not prepared as part of the Recreation chapter or broader EIS analysis. The Upper Snoqualmie Valley business community

could experience economic impacts if recreational use in the area declines due to visual impacts.

Comment *020-894* Twin Falls Natural Area. (Refer to hardcopy for photograph, pg 143)

Comment *127-058* But in terms of recreationists, we look at the recreationists using Exit 38, but, you know, that whole road of the Middle Fork is going to be paved for the very purpose of recreational use. So that means everyone will be getting off at the Exit 34 to go in to use the park. It is beautiful there and the trail head at Twin Falls is at Exit 34. So the recreational issue is still at 34, too. I am sorry.

Response Refer to the FEIS Transportation chapter for a discussion of impacts to road conditions, pedestrian safety, truck traffic frequency and schedule, noise level of trucks and circulation on roads serving Ollalie State Park, Twin Falls Natural Area and at Exit 34.

Comment *020-438* The E.I.S. should measure and quantify the projected cumulative noise levels of the Grouse Ridge Project, (consisting of all site equipment, processing plant equipment, and truck and motor vehicle traffic), and their effects on any recreation areas, within one mile of, and including, but not limited to: The Grouse Ridge gravel pit(s) and Processing Plants, Edgewick Road, I-90 and I-5, and Middle Fork Road. Measurements should be taken at 500ft. 1000 ft, ¼ mi. ½ mi., and one mile, at the following elevations: 500ft, 750ft, 1000ft, 2000ft, 2500ft, 3000ft, and be projected on a per minute, per hour, per 10 hour day, per 24 hour day, per week, per month, per year, and per 5, 10, 15, and 25 years.

Response The noise analysis conducted for this EIS focused on sensitive receptors at varying distances from the site. The analysis concluded that project-related noise levels, in combination with existing background noise, would not exceed King County noise standards or affect recreation users. Refer to the FEIS Noise chapter for further discussion of noise impacts to recreational areas.

Comment *020-897* The FEIS should address in more precise terms than “somewhat changed” the extent of impact on views from the higher elevations of trails on Mt. Si and Little Si trails. [See Addendum B]

Comment *020-898* The FEIS should address in more precise terms than “"somewhat changed” the extent of impact on views from the trails within the Alpine Wilderness Area and Mt. Baker/Snoqualmie National Forest.

Comment *020-899* The FEIS should address in more precise terms than “"somewhat changed” the extent of impact on views from high points in the Rattlesnake Mt. Scenic Area.

Comment *020-900* The FEIS should address in more precise terms than “somewhat changed” the extent of impact on views from high points along trails in the Cedar River Watershed.

Comment *020-902* The FEIS should address how a 50-foot surrounding vegetation buffer would eliminate views of the mining and processing facilities from panoramic views at higher elevations.

Comment *020-904* The U.S. Forest Service trails, notably the Mason Lake Trail (4200 people per year) and the McClellan Butte Trail (10,000 people per year), will, as the DEIS states, have

"potential for some" impact on views. The DEIS avoids clearing defining that "potential."

Comment *020-905* The most popular hiking areas in the region are the Mt. Si trails and the trails in the Twin Falls Natural Area where panoramic views will be directly impacted. The DEIS chooses to use the term "indirect" when referencing recreation impacts.

Comment *020-906* King County areas including the Rattlesnake Mt. Scenic Area and the Snoqualmie Valley Trail will also have views that will be directly impacted.

Comment *020-907* In each case, the U.S. Forest Service, Washington State, and King County recreational facilities, the DEIS has acknowledged impacts, particularly on panoramic view, but does not clearly define what these impacts will be. Terms such as "limited," "not anticipated," "could," "somewhat" are consistently used, however, no clear picture of the extent of damage to a generation of recreational users is ever clearly addressed by the DEIS.

Comment *020-908* What is the context of "limited," "could," and "somewhat" as they related to each Alternative, especially Alternative 4?

Comment *023-046* Hence, the DEIS does not adequately study visual impacts to offsite recreational enthusiasts. It would be difficult to imagine that a 700+ foot ridge cut/slope stabilization would not have significant adverse visual impacts to the Iron Horse Trail, nearby parks and Mt. Si. Camp Waskowitz, a youth camp located below both mine sites on the other side of 1-90, would have a clear view of the ridge cut, the proposed conveyor assembly, the access road, and any associated grading scars that are anticipated to physically construct these facilities. However, the DEIS does not list this camp as a primary user group and therefore has not shown any visual impacts from this location.

Response Refer to the FEIS Aesthetics, Light and Glare chapter for a new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/Haystack Meadow were addressed in the Draft EIS, Section 3.10. The Recreation chapter includes a new discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas. These areas are addressed generally, based on topography. Further discussion of visual impacts to recreation areas is based on new viewpoint analysis. From Camp Waskowitz, the only proposal feature visible would be a portion of the conveyor. After the Lower Site is mined, the operations would be conducted in the excavated area, reducing the visual impact. Berms at the Lower and Upper Sites would also reduce visual impacts.

3.9.2.1 Construction Impacts

Comment *115-063* p. 3.9-5 "Construction activities would be short term and are not anticipated to significantly impact recreational resources." Many of the recreational activities involve hiking up a mountain for a view. Everyone will see the scars on the land that this project will leave.

Response The recreation chapter clarifies visual impacts during construction. Refer to the FEIS Aesthetics, Light and Glare chapter for further discussion. Initial clearing of vegetation would result in a visual impact similar to that of forest practices. Grading would cause visual impacts to recreation users in the area.

3.9.2.2 Operation Impacts

Comment *020-889* The FEIS should address recreational use facilities, their specific potential locations and anticipated use in the planned River Corridor Public Use Concept plan.

Comment *020-890* The FEIS should address the extent of "delay" the proposal would have on the River Corridor Public Use Concept Plan.

Comment *024A-087* The DEIS mentions in passing that development of the proposed project would "temporarily delay the potential for the opportunity to develop the improvements identified in the Middle Fork of the Snoqualmie River Valley; River Corridor Public Use Concept Plan," (p. 3.9-6). However, the DEIS does not identify what improvements are proposed in that plan that would be hindered by the project. This information should be provided. Reviewing the Appendices, we conclude that it is likely the development of the "gateway center" proposed at the Tanner/Edgewick exit. If this is the case, to say that this improvement would only be temporarily delayed when the delay could be as long as 30 years seems to underplay the effect.

Response Improvements under the Middle Fork of the Snoqualmie River Valley: River Corridor Public Use Concept Plan that could be delayed by the proposed project include hiking, biking, and equestrian trails and a shooting range on the project site. Implementation of this plan beyond informal use would require Weyerhaeuser Company to convey the land to agencies willing to manage the land for such purposes. Other improvements in the Middle Fork corridor would not be affected by the proposal.

3.9.3 Cumulative Impacts

No comments were received on this section of the DEIS.

3.9.4 Mitigation Measures

No comments were received on this section of the DEIS.

3.9.5 Significant Unavoidable Adverse Impacts

Comment *073-242* DEIS Recreation says, "The proposal would not result in any significant unavoidable adverse impacts on recreation area uses."

DEIS Recreation says, "Indirect impacts on recreational activities from the Proposal could occur in relation to increased noise levels, amounts of traffic, and changes in the visual conditions of the sites."

Comment *073-243* View impact from recreation areas is a primary focus in DEIS Recreation with little impact noted. View impact from DEIS Aesthetics determined a significant unavoidable impact.

Comment *073-244*

"The view of the sites from these higher-elevation areas could be somewhat changed from existing conditions, particularly from Mount Si, Mount Washington and Rattlesnake Mountain. From many of these higher-elevation areas, including Mount Si, the exposed floor and sidewalls of the proposed mining areas, as well as the proposed processing facilities on the Lower Site, would be visible (refer to the Aesthetics, Light, and Glare, Section 3.10, for a visual representation of the view of the sites from Mount Si). Views of exposed mining areas and processing facilities could detract from the existing overall character of the panoramic views. Proposed phased reclamation would limit the amount of mining area exposed at any one time. However, even with implementation of all proposed measures to minimize visual impacts (such as landscaped berms, vegetated setbacks, and phased reclamation), exposed mining areas and processing areas would be visible from higher elevations. It is not anticipated that an increase in noise levels due to mining and processing activities would be noticeable to users of formal recreational facilities in the area [refer to DEIS Noise, Section 3.3, for details on anticipated noise levels]."

...view could be somewhat changed.., could detract from existing panoramic views... even with implementation of all proposed measures to minimize visual impacts.., areas would be visible from higher elevations...

There appears to be inconsistency and uncertainty in the DEIS Recreation and DEIS Aesthetic sections.

Response

As indicated in the Recreation section of this Final EIS, the degree to which overall recreational experiences are affected by changes in aesthetics would vary from individual to individual, depending on the expectations, intended activities and perceptions of each individual recreator. Thus, determining the degree of impact to recreation areas and users due to remote changes in aesthetics (changes to aesthetics outside of the boundaries of the recreation area) is subjective and cannot be conclusive in nature. In general, visual impacts under Alternative 2 would cause recreation impacts to some users. Changes in views of the Upper Site would be more significant as there is less existing development in the surrounding area (the change would be more prominent). Refer to the Aesthetics, Light and Glare chapter for new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/Haystack Meadow are addressed in the Draft EIS, Section 3.10. The Recreation section was revised to clarify discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas. These areas are addressed generally, based on topography and Include further discussion of visual impacts to recreation areas - based on new viewpoints analysis.

3.10 AESTHETICS, LIGHT AND GLARE

Comment *016-015*

The EIS has serious flaws, and should be redone. It must have greater specificity on the design including runoff and pollution containment, dust and light control. It needs a more understandable presentation

Response

Comments acknowledged. Detailed designs are not required for an EIS (WAC 197-11-055). As indicated in the Aesthetics section of the DEIS, all lighting would use low pressure sodium bulbs, a type of lighting that emits a low-intensity light designed to minimize light impacts on surrounding properties and nighttime sky viewing. In addition lighting would use full cutoff luminaries to direct light onto mining areas and away from adjacent properties. Refer to the Aesthetics chapter of this FEIS for additional information on lighting.

Comment *020-753*

The FEIS should provide all data used to develop the photosimulations, including project cross sections.

Response

Comment noted. The information in the FEIS project description is the data used to develop the photosimulations.

Comment *024A-137*

Aesthetics Technical Report. The discussion of Light and Glare Conditions should be under Alternative 2 - Proposal rather than where it is under Alternative 2 - Lower Site Option.

Response

Comment acknowledged. The Light and Glare section is in the correct location; however, the Aesthetics Technical Report has been revised to indicate that lighting conditions would be the same under both Alternative 2 options.

Comment *073-261*

Visual Impact Methodology "There are at least four kinds of roles that landscape simulation might serve in the context of landscape aesthetic policy development, implementation, and evaluation: (1) to serve as a tool for enforcement of public rights to know the aesthetic consequences of environmental modifications; (2) to create simulations which might serve as negotiated legal documents in the context of existing policies; (3) help to establish perceptually based performance standards in land use regulation; (4) assist in the assessment of monetary penalties for aesthetic damages.'

"There is no question that a city [or county.] may consider aesthetics in regulating the use of land. The state court of appeals recently affirmed this by stating that "aesthetic standards are an appropriate component of land use governance." Aesthetic regulation may also be a part of environmental controls imposed under the authority of the State Environmental Policy Act (SEPA) and the Shoreline Management Act (SMA). For example, SEPA identifies one of its purposes as being to assure "for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings, RCW 43.21C.020 (2) (b)."

The DEIS Aesthetics methodology does not give quantifying data or analysis for: atmospheric conditions, seasonal changes, sensitivity levels, spatial, quantitative and qualitative issues, 2-dimensional photographs versus 3-dimensional human vision, angle of visual incidence and time of exposure to view.

Response Considering all possible factors from all possible viewpoints would produce an analysis too complex to meet the intent of SEPA to be easily understandable and usable by the public and by decision-makers. However, the visual analysis encompasses a high number of variables, including: viewer sensitivity or receptiveness to changes in the view; number of viewers; viewer distance from operations; view elevation; appearance of operations when viewed; and visual contrast between the operations and surroundings.

For the North Bend Gravel Operation, a system was used to provide a general ranking of impacts. The analysis assumes that views of gravel operations would be considered an impact on views by most observers. The two main factors considered in rating impacts were: the degree of visibility, and the distance between the observer and mining operations. Specific description of impact criteria is provided in the impact table in the Methodology section of the Aesthetics Technical Report.

Comment *073-267* What are the specifications on the photographs and photographer? Was the photographer a professional landscape photographer?

Response Photographs were taken by a licensed landscape architect experienced in taking outdoor photographs.

Comment *073-268* Why were no photographs of existing gravel pits included for comparison, perspective and reference?

Comment *073-274* The FEIS should provide photographs of existing gravel pits (day and nighttime operation for comparison, perspective and reference.

Response Photographs of other gravel pits would not represent the impacts in this setting as well as photosimulations of views of this site.

3.10.1 Existing Conditions

Comment *024A-023* Please provide a description and map of all proposed lighting? Provide data on the type of lighting and its elevation off the ground surface.

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. A specific lighting plan has not been prepared for the Proposal. The lighting study discusses the impacts of lighting anticipated on the sites. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting on the sites. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report.

Comment *026-002* Comment (1): There is an assertion that the vegetation characteristics will remain constant. The assessment should take into account that the trees in the area, including those in the buffers and on the surrounding slopes, grow rapidly.

Response Text has been added to the Aesthetics chapter to address the effect of tree and under-story growth.

Comment *026-003* Comment (2): The "Area Context" characterizes the natural landscape, but makes no mention of development in the area including Ken's Truck Town and associated businesses, nor does it mention the SEACON warehouse that is about to be built.

Response Comment acknowledged. Additional discussion on the character of the built environment in the area has been added to the Aesthetics chapter.

Comment *073-231* It is the accessibility to scenic vistas, picnic areas, zones of visual importance to tourists viewing the Snoqualmie Valley, which are the attraction and brings people to the area to reside and recreate. These simple, critical criteria were not employed in DEIS Aesthetics; instead "professional judgment" was employed.

Response The description of methodology in the Aesthetics, Light, and Glare Technical Report has been augmented to clarify how views were selected.

Comment *073-238* Although DEIS Aesthetics: Area Context considered the aesthetic character to include Mount Washington, Mailbox Peak, and Rattlesnake Mountain Scenic Area they were not included in the primary viewer group. Why?

Response It is impractical to include analysis from every potential viewpoint so a "worst case" and "representative" approach was used.

Comment *073-239* DEIS Aesthetics should select priority zones of higher elevation viewpoints and recreational areas" as primary viewer groups to be evaluated objectively for aesthetic and visual impact. Scenic impact should be interpreted in relation to both the Upper and Lower Sites, separately.

Response Comment acknowledged. This is the approach used in the FEIS. Views from Mailbox Peak and Snoqualmie Point Scenic Overlook have been added to the analysis. Viewpoints identified were based on scoping comments and site analyses from various viewpoints to identify area with greatest potential for views of the sites. In addition, the number of viewers has been added.

3.10.1.1 Aesthetics

Comment *073-264* Sensitivity Levels. "Sensitivity levels depend on how the landscape will be viewed, and are determined by the distance of viewers, the number of viewers, and how viewers are using an area."

"Therefore, the overall public sensitivity to the visual quality of a landscape scene depends on, among other things, the number of people viewing the scene, the length of time they view the scene, and the number and type of locations from which the scene is visible."

DEIS Aesthetics needs to develop and provide supporting documentation of this information for all viewpoints.

Response Regarding sensitivity levels - Photographs were taken from locations in the viewshed where viewers were deemed to have the highest sensitivity to change. These include views from private residences at nearby locations, views from nearby scenic hikes and viewpoints and views from scenic roads.

3.10.2 Environmental Impacts

Comment *012-158* The conveyor system alluded to in several sections of the DEIS (principally throughout 2.0 and in 3.1.2.1) is inadequately described in terms of its impact on views and aesthetics. The conveyor is sometimes described as an elevated structure, sometimes recessed. It also includes a parallel pipe system to transport water between the Upper and Lower Sites; there's an accompanying paved maintenance road. What is the total width of these combined structures? The DEIS must more clearly characterize the visual impact of the completed system. These structures have been neatly described as discrete and unrelated. Much of the visual impact of the conveyor is in theory obscured by adjacent vegetation but it seems that much plant material will be removed for the road and pipe system. What are view impacts at various stages of construction? How many years will it take for adjacent vegetation to regrow and effectively obscure the conveyor and road?

Response Additional text has been added to the FEIS describing impacts from the conveyor and maintenance road, and an additional view of this facility has been added.

Comment *020-560* The DEIS states, "With night time site operation and road way being widened to three lanes, a continuous street light system should be installed from 1-90 though the required channelization improvements along 468 Avenue SE." [DEIS Vol. II, Appendix L, page 3.27, section 3.6.2.2]. The FEIS should define the actual street light areas. Will this street light system increase reflected glare to surrounding neighborhoods and business areas, especially the Edgewick Inn?

Response As indicated in the comment, the proposed nighttime operations and widening of SE 146th Street would require new lighting along SE 146th Street. The new street lighting along SE 146th Street would increase lighting levels in this area and would likely increase lighting to the northern and eastern sides of the Edgewick Inn. The new lighting along SE 146th Street would be typical of suburban collector roadways, and would be comparable with existing lighting along 468th Avenue SE. Roadway lighting would contain cutoff luminaries to direct lighting cutoff luminaries to direct light to the street and away from adjacent properties. King County standards call for lighting multi-lane (more than two) roadways.

Comment *020-755* The FEIS should clearly show views of the lower site with the unvegetated berms and processing facilities in place.

Response Comment acknowledged. Views of the Lower Site with young vegetation on the berms have been added to Aesthetics Technical Report.

Comment *020-758* The FEIS should describe how many residences would have views of both upper and lower alternatives, and the conveyor belt/maintenance road/pipeline(s).

Comment *020-759* The FEIS should describe how many residences would have views of both upper and lower alternatives, and the conveyor belt/maintenance road/pipeline(s).

Response Based on a review of aerial photography maps showing residences within the viewshed: (1) viewers at approximately 10 to 15 residences along Lake Dorothy Road may be able to see a lowered Grouse Ridge; (2) viewers at 2 to 4 residences north of the Lower Site may

be able to see a portion of Lower Site operations; (3) viewers at 150 to 175 residences west of the sites may be able to distinguish the conveyor as a minor portion of the view. Based on a review of the Traffic section of the DEIS, approximately 1,200 daily travelers on I-90 roadways may have brief views of some portion of the Lower Site.

Comment *020-760* The FEIS should provide the data to support its assumption that "significant impacts on adjacent properties from fixed and mobile sources of light on the sites are not anticipated." What measurements were used, and under what conditions?

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the proposal. The lighting study contains specifics on the lighting anticipated on the sites. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study.

Comment *020-761* The FEIS should estimate the number and height of fixed and mobile low-pressure sodium light sources.

Comment *020-762* The FEIS should estimate the number and height of other fixed and mobile light sources.

Comment *020-763* The FEIS should include a lighting study and photosimulation or other diagram to show light pollution created by the Lower Site on nearby residences.

Comment *020-764* The FEIS should include a lighting study to show light pollution created by the Lower Site on travelers on local and interstate roadways.

Comment *020-765* The FEIS should include a light pollution study in all weather patterns, to include rain, fog, snow, and at nighttime.

Comment *020-766* The FEIS should address whether the storage pond will contribute to reflected light pollution into the nighttime sky, or reflect glare onto Interstate 90.

Response Comments acknowledged. Please see the Aesthetics chapter in the FEIS for a discussion of lighting impacts.

Comment *020-767* The FEIS should address the visual impact of the maintenance road leading from the Lower Site to the Upper Site, to include a photosimulation of its position and its width.

Response Comment acknowledged. A photosimulation has been added to the FEIS to show the conveyor belt/maintenance road/pipeline from its most visible "worst case."

Comment *020-768* The FEIS should address the light pollution, including lighting, light spill, glare, and nighttime truck traffic created on the maintenance road leading from the Lower Site to the Upper Site.

Response The proposed maintenance road associated with the conveyor would not be lighted and the number of vehicles traveling this roadway during nighttime hours is anticipated to be negligible. Please refer to the Aesthetics Light and Glare chapter of this FEIS for a summary of the lighting study conducted by a registered engineer.

Comment *020-769* The FEIS should address the visual impact of the conveyor system leading from the Lower Site to the Upper Site, to include a photosimulation of its position.

Response Comment acknowledged. A photosimulation of the conveyor system has been added to the FEIS.

Comment *020-770* The FEIS should address the light pollution, including lighting, light spill and glare created by the conveyor system leading from the Lower Site to the Upper Site.

Response The proposed conveyor would not be lighted and no lighting impacts from the conveyor would occur. The proposed conveyor would be covered by a natural color non-reflective cover and glare impacts from the conveyor are not anticipated.

Comment *020-771* The FEIS should address the visual impact of the water pipes leading from the Lower Site to the Upper Site, to include a photosimulation of their position.

Response Comment acknowledged, a photosimulation has been added to the FEIS to show the conveyor belt/maintenance road/pipeline from its most visible "worst case" angle.

Comment *020-772* The FEIS should address the light pollution, including lighting, light spill, and glare created by the water pipeline system leading from the Lower Site to the Upper Site.

Response The proposed water line would not be lighted and no lighting impacts from the water line would be anticipated.

Comment *020-774* The FEIS should address the effect of 24-hour lighting pollution on the businesses located adjacent to the Lower Site, especially the Edgewick Inn.

Comment *020-776* The FEIS should address the visual, and light pollution, including lighting and glare impacts to the Exit 34 business corridor, and the neighboring residential areas from nighttime gravel trucks departing the Lower Site.

Response Please see the Aesthetics chapter in the FEIS for a discussion of lighting impacts.

Comment *020-779* The FEIS should address the potential for forest fires from the mining activities and the resultant visual impact on the Upper Snoqualmie Valley.

Response The Proposal would be operated consistent with commonly accepted standards. If a forest fire were to occur that had aesthetic impacts, this would be the result of an event outside of commonly considered factors.

Comment *020-782* The FEIS should address the effect of 24-hour light pollution on the resident wetlands.

Response The vast majority of the fixed-light sources will be located on the facility buildings, the aggregate processing facility, on conveyors within the mining area, and near the roads entering the sites. The nearest portion of the main facility on the Lower Site is approximately 500 feet away from Wetland A, the wetland found on the Lower Site. The lights will generally be below a slope that will separate the freshwater storage pond from the facility. Thus, much of the light radiating toward Wetland A will be blocked

by the slope. In addition, the lighting will be low pressure sodium bulbs, which are designed for low-intensity lighting. Light pollution is not expected to have any measurable effect on Wetland A. Impacts of lighting on wildlife are expected to be low, as wildlife generally adapt to lighting as they do to noise.

Comment *020-783*

The DEIS states that "a naturally vegetated buffer would be retained around the perimeter of the Lower and Upper Sites to buffer nearby residential uses from mining and processing activities" and that "vegetated view screening berms would be provided along portions of the northern, eastern, and southern sides of the mining area on the Lower Site." [DEIS, 3.10-22]. It seems more probable that the local residents will actually have views of massive unvegetated berms for many years resulting in a significant visual impact before adequate vegetation develops. Mitigation measures to protracted or improper re-vegetation need to be implemented. If none can be identified, construction should be delayed until the screening berms are firmly established. The planting of Douglas Fir seedlings offers little reassurance that these berms will accomplish their intended task.

Response

Comment acknowledged. Photosimulation of the screening berms at three stages of growth has been added to the Aesthetics Technical Report, with one stage shown in Chapter 12 of the FEIS. These photosimulations are intended to accurately portray growth at the time frames indicated. Trees of known age were photographed in the project vicinity as a basis for the photosimulations.

Comment *020-784*

The DEIS states that the surge piles and concrete and asphalt processing facilities would be "approximately 50 - feet high. [DEIS p 3.10 - 16]. The DEIS should be more specific than "approximate" or in the alternative should discuss the visual impacts of these facilities if they exceed "approximately 50 - feet" in height.

Response

Comment acknowledged. Impacts could be slightly greater or lesser than portrayed depending on actual height of surge piles and final facility elevation. Additional elevation data is provided in the FEIS. However, detailed design is not required for an EIS (WAC 197-11-055), so elevations are still approximate.

Comment *020-785*

The DEIS provides minimal attention to the visual impacts of the conveyor system, maintenance road and water pipelines between the Lower Site and the Upper Site. As stated in the Hart Crowser report of March 25, 1999, a new maintenance road and conveyor corridor required on the slopes of Grouse Ridge, would create highly visible scars cutting across the currently wooded slopes. [Hart Crowser, page 65]. This reference pertains to a scar on the south slope and is used to disqualify the Exit 38 alternative, however, this same analysis applies to the west slope and the proposed connection between the Lower Site and the Upper Site as described in Alternative's 2 and 3. These alternatives would create an even larger scar and its visibility would be seen throughout the Snoqualmie Valley by a larger number of residents and motorists. Current scar from maintenance road up west slope of Grouse Ridge (Refer to hardcopy for photograph, pg 127)

Response

Comment acknowledged. Contour information and photosimulation analysis of the proposed conveyor has been added to the Aesthetics, Light and Glare chapter of the FEIS. Please see Figure 3-2 of this FEIS for an illustration of the proposed conveyor alignment.

Comment *020-786* The DEIS states that "some partial views of the conveyor would be afforded" from the Uplands. (DEIS, pg. 3.10 - 17) The DEIS should be more specific in describing the "partial views" and should include a photosimulation of these partial views.

Response The conveyor was considered in photosimulations from the Uplands (Viewpoint 2).

Comment *020-794* The DEIS failed to address minimum required lighting and projected maximum lighting required for the project?

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. The lighting study contains details on the lighting proposed for the proposal, including maximum lighting anticipated. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report.

Comment *020-796* The DEIS failed to address light conditions with low cloud cover.

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. The lighting study includes a discussion on lighting with low cloud cover. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report.

Comment *020-797* The DEIS failed to address if smoke or steam from proposed facilities would significantly impact views or aesthetics.

Response A discussion on the aesthetic impacts of steam associated with the Proposal has been added to the Aesthetics, Light and Glare chapter of the FEIS. During clearing of the sites for mining, if woody debris is burned, smoke would be generated and could be seen from area viewpoints. The amount of smoke would be similar to that under typical forestry activities and would be short-term in duration.

As indicated in the Aesthetics, Light and Glare chapter of the FEIS, steam would be generated on the Lower Site as a byproduct of asphalt production. The presence of a steam plume could present an industrial character to the view. Please refer to the Aesthetics, Light and Glare section of this FEIS for detail.

Comment *023-001* Our comments respond to the aesthetics analysis for the DEIS, which we view as inadequate due to the general nature of the information provided. The Washington Administrative Code (WAC 197-11-400) states that an environmental impact statement must be "concise, clear and to the point and shall be supported by the necessary environmental analysis." Much of the visual section seems to be based on inaccurate topographic mapping, general assumptions, and incomplete representations of facility design/implementation. While there appears to be volumes of detail and an enormous amount of professional consultation, significant aspects seem to have been left at a very-vague level. Hence, the visual impact study cannot effectively (e.g. adequately) present a concise and clear picture of net visual impacts.

Response Comment acknowledged. Additional analysis has been incorporated into the Aesthetics, Light and Glare chapter of this EIS in response to specific comments noted in this and other letters.

Comment *023-002* It is the opinion of this firm that the DEIS visual impact discussion does not adequately address the details of the presented alternatives. It appears that the level of engineering is very vague, particularly with respect to the conveyor and maintenance road impacts.

Comment *023-003* The Washington Administrative Code (WAC. 197-11-400) states that an environmental impact must be "concise, clear and to the point and shall be supported by the necessary environmental analysis." While the computer imaging and associated descriptions attempt to show what might occur at each mining site from different vantage points and at various phasing stages, the analysis fails to address the obvious problems associated with physically placing the conveyor, maintenance road and water line. Hence, we feel the DEIS does not meet WAC 197-11-400's definition for adequacy.

Response Comment acknowledged. Additional analysis has been prepared for the conveyor and maintenance road. Final detailed designs are not required for an EIS.

Comment *023-007* Recommendation(s): As a minimum, accurate topographic mapping (2 foot contour intervals) should be used in all analysis, particularly when statements are made to suggest low to moderate impacts. Cross-sections should be utilized and presented with a new visual impact study to clearly demonstrate the actual impacts of the proposal and of each alternative. Proposed conveyor elevations above natural grade should be presented in 100-foot stationing or where the conveyor will not be within the suggested 4-5 elevation range.

Response Comment acknowledged. Five-foot contours were utilized in critical areas where the conveyor passes through the ridgeline, and 40-foot contours were utilized in steeper terrain, in order to develop the visual simulations.

Comment *023-008* Scenario Two- Conveyor Positioning/Switchback Line- In order to avoid exceeding optimum conveyor gradients and to maintain a low profile elevation of 4-5 feet above the grade as previously noted, the conveyor assembly may need to meander or "switchback' to traverse slopes. This scenario has not been presented in the DEIS and our firm believes this could be a real possibility that should be examined. Clearly, a traversing conveyor assembly would have greater visual impacts than presented in the DEIS.

Response The straight-line conveyor belt alignment is a feasible route. This is the proposed concept and has been evaluated for its environmental impact accordingly in the EIS. Additional study for the conveyor and maintenance road was prepared. The analysis indicates that a "switchback" alignment for the conveyor will not be needed. The location of the conveyor and access road is shown on the site plans in the FEIS. A straight, rather than meandering, alignment is proposed, because a change in conveyor direction creates the potential for spills.

Comment *023-009* Recommendations(s): As a minimum, accurate topographic mapping should be utilized to complete a preliminary grading plan for the conveyor assembly. The grading plan should clearly show areas of cut and fill. Proposed conveyor elevations above natural grade should be presented in 100-foot stationing or where the conveyor will not be within the suggested 4-5 elevation range. A new visual impact analysis should be completed that is based on accurate topographic analysis, grading plans and conveyor assembly design.

Response Comment noted. Additional study for the conveyor and maintenance road includes a profile view showing proposed conveyor elevations above grade. A preliminary grading

plan showing cut for the conveyor alignment is included in the Soils and Geology Technical Report and incorporated into the aesthetics analysis of impacts.

Comment *023-013*

By this model, the visual impact analysis should also illustrate the effects of this cut. Discounting benching and appropriate equipment access to the conveyor assembly top, the impacts of this cut are enormous. For example, assuming just the width of the conveyor itself (e.g. no equipment access or benching), and a 3:1 slope, the width of this cut would be approximately 345 feet on each side of the conveyor. Accordingly, the entire width of the manufactured slope, from top-of-bank to top-of-bank would be nearly 700 feet.

Response

Comment noted. Under a worst-case scenario, the width of the cut at the ridge would be 110 feet with a 1.5H:1V slope gradient. A view of the impact of this cut has been added to the FEIS. Additional aesthetics simulations in the Aesthetics, Light and Glare chapter of FEIS include a view of the conveyor alignment.

Comment *023-014*

As we understand the proposal, this would occur as soon as mining begins on the upper site, and would continue for approximately 25 years- clearly this is not a short term visual impact. Even if this anticipated 700 foot wide cut were initially planted, the visual impacts era changed natural slope condition would be clearly visible for many miles. For the DEIS to state that the conveyor system could have a moderate slope stability impact on the ridge seems to be grossly understated.

Response

Under a worst-case scenario, the width of the cut at the ridge would be 110 feet with a 1.5H:1V slope upgradient. The conveyor system and access road could have a moderate to high slope stability impact on the upper 800 feet of the ridge (where the cut would be up to 110 feet wide) and a moderate impact below this level. Slope control is technically and economically feasible and required under the State Surface Mining Act. Additional simulations in the Aesthetics, Light and Glare chapter include a view of the conveyor alignment. Impacts on the slope are discussed in Chapter 3, Soils and Geology.

Comment *023-017*

The DEIS does not adequately analyze visual impacts associated with the proposed maintenance road. Figures illustrate a single corridor that is intended to accommodate the conveyor assembly, a water line and a maintenance road. The corridor is illustrated to occur linearly and directly up the slope from the lower mine to the upper mine area.

Response

Comment acknowledged. Additional analysis has been incorporated into the Aesthetics, Light and Glare chapter of this FEIS regarding the maintenance road. The conveyor scenario analyzed in this FEIS includes a maintenance road which diverges from the conveyor alignment in three areas (Figure 3-2).

Comment *023-020*

Rather, computer imaging of the visual impact analysis tends to focus on the mines while virtually ignoring the transport mechanisms and associated impacts. The transport mechanisms (e.g. conveyor, road and water line) and slope stabilization methods may actually have greater visual impacts than the acute mine areas.

Response

Comment acknowledged. Additional analysis has been added to the Aesthetics, Light and Glare chapter of this FEIS regarding the transport mechanisms (conveyor, pipeline and roadway) and associated visual impacts.

Comment *023-024* Cutting and filling in these slope conditions would have a significant impact to the surrounding vegetation. Since trees receive most of their air intake within 10 inches of natural grade and cannot survive greater than 6 inches of fill, we anticipate the filling alone has the potential of creating large scars in the natural landscape.

Response Comment acknowledged. Refer to the Aesthetics, Light and Glare chapter of this FEIS for illustrations of visual conditions with mining. Grading (cut and fill) width along the conveyor alignment would range from 70 feet to 110 feet, based on the scenario depicted in Chapter 3, Figure 3-2 of this FEIS. Both the DEIS and subsequent FEIS Plants and Animals chapter analyze the impacts of grading and consider those areas to be non-forested.

Comment *023-028* Recommendation(s): Our firm questions the validity of a 20% constant grade access road for a distance greater than one mile with no relief points. We also question the anticipated 10-foot width and wonder how trucks would pass without periodic turnouts. Further, when this road approaches slopes greater than 20%, we question how erosion protected side slopes will be created and how vegetation will be preserved to "'minimize the visual impacts".

Response Please see the FEIS Aesthetics chapter for a discussion of mitigation of visual impacts.

Comment *023-040* The magnitude of the ridge cut and conveyor corridor is of such scale that we are concerned that neighborhoods located miles away will notice an adverse visual impact.

Response The conveyor will enter the upper site in a cut about 5 to 8 feet in depth. This will be visible for several miles initially, but will become less visible over time as trees mature around it. The most prominent appearance of the notch will be for viewing angles in line with it.

Comment *023-041* Recommendation(s): Accurate topographic mapping should be prepared for all proposed grading activities and each alternative. Preliminary grading plans should be prepared to show the actual impacts of the conveyor corridor (e.g. conveyor, water line, access road, stormwater detention, slope stabilization, etc.). Accurate traverse surveys or topography should be assembled to determine actual visual impacts the Lower Site area mining activities would have upon nearby residences. From this accurate information, a study should be conducted that shows how high an earthen berm should be constructed to minimize or eliminate offensive mine views to these neighbors. A study should be conducted that clearly illustrates the use of evergreen 'understory' (e.g. lower, more dense) vegetation as a means for visual buffering. After completing these items a new visual impact analysis should be prepared that clearly illustrates the effects of the various alternatives. This new visual analysis should consider residential areas within a 5-6 mile radius as part of the primary viewer group.

Comment *023-042* Summary of Findings/Proposed Pond. The approximate 4 acre fresh water storage pond seems to have proposed grading occurring outside the limits of the Lower Site lease limits. It is not clear to what extent grading will advance upslope based on the small scale of this preliminary grading plan.

Comment *023-043* Because this area is would be visible from adjacent residential areas north of the site, both grading and water quality will have impacts to these neighbors.

Response Larger scale section views in the Aesthetics Technical Report more clearly illustrate the relationship between proposed site operations, berms, revegetation and adjacent property. Additional views of the berm revegetation have been developed. The freshwater storage pond has been removed from the proposal by the applicant. Changes to the FEIS have been made to reflect this new information.

Comment *023-044* Recommendation(s): A detailed grading plan should be prepared for the entire Lower Mine areas which clearly illustrates impacts grading would have to visual reception by adjacent neighbors. A clear discussion regarding what materials will be returned to this pond as a result of mining activities should be provided. This information should be based on accurate topographic mapping. All plans, illustrations and text discussions should be included with a new visual impact analysis that clearly portrays the net effect the proposed mining activities and all alternatives would have to each primary user group.

Response Larger scale section views have been developed which more clearly illustrate the relationship between proposed site operations, berms, revegetation and adjacent property and are included in the Aesthetics Technical Report. Additional views of the berm revegetation have been developed. Changes to the EIS have been made to reflect this new information and are included in the Aesthetics Technical Report.

The applicant has removed the freshwater storage pond from the proposal. Engineering studies and detailed designs such as detailed grading plans are not required for an EIS (WAC197-11-055). Available information was utilized to develop, present and evaluate the Proposal for the EIS.

Comment *023-045* The DEIS essentially confines its analysis to acute mining site issues. Perhaps the more significant visual impacts could occur as a result of the conveyor corridor and the placement of the conveyor at the Upper Mine finish elevation. As stated in previous sections, the magnitude of the ridge cut is relatively large. Curiously, this impact is not illustrated in the DEIS. The height of the conveyor may or may not be elevated 4-5 feet above grade as proposed, but without accurate topographic mapping and preliminary design, the reader has no basis for realizing what heights might be visible. The same principle can be applied to the access road.

Response Comment acknowledged. Additional analysis has been prepared. A view of the conveyor, including conveyor height and where it passes into the upper site has been added. Under a worst-case scenario, the maximum width of grading is approximately 110 feet at a point about 300 feet below the top of the ridge. Side slopes would have a maximum steepness of 1.5h:1v.

Comment *023-047* Recommendation(s): Accurate topographic mapping should accompany preliminary engineering for the various facilities presented for each DEIS alternative. Once this engineering has been completed, a new visual impact analysis should be completed that realistically shows the net affect upon viewsheds to all user groups.

Response Detailed designs are not required for an EIS (WAC 197-11-055). Refer to Aesthetics, Light and Glare chapter for new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/Haystack Meadow were addressed in the DEIS, Section 3.10. The Recreation section was revised to clarify discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas. These areas are addressed generally, based on topography and

include further discussion of visual impacts to recreation areas based on new viewpoints analysis.

Comment *023-052*

Because eastbound Interstate-90 is oriented with distant and close-in views of the site area (e.g. alternatives 2-3), and because of elevation gradients and westbound orientations, alternatives 2-3 will probably have significant visual impacts to the interstate. The DEIS relies on vegetation and berms to obscure views to the Lower Mine area, however the westbound lanes are elevated to a point where these techniques are questionable for their ability to 'screen' views. As discussed in prior sections, no illustrations or discussion presents a clear picture of the conveyor corridor and ridge cut/slope stabilization. Reverse views from the Upper Mine area indicate the northwest ridge is visible from as far away as the area of Highway 18/1-90. Clearly a ridge cut of approximately 700 feet wide could have far-reaching visual impacts.

Response

Additional views and analysis have been added to the FEIS to address impacts from westbound I-90 traffic and to views from distant peaks and ridges. The cut at the ridge would be about 110 feet wide under a worst-case scenario.

Comment *023-054*

A new visual impact analysis should be completed based on this information and these design criteria. Because the DEIS visual impact statement has apparently not used this format and because the net effect of all proposed facilities is not clear to the reader, the DEIS does not adequately address visual impacts and should therefore be declared inadequate pending a new visual assessment.

Response

Additional views and analysis have been added to the Aesthetics, Light and Glare chapter of this FEIS to address impacts.

Comment *024A-090*

A photo simulation from any one locale may show a project to be substantially blocked by topography, vegetation, or intervening structures. However, if one moves a few feet away from the location where the photo simulation is done, a completely different view is possible, often displaying a much less blocked view of the project

Response

Comment acknowledged. The photo simulations in the Aesthetics Technical Report address this limitation of the photosimulation technique by clearly illustrating the excavation extent even when it is hidden by vegetation and topography.

Comment *024A-099*

We believe the views of the mining operations at the Lower Site both before the berms are revegetated and after revegetation will constitute a substantial change in the visual character of the area for a number of visitors as well as local residents using 468th Avenue, S.E. and S.E. 144th Street.

Response

Comment acknowledged. As indicated in the DEIS, Viewpoints 4, 5, 6 and 10 illustrate views similar to those from 468th Avenue SE and SE 144th Street. The visual analysis indicated that the visual impact from Viewpoints 5 and 6 (similar to that from 468th Avenue SE) would be considered low. The impact from Viewpoints 4 and 10 (similar to that from SE 144th Street) would be considered low. An additional viewpoint from SE 144th Street, to illustrate the view of the conveyor alignment, was prepared for this FEIS. Refer to the Aesthetics chapter for detail.

Comment *024A-138* Aesthetics Figure 3.10-9 appears to mislabeled. We believe that the photosimulation should be of a vegetated berm similar to Figure 10c in the Aesthetics Technical Report

Response Comment acknowledged. Figure 3.10-9 in the DEIS should be labeled Phase 1, not Phase 6. The corresponding figure in the FEIS (Figure 12-12) has been revised to indicate the correct phase.

Comment *020-752* If either Alternative 2 or Alternative 3 were implemented as planned they would have a significant, long-term scenic disturbance on the eastern portion of the Upper Snoqualmie Valley, an area located in a relatively undisturbed section of the Mountains to Sound Greenway.

Comment *020-790* The DEIS states that "...relocation of the aggregate processing facility to the Upper Site would not significantly change the view to the Lower and Upper Sites from most areas". [DEIS, 3.10-15]. If this is so then locating the facility at the Upper Site has no visual disadvantage and should be considered as the preferred alternative to a Lower Site location.

Comment *073-245* Aesthetics Scoping Question 2. How will the visual character of the sites change with the implementation of the Proposed Action?

Visual Character Change/Forested Hillsides.

[BEFORE] "The aesthetic character of the Upper Snoqualmie Valley is typified by river floodplains, upland plateaus, and the foothills of the Cascade Mountains. Mount Si, Mount Washington, Mailbox Peak, and Rattlesnake Ridge rise dramatically from the river lowlands and visually define the Upper Snoqualmie Valley as the gateway between the Cascade Mountains and the Puget Sound lowlands. Historically, the aesthetic character of the built environment of the Upper Snoqualmie Valley was typically forest and small town in nature, with a more recent trend toward suburban-style development. The rivers and forested hillsides and mountains of the area are also used extensively for recreation."

Sounds like a lovely place to be... but, now you see them - now you don't.

[AFTER] "Phased clearing of portions of the Lower and Upper Sites would result in clear-cut like areas on the sites." The Department of Natural Resources, Forest Practices Act defines "clear-cut" as "a harvest method in which the entire stand of trees is removed in one timber harvesting operation."

"Vista level visual quality is particularly important in the Pacific Northwest where mountainous terrains and clear-cut silviculture dominate."

"...clear-cutting can have a significant negative impact on visual quality…"

Clearly, clear-cutting 300 acres, 260 acres on top of a ridge (Grouse Ridge), would result in a detrimental visual and aesthetic impact on the Upper Snoqualmie Valley landscape.

Now you see this for 25 years and beyond.

[AFTER] "Development of the Proposal would temporarily [25 years] convert approximately 260 acres of the 578-acre Upper Site and approximately 40 acres of the 115-acre Lower Site from existing forest production land to sand and gravel mining and

processing use. Proposed mining activity would result in the removal of existing trees and exposure of sand and gravel resources within the proposed mining areas. The Lower Site also includes establishment of approximately 50-foot-high surge piles and approximately 50-foot-high concrete and asphalt processing facilities. A conveyor alignment between the Lower and Upper Sites would be established."

Comment *073-260*

View From Lu Residence. "A city [or county] should also be aware of other potential legal issues. Some aesthetic regulations may need to be balanced against the burdens they impose on private property owners."

The key word here is burden, not berming.

[BEFORE] "From the Lu residence, the second floor of the main residence building (Viewpoint 10) provides views of the Lu residence grounds, vegetated portions of the Lower Site, portions of the western slope of Grouse Ridge, a small glimpse of 1-90, and Mount Washington. From the grounds of the Lu residence (Viewpoint 11), the western slope of Grouse Ridge, vegetated portions of the Lower Site, a portion of 1-90, and Mount Washington are visible. The overall character of views from the Lu residence to the south is forested valley, hillsides, and mountains."

[AFTER] "A representative view of proposed mining activity from the Lu residence (Viewpoint 12) is illustrated in Figure 3.10.6. At the end of Phase 1, the majority Of the pit floor, freshwater pond and southern side wall would be visible. By Phase 6, the processing facilities and the surge pile would also be visible. Also by Phase 6, vegetation would be established on the south side wall, somewhat minimizing the visual impact. (During winter, the view to the Lower Site would be greater than depicted due to loss of deciduous vegetation.) Overall, the view from the meditation hut would be significantly altered from existing conditions. The level of visual impact from this viewpoint would be considered high."

Comment *073-329*

Aesthetics, Light And Glare Response Summary. Aesthetics Scoping Question 7. Would the visual conditions under the Proposed Action impact the overall character of the area?

Impact Consequences. If the question of IMPACT ("a forceful consequence") needs to be answered, the answer is YES.

The proposed project offers no aesthetic values or benefits to the area. The proposed project does offer impacts of significant and irrevocable magnitudes of consequence to immediate and distant areas. Additionally, the development of the purposed project would set a precedent of dramatic and irreversible alteration for the nature and characteristics of future development in the area. Development would imitate any and all predecessors. The question of economic benefit that needs to be analyzed and answered by decision-makers is whether private-industry revenues would drive out tourism and recreational revenues.

The presence of the proposed project has a powerful affect today. The effects would become very real and linger for generations to come. It is a small world -- it is not just our sandbox or forest. Countless numbers of people would be effected, not only those here in Washington, but also those coming from around world to experience the beauty of the Pacific Northwest. People come here because they do not have this beauty in their own backyards, states and countries. If we fail to protect and preserve the Upper Snoqualmie Valley for ourselves, we also fail to protect and preserve it for everyone.

***Comment** 127-017*

In the DEIS I would refer you to 3.1-23. Mining activity and processing facilities would represent significant unavoidable impacts to some viewpoints in the vicinity, particularly higher elevation recreation areas and the Lu residence, viewpoint 12, under alternatives two and three. Visual impacts of the mining operations would exist until mining on the sites ceased and reclamation activities were completed. The proposal would increase the level of light in an area that currently contains low levels.

Response

Comments acknowledged.

***Comment** 073-258*

Aesthetics Scoping Question 3. How will views to the site from primary viewing areas be impacted by the proposal?

View Impacts/View From Mount Si

[BEFORE] "MT SI, (Washington DNR), Length: 4 miles one way, Elevation Gain: 3,500'. This steep trail takes you to the summit of Mt. Si, elevation 4,167 feet. The trail switchbacks through cool forests, which change in character as the elevation changes. A viewpoint to the Snoqualmie Valley can be found at one mile. At two miles, the trail flattens briefly at Snag Flat, a mixture of burnt snags and old growth that survived a forest fire. The summit offers spectacular views, including Mt. Rainier and the Olympics. This trail is extremely popular; the best times to avoid crowds are on rainy or cloudy days, and early in the morning."

"Mount Si (King County): The Mount Si NRCA encompasses approximately 8,000 acres of land and is composed of steep, rugged and mountainous terrain. Four mountain peaks are located within its boundaries and include: Mount Si, Mount Teneriffe, Green Mountain, and Little Si, ranging from 1,600 to 4,000 feet in elevation. The NRCA supports a variety of wildlife including peregrine falcons, native mountain goats, cougar, and black bear. The NRCA also safeguards unique geologic features, examples of old growth forests, and sensitive plant species. On the Mount Si trail, hikers will experience walking through a heavily forested slope to reach the top. With clear weather, hikers are rewarded by a spectacular view of the Snoqualmie Valley, the Cascades, and Mt. Rainier from the summit of Mount Si."

There are visitor and travel guides available from state, county and local sources. There are tourist information centers, pamphlets, books and Internet search listings" by the multiple thousands stating without fail, Mount Si is a favorite and popular hiking experience. Over and over again, the draw is the spectacular views and proximity to Seattle. They would have to read something like this:

"The Mount Si Natural Resources Conservation Area contains approximately 7 miles of trails along the southern face of Mount Si and Little Si. The Mount Si trails afford panoramic views of the Upper Snoqualmie Valley, including views of the Lower and Upper Sites" (per DEIS Recreation).

[AFTER] The view from near the summit of Mount Si during Phase 10 is illustrated in Figure 3.10.2. Proposed mining areas would be clearly visible from the summit of Mount Si, with the extent of mined area increasing as mining progresses. During Phase 1, the mining excavation, freshwater pond and surge pile on the Lower Site and the conveyor between the Lower and Upper Sites would be visible. The floor and side walls of the Lower Site mining area would be exposed and highly visible. By Phase 6, additional surge piles and the concrete facility would be visible on the Lower Site, as would the exposed floor of a portion of the Upper Site mining area. However, by Phase 6 vegetation would likely have become established on the side walls of the Lower Site mining area, lessening the visual prominence of that portion of the mining activity. Mining on the

western portion of the Upper Site would be visible by Phase 6, with a portion of the pit floor most visually prominent. At Phase 10 (Figure 3.10.2), visual conditions at the Lower Site would be similar to that during Phase 6. The extent of observable mined area on the Upper Site would be substantial during Phase 10. However, with the proposed phased reclamation, the total amount of exposed mine area would be similar to the amount exposed during Phase 6. Overall, the majority of proposed mining activities would be visible from the summit of Mount Si. The mining area on the Lower Site would appear as a continuation of existing built features in the area, including commercial and residential development and 1-90. The mining area on the Upper Site would create a relatively large cleared area in a currently undeveloped forest area. As perceived from the summit, the majority of the proposed mining and processing facilities would be visible, and the existing view would be significantly altered. The level of visual impact from this viewpoint to the sites would be considered high.

Views of the Lower Site would consist of mining excavation, the floor and side walls of the mined area, the conveyor, a freshwater pond, aggregate surge piles and the concrete and asphalt facilities. On paper it appears black and white and somewhat unreal. Aesthetically the senses pick up movement, sound and smell.

Response

Comment acknowledged. Refer to Aesthetics, Light and Glare chapter for new discussion of visual impacts from the Rattlesnake Mt. Scenic Area (The Uplands), Snoqualmie Point Scenic Overlook, and Mailbox Peak. Visual impacts from Mt. Si/ Haystack Meadow were addressed in the DEIS, Section 3.10. The Recreation chapter was revised to clarify discussion of view impacts from the Iron Horse trail, Little Si, Alpine Lakes Wilderness, Mt/Baker Snoqualmie National Forest, Snoqualmie Valley Trail, Cedar River Watershed, Mason Lake Trail, and lower recreational areas. These areas are addressed generally, based on topography and include further discussion of visual impacts to recreation areas based on new viewpoints analysis.

Comment *073-290*

Mount Si Natural Resource Conservation Area. "The sites are visible from near the summit of Mount Si (Viewpoint 1) in the Mount Si Natural Resources Conservation Area."

"Vista scenes are composed primarily of distant, or large scale, landscape features. Near-view scenes occur when an observer is in the forest and distant features are not prominent... "

"The principle of intervisibility states that visibility is determined in two ways either from the site or to the site, that is, if point A can be seen from point B then the reverse is true. "

This concept is implicit when standing in a valley surrounded by mountains, then the reverse, when standing on a mountain summit looking into a valley. It is not only the view of the mountain, but also, the view from the mountain.

The question lies on the summits of all recreation areas, federal and state, with scenic vistas. Looking to the mountain or from the mountain? Is it the scenic vista of the mountain only, excluding the scenic vista from the mountain? It is maintained, that both the land and view from the land of Mount Si are protected as a Natural Resource Conservation Area.

Mount Si and Little Si are designated by Legislature as Natural Resource Conservation Areas, guided by the Natural Areas Preserve Act. (RCW 79A.05.730, RCW 79A.05.725)

Natural lands, together with...scenic beauty..., RCW 79.70.010

...such areas are worthy of conservation for their outstanding scenic values, RCW 79.71.010

Lands possessing...scenic features..., RCW 79.71.020

Mt. Si and Little Si...offer unique scenic...features, RCW 79A.05.725

Safeguard...the scenic...and recreational values, RCW 79A.05.725

Conservation purposes...maintaining exceptional scenic landscapes..., RCW 79.71.030

SEPA Guidelines, Forest Practices Rules, WAC 222-50-010…the Acts' [Forest Practices Act] purpose is to maintain a viable forest products industry while protecting forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty.

Forest Practices Act, RCW 76.09.010 (1)...it is important to afford protection to forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty.

State Environmental Policy Act (SEPA), RCW 43.21C.020 Legislative Recognitions, Declaration, Responsibility

(b) Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
(c) Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
(d) Preserve important historic, cultural, and natural aspects of our national heritage.

Following are some excerpts from various sections of the DEIS, illustrating the aesthetic visual impact the proposed project would have on the views from Mount Si.

"As perceived from the summit, the majority of the proposed mining and processing facilities would be visible, and the existing view would be significantly altered."

The level of visual impact from this viewpoint [Mount Si] to the sites would be considered high [per DEIS Aesthetics for Alternatives 2, 3, and 4 of the proposed project].'"

"The image of Mount Si received the highest rating of all of the images in the VPS [Visual Preference Survey]."

"However, mining activity and processing facilities would represent a significant unavoidable impact to some viewpoints in the vicinity, particularly higher elevation recreation areas (Mount Si Natural Resources Conservation Area)."

Scenic views from high-elevation trails and state lands trails in the vicinity (such as the Mount Si Natural Resources Conservation Area) would be altered under the project.

"...the character of views from high-elevation trails (primarily in the Mount Si Natural Resources Conservation Area) would be altered."

"The natural topography will be altered, essentially leaving two bowl-shaped areas where the mines were." This topographical alteration was determined by DEIS Soils And Geology to be a Significant Unavoidable Adverse Impact.

The proposed project would permanently mar the topographical character of the landscape. This alteration would be significant and irrevocable. In turn, the protected scenic vistas from Mount Si, a Natural Resource Conservation Area, would also be altered significantly and irrevocably, in addition to many other federal and state recreation areas and trails [see Recreation]. Mount Si and the views from Mount Si, are resources of the State of Washington, but primarily, resources for all people.

References of Washington Administrative Codes (WAC) and Washington (RCW) that apply and some general information Resource Conservation Areas protected scenic vistas: Revised Code of regarding Natural Washington State Natural Resources Conservation Areas Programs

"...visionary leaders looked to the future and created a legacy with the help of the Legislature, by establishing Washington's system of Natural Area Preserves. As envisioned by the Natural Areas Preserve Act, these preserves would forever protect…" RCW 79.70.010 Natural Area Preserves, Purpose The purpose of this chapter is to establish a state system of natural area preserves... preservation and protection in their natural condition. Natural lands, together with... scenic beauty... It is, therefore, the public policy of the state of Washington to secure for the people of present and future generations the benefit of an enduring resource of natural areas by establishing a system of natural area preserves, and to provide for the protection of these natural areas.

RCW 79.70.020 Natural Area Preserves, Definitions (1) "Department" shall mean the department of natural resources.

RCW 79.70.030 Natural Area Preserves, Powers of department In order to set aside, preserve and protect natural areas within the state, the department is authorized, in addition to any other powers, to: (1) Establish by rule and regulation the criteria for selection, acquisition, management, protection and use of such natural areas; (8)(a) The department [DNR] shall adopt rules and regulations as authorized by [SEPA] RCW 43.30.310 and [Natural Area Preserves] 79.70.030(1) and chapter 34.05 RCW relating to voluntary natural area registration.

Natural Resource Conservation Areas:

"Natural Resources Conservation Areas - Conservation areas protect...scenic landscapes... The NRCA program was established by the Legislature in 1987, and represents an important protection alternative which complements the preserves and provides for a diverse natural areas program."

"Habitats protected in NRCAs include...scenic vistas…"

"...Natural Resources Conservation Areas (NRCAs). Lands with a high priority for conservation, critical wildlife habitat, prime natural features, examples of native ecological communities, and environmentally significant sites threatened with conversion to other uses were candidates for NRCA status... The four original sites designated as NRCAs by the Legislature were Cypress Island in Skagit County, Dishman Hills in Spokane County, Mount Si in King County and Woodard Bay in Thurston County."

Mount Si designation as a Natural Resource Conservation Area:

RCW 79A.05.730 Parks and Recreation Commission, "Mt. Si conservation area" Created RCW 79.71.100 Washington Natural Resource Conservation Areas, Designation of certain areas as natural resources conservation areas. The legislature

hereby designates certain areas as natural resources conservation areas: (1) The Mt. Si conservation area (King County), *RCW 43.51.940, is hereby designated the Mt. Si natural resources conservation area.

RCW 79.71.010 Washington Natural Resource Conservation Areas, Legislative findings (2) such areas are worthy of conservation for their outstanding scenic and ecological values and provide opportunities for low-impact public use. RCW 79.71.020 Washington Natural Resource Conservation Areas, Characteristics of lands considered for conservation purposes. (4)Environmentally significant sites threatened with conversion to incompatible or ecologically irreversible uses.

RCW 79A.05.725 Parks and Recreation Commission, Legislative declaration Mt. Si and Little Si in King county offer unique scenic. They also afford outstanding recreational opportunities enjoyed by the citizens of this state and tourists alike. The legislature recognizes the importance of guarding portions of this area from those types of development which would permanently alter the area's natural form and beauty .... to safeguard to the extent possible the scenic, natural, geological, game habitat, and recreational values therein, and to safeguard and promote the upper Snoqualmie River valley's economy in which the recreational use of Mt. Si plays a pivotal role. Therefore, the legislature declares this area to be of state-wide significance for the foregoing purposes to be enhanced and safeguarded in accordance with the procedures set forth in this 1977 amendatory act.

RCW 79.71.030 Washington Natural Resource Conservation Areas, Definitions "Department" means the department of natural resources. "Conservation purposes" include but are not limited to: (2) maintaining exceptional scenic landscapes "Natural resources conservation area" or "conservation area" means an area having the characteristics identified in RCW 79.71.020.

Forest Practices and State Environmental Policy Act:

WAC 222-50-010 Policy, Forest Practices Rules, State Environmental Policy Act Guidelines (SEPA)
More specifically, the Act's purpose is to maintain a viable forest products industry while protecting forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty, RCW 76.09.010. RCW 79.68.010 directs the Department to employ a multiple use concept in managing and administering state-owned lands within the Department's jurisdiction where multiple use is in the best interests of the state and its citizens..." Such uses include recreational areas and trails and the maintenance of scenic and historical sites."
RCW 76.09.010(1) Forest Practices Act, Legislative finding and declaration.
...that it is in the public interest for public and private commercial forest lands to be managed consistent with sound policies of natural resource protection; that coincident with maintenance of a viable forest products industry, it is important to afford protection to forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty.

State Environmental Policy Act (SEPA), RCW 43.21C.010 Purposes.

State Environmental Policy Act (SEPA), RCW 43.21C.020 Legislative Recognitions, Declaration, Responsibility
(b) Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (c) Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (d) Preserve important historic, cultural, and natural aspects of our national heritage;

Applicable Cases of SEPA Authority: B.7. SEPA Substantive Authority:

Victoria Tower Partnership v. City of Seattle (Victoria II), 59 Wn. App. 592, 800 P.2d 380 (1990) A substantive decision based on SEPA is reviewed under the clearly erroneous standard. The fact that a proposed project complies with zoning does not prevent the decision-maker from denying or limiting the project based on SEPA grounds. The consideration of aesthetics is proper under SEPA.

Polygon Corp. v. City of Seattle, 90 Wn.2d 59, 578 P.2d 1309 (1978) The landmark case holding that SEPA grants substantive authority to condition or deny proposals to avoid adverse environmental impacts, even though the project in question meets all express requirements of other statutes and ordinances. (This authority is limited by later amendments to RCW 43.21C.060). Denials maybe based upon primarily aesthetic grounds, so long as other types of impacts would also be avoided. Exercises of SEPA's substantive authority are also reviewed under the "clearly erroneous" standard.

Response Comment acknowledged.

Comment *020-751* Further, the DEIS is seriously flawed in that it almost completely fails to discuss the aesthetic and visual impacts of the conveyor belt, paved maintenance road and the pipeline(s) between the Lower and Upper Sites. It is further seriously flawed in that it does not discuss the aesthetic and visual effects of increased truck traffic in the Exit 34.

Response Comment acknowledged. A photosimulation has been added to show the conveyor belt/maintenance road/pipeline from its most visible "worst case" angle. Aesthetic impacts from increased truck traffic in the Exit 34 area are primarily related to noise and the volume of truck traffic. Traffic volume and noise impacts are covered in their respective sections. Traffic volume and noise would increase in the area of Exit 34 as a result of project operations.

Comment *020-058* The photosimulations, due to their limitations, are almost worthless.

Comment *020-059* The conveyor belt/maintenance road/pipeline is not shown on any of the photosimulations.

Response Comment acknowledged. A photosimulation has been added to show the conveyor belt/maintenance road/pipeline from its most visible "worst case" angle.

Comment *073-234* Additional Trails With View Impact "These state trail systems are some of the most popular hiking areas in the region."

"Views to the Lower and Upper Sites from recreational areas would primarily be limited to higher-elevation areas that have panoramic views that include the sites. Recreational areas that afford views of the sites include the following:

- Trails to the summits of the Mount Si Natural Resource Conservation Area and Little Si
- Trails within the Alpine Lakes Wilderness Area and Mount Baker/Snoqualmie National Forest (primarily Mount Defiance, Thompson Lake and McClellan Butte trails)
- Mount Washington Trail
- High-elevation points in the Rattlesnake Mountain Scenic Area

- High points along informal trails in the Cedar River Watershed (if accessed by the public)."

"The Twin Falls Area includes a trail system that gains elevation on the north face of Cedar Butte. The potential for limited views to the lower elevations of Grouse Ridge are afforded from the Twin Falls Trail."

The Lower Site of the proposed project is approximately at an elevation of 690 feet and the Upper Site at the top of Grouse Ridge at an approximate elevation of 1,600 feet. ...

"and ascend to high elevations" was the determination in regards to view impact of other trails identified in DEIS Recreation: Iron Horse State Park/John Wayne Trail, Mailbox Peak [at 4,500 feet elevation], Granite Lakes Trails [summits at 4, 000 feet]. At these elevations, views to both the Upper and Lower Project Sites are likely to be a significant factor.

National and state recreational areas require analysis for visual aesthetic impact.

Response Comment acknowledged. The methodology section has been revised in the Aesthetics Technical Report. View analysis from Mt. Si and Mailbox Peak provides "worst case" (i.e. nearest and/or highest) "representative" examples of impacts to view from other recreation and scenic areas.

Comment *073-233* "Approximately 4,200 people per year hike to Mason Lake...and 500 of these visitors continue to the summit of Mount Defiance. McClellan Butte...is the most popular, with 10,000 people hiking the trail annually."

National forests would have a visual impact from the proposed gravel mining, asphalt and concrete operation.

DEIS Recreation Appendix I, or DEIS Land Use Appendix G, or DEIS Aesthetics Appendix J, did not address federal laws for preservation and protection of scenic, recreational and natural resource areas in National Forests. Will this be included in the FEIS?

These are public lands with views from these public lands. Part of hiking the mountain is the challenge; the reward is reaching the top and looking out on the view.

Response Because the Proposal is not located on or directly impacts National Forest Land, an analysis of federal regulations related to the National Forest Lands is not directly applicable to the Proposal. The Aesthetics chapter of the FEIS and the Aesthetics Technical Report contain analysis of visual impacts from the recreational areas most affected by the Proposal. Please refer to the Aesthetics chapter and the Aesthetics Technical Report for detail.

Comment *142-014* Light pollution, what does "could require lighting" mean? We are out here to see the sky. Lights, like a city pollute the sky.

Response It is acknowledged that the proposal does include lighting on both the Upper and Lower Sites. Additional analysis on the potential for lighting impacts has been added to the FEIS. Please refer to the Aesthetics chapter for detail.

***Comment** 073-291*

3.3.8 Interstate 90 - National Scenic Byway. "The greatest number of viewers to the sites are from 1-90 and Mount Si."

"It has also been argued that what looks more "natural" is more "ecologically sound."

"In June, 1998, the 100-mile Mountains to Sound Greenway corridor was designated a National Scenic Byway. It is the only Interstate Highway in the country to be given this designation."

What is the National Scenic Byways Program?

"The National Scenic Byways Program is a voluntary program to protect and promote America's scenic roads. Communities across the country can participate by applying for funding, National Scenic Byway designations, or both. In 1991, Congress established the Program under the Intermodal Transportation Efficiency Act (ISTEA) and strengthened it with the passage of the Transportation Equity Act for the 21st Century, known as TEA-21. Fifty-three roads and over 2,500 miles across the United States are designated National Scenic Byways and All-American Roads."

How Can Scenic Byways Protect Working Lands?

"Scenic Byways are an opportunity to protect working lands and recognize their aesthetic and cultural, and natural value. Across the country, communities are using scenic byways designation to protect and promote their natural beauty and distinctive character. Working landscapes frequently help to define the local sense of place. People are using scenic byways designation to protect working lands and their visual character in places like central North Carolina, by acquiring scenic easements; western Iowa, in the Loess Hills through community education and easement acquisition; and on the Mountains to Sound Greenway along 1-90 out of Seattle, where balancing between working forests protecting visual beauty are an important component to the corridor."

The Washington Mountains to Sound Greenway: Balancing Working Forests and Scenic Beauty

"Established in 1990, 100 miles of 1-90 east from the Puget Sound, the Mountains to Sound Greenway is the only National Scenic Byway on an interstate. Working forests are an important component to the Greenway Plan. The Greenway Trust, which manages the corridor, works with timber companies, towns, and developers to integrate harvest and development with the scenic landscape. The Greenway Trust has persuaded major timber companies to conduct "scenic harvests" to protect the visual quality of the Greenway and help promote good public relations. The Greenway has also provided a focal point for land exchanges between U.S. Forest Service and state DNR lands and large forest owners to consolidate land from a checkerboard pattern established by old railroad land grants. This protects forests along greenway while exchanging for viable harvest land.

***Comment** 073-292*

Mountains To Sound Greenway/Mountains to Sound Greenway Mission Statement. To protect and enhance scenic beauty, recreational opportunities, wildlife habitat, historic communities and healthy economies in a multi-purpose Greenway along Interstate 90 from the shores of Puget Sound over the Cascade Mountains to Kittitas Valley foothills. Help make this human and natural heritage visible and accessible to all people.

What Is The Greenway?

"...protecting more and more of the scenic and recreational landscape along 1-90".

Mountains to Sound Greenway Current Priority Goals

Monitor and guide highway expansion projects along 1-90, the nation's only freeway to be designated a National Scenic Byway.

"...a protected greenbelt along Interstate 90...a publicly owned corridor...deeded into public ownership as part of the Mountains to Sound Greenway...the 100 mile, Greenway corridor - the only National Scenic Byway in the country on an interstate highway."

Senator Slade Gorton -- News Release

"My top priority in the U.S. Senate is protecting the Northwest way of life. As Chairman of the Interior Appropriations Committee, I am in a privileged position to direct money to projects that will protect and preserve our natural resources and our vibrant salmon runs," Gorton said. "In a year with tight budget restrictions I am delighted with all that we accomplished with this bill." "Mountains to Sound Greenway (Forest Service) $2,500,000 - The Greenway Project was established to protect an area of important land and water resources centered on Interstate Highway 90 from Elk Hills westward across the Cascade Mountains to Puget Sound. This 130 mile long scenic corridor includes a number of important salmon spawning areas and wildlife habitat. For the last two fiscal years, Gorton secured $10,000,000 each year to complete acquisitions on the west side of Snoqualmie Summit. This third-year appropriation of $2.5 million will begin funding acquisitions on the east side of the summit."

"From the skyscrapers of Seattle to the rolling plains of the East, 1-90 takes the traveler through everything Washington has to offer. The Big One. Nationally, Interstate 90 extends east all the way to Boston, Massachusetts, 3,111 miles, the longest limited access freeway in the world."

How can a gravel mining and processing facility be justified, condoned and sanctioned on a protected greenbelt that has been designated to be preserved and federal funding has been accepted for the preservation of this greenbelt along the Interstate 90 National Scenic Byway? Well, let's see…

Response The comments related to the Mountains to Sound Greenway are acknowledged. The Mountains to Sound Greenway participated in negotiating with Weyerhaeuser and King County a "Memorandum of Understanding" (MOU) which included a conceptual mining plan that later served as a framework for the proposal as analyzed in the DEIS. The concept mining plan sought to establish world-class standards for gravel mining that would protect the environment, including rivers, streams and aquifers. A primary goal of the conceptual mining plan was to protect visual resources. A general discussion on the Memorandum of Understanding with the Mountains to Sound Greenway has been added to the Land Use Technical Report.

Comment *073-285* Would smoke or steam from proposed processing facilities significantly impact views?

There are zero occurrences of the words "smoke" or "steam" in DEIS Aesthetics. This represents a failure to address NBGO-FEIS Final Scope of Work (K)(6). Will this be addressed in FEIS Aesthetics?

Comment *073-287* "...to be burned at one time..." This is disconcerting. Does this mean it is 'OK' to burn up to 100 tons this week during burn season, up to 100 tons next week during burn season, then up to 100 tons the following week during burn season. Will the FEIS please clarify the "at one time"?

Response During clearing of the sites for mining, if woody debris is burned, smoke would be generated and could be seen from area viewpoints. The amount of smoke would be similar to that under typical forestry activities and would be short-term in duration to that under typical forestry activities and would be short-term in duration. Steam would be generated on the Lower Site as a byproduct of asphalt production. The presence of a steam plume could present an industrial character to the view. Please refer to the Aesthetics, Light and Glare chapter of this FEIS for detail.

Comment *073-278* The FEIS should provide additional photographs taken along Interstate 90 eastbound, incrementally, from before entering North Bend near Exit 31, and through Exit 32. Grouse Ridge is visually prominent from these areas.

Response Project visibility from I-90 eastbound has been analyzed. Project facilities will be hidden by topography. The worst case scenario for this view, (the location where project facilities are most likely to be visible) is represented by Viewpoint 6. This viewpoint is representative of views available from the section of road mentioned in this comment.

Comment *073-277* The FEIS should provide photographs taken along the Interstate 90 westbound downgrade from the top, middle and lower views, looking north toward the proposed Lower Site.

Response Project visibility from I-90 westbound has been analyzed with photos taken from locations where the Lower Site would be visible. The requested view toward the site is Viewpoint 8. The approximate distance over which this view occurs is measured as approximately 1,500 feet (20 seconds at 55 miles per hour) at which point the sight line between vehicles on I-90 and the Lower Site is at 90 degrees to the road. At this angle, the site is difficult to see clearly at speeds typical of this stretch of highway.

Comment *073-276* From what location were photographs taken from I-90 viewing the proposed project?

Response Viewpoints 8 and 6 were taken from I-90 at the points where the visibility of the project would be greatest. Viewpoint 13 illustrates that the project will not be visible from this portion of I-90, traveling westbound.

Comment *073-275* The FEIS should provide detailed elevation cross-section views to include Interstate 90, to be incorporated in the Aesthetics analysis.

Response Comment acknowledged. Cross sections including I-90 are added to the Aesthetics Technical Report.

Comment *073-273* Areas used for recreation that should be included (but not be limited to) in DEIS Aesthetics for analysis of aesthetic visual impact are:

- Mailbox Peak Granite Lakes Trails
- Little Si
- Rattlesnake Mountain Scenic Area
- Cedar Butte
- Snoqualmie Point Scenic Overlook
- Mount Defiance

- Thompson Lake
- McClellan Butte Trails
- Mount Washington Trail
- Iron Horse State Park /John Wayne Trail

Response Comment acknowledged. The DEIS included views from Mt. Si and the Iron Horse Trail. Views from Mailbox Peak and Snoqualmie Point Scenic Overlook have been added to the FEIS analysis. The visual analysis attempted to provide representative viewpoints; it was not feasible to provide visual illustrations from all potential viewpoints.

Comment *073-272* Visual Impact Methodology. Per the techniques outlined above, similar analysis needs to be done per Summary: Recreation, i.e., DEIS Aesthetics should select priority zones of higher elevation viewpoints and recreational areas as primary viewer groups to be evaluated objectively for aesthetic and visual impact. Scenic impact should be interpreted in relation to both the Upper and Lower Sites, separately. Will this be provided in the FEIS?

Response Comment acknowledged. The cited approach is employed in the FEIS. Worst case views overlooking both sites are analyzed for Mailbox peak and Mt. Si. Several viewpoints overlooking the Lower Site are evaluated and views from I-90 approaching the Lower Site are evaluated.

Comment *073-269* Angle Of Visual Incidence. "Consideration of angle of visual incidence. Slope and aspect are two factors that have a definite impact on visibility...angle of visual incidence" during a visibility analysis includes vertical (slope) and horizontal (aspect) angles of view as relevant factors in a proposed landscape assessment model."

This would imply data should be, should have been, gathered from more than one angle from all viewpoints. DEIS Aesthetics needs to develop and provide supporting documentation of this information for all viewpoints.

Response Comment acknowledged. Angle of visual Incidence information can be roughly determined from the visualization viewpoints map showing viewpoint elevation and excavation.

Comment *073-266* Photographs Versus Human Vision. "Aesthetic quality can encompass a number of sensory perceptions, but the perception of landscape quality is inherently a visual experience occurring with the interaction of a human observer and physical landscape."

"Drawings of proposed changes are a classic method for presenting proposals. The credibility of drawings, however, is a problem since they are usually not realistic. Photographs have the disadvantage of only showing what presently exists. Methods such as photomontaging (overlaying proposed landscape features on photographs of existing landscapes) are required to portray future conditions. Credibility is again an issue…"

"Perception of visual quality occurs with the interaction of an observer [human observer at an overlook, not a 4x6 piece of photographic paper] and the forest landscape."

DEIS "professional judgment" concludes a low visual impact rating to be only portions and glimpses of the proposed gravel mining, asphalt and concrete processing facility

will be visible, based on line art on a photograph. The photographs presented in the DEIS Aesthetics are not representative of aesthetic visual or sensory or psychological impacts to residents and tourists in view of the proposed project area. A still-shot photograph given all the touch-up of drawings and photomontaging does not complete the picture, with smoke and steam and dust rising from the proposed project with traffic and noise associated with it, on the visual panoramic landscape.

Photographic enhancement and alteration are commonplace technology. Anyone can.

Response Regarding photographs versus human vision - Photo simulation has the limitations noted in representing impacts experienced in the field by an observer. Information has been added to the methodology discussion in the Aesthetics Technical Report to help reviewers assess impacts including a viewshed figure and clearer contour information in the project description.

Comment *073-265* Spatial, Quantitative and Qualitative Issues. "The visual impact assessment of a proposed development addresses three types of issues: spatial, quantitative and qualitative. Spatial issues include where the development is visible from or, more specifically, what or whom it is visible to; quantitative issues include how much of the development is visible, how much of the surrounding area is affected, and to what degree; and qualitative issues include the visual character of the development and its compatibility with its surroundings."

DEIS Aesthetics needs to develop and provide supporting documentation of this information for all viewpoints.

Response Regarding spatial, quantitative and qualitative levels - Spatial analysis is provided in the viewshed figure illustrating where the development is visible from. The photo simulations illustrate how much of the development is visible from key locations. Qualitative comments are provided on a case-by-case basis in the text.

Comment *073-263* Seasonal Changes. "...consideration to the potential seasonal variation of the view due to deciduous foliage."

"Changes due to the seasons - There is a need to visualize change over time, using color cues and animation. To create different simulations for the three different seasons symbols can be substituted where appropriate (bare branched deciduous trees in the winter, sparsely foliated in the spring and autumn). Fields can appear tan in the autumn and white in the winter, and bright green/yellow/blue (depending on crop) in the spring. Other dimensions of the landscape - such as visibility distances, sun and shade pockets, or "sense of enclosure" or "view of water" also change with the seasons."

"It is important that a visual analysis process account for changes to the visual resource over time."

DEIS Aesthetics needs to develop and provide supporting documentation of this information for all viewpoints.

Response Regarding seasonal changes - Photographs were taken at different times of the year. The presence or absence of leaves is evident from the photograph.

Comment *073-262* Atmospheric Conditions. "The implications of this area that a view from the same locality, in particular direction, may be categorized differently if the atmospheric

conditions are dramatically different, and therefore accompanying a categorization of view must be a statement of prevailing modeled conditions."

DEIS Aesthetics needs to develop and provide supporting documentation of this information for all viewpoints.

Response Regarding atmospheric conditions - A concerted effort was made to take photographs on a clear day with the light behind the photographer. This provides the highest contrast for illustrating changes in the view.

Comment *073-249* Knowing the potential for landslides as a safety hazard and the visual impact this would have on the landscape:

As a potential visual impact, why were landslides not discussed in DEIS Aesthetics?

Response The proposed project is designed to commonly accepted engineering standards which are intended to provide a commonly accepted standard of care regarding increased risk of landslides. If a landslide were to occur which had aesthetic impacts, this would be the result of an event outside of commonly considered factors.

Comment *073-240* Areas used for recreation that should be included (but not be limited to) in DEIS Aesthetics for analysis of aesthetic visual impact are:

- Mailbox Peak
- Granite Lakes Trails
- Little Si
- Rattlesnake Mountain Scenic Area
- Cedar Butte
- Snoqualmie Point Scenic Overlook
- Mount Defiance
- Thompson Lake
- McClellan Butte Trails
- Mount Washington Trail
- Iron Horse State Park/John Wayne Trail

Response Comment acknowledged. A viewshed map has been added to the Aesthetics Technical Report which shows which of these areas can see the site. Reviewers are able to determine which view is most representative of impacts to a particular viewpoint of interest.

Comment *073-237* DEIS Aesthetics acknowledges higher elevation recreation areas as factors to be analyzed, but goes no further to include these areas for data analysis. Many recreation areas with high elevation views of the proposed project which would address visual, scenic and aesthetic concern of impact were not included in the DEIS Aesthetics. Why?

Response The high elevation recreation areas that would be impacted by the project are indicated on the viewshed map in the technical report. A "worst case" approach was used in selecting views for evaluation. The view analysis in the FEIS from Mt. Si and Mailbox Peak are intended to represent the case of highest impact to high level recreation areas. Other areas mentioned in this comment would experience lower impacts.

Comment *073-236*

Snoqualmie Point Scenic Overlook "...on a site that offers one of the most spectacular scenic views in King County."

"Thanks to the City, TPL [Trust for Public Land], a cooperative developer and Senator Gorton's support in Congress", says Keith [Greenway Executive Director Nancy Keith], "we now have a spectacular spot, just a minute off the freeway at Exit 27 where people can have a sweeping view of the Cascade Range and a large portion the farm and forest landscape that's been preserved in recent years."

"Just south of 1-90 at Exit 27, there is a scenic overlook and picnic area accessible by car and offering sweeping views east up Snoqualmie Pass and north up the Snoqualmie River valley."

Response

Comment acknowledged. A view from Snoqualmie Point Scenic Overlook has been added to the FEIS analysis.

Comment *073-230*

Fully realizing the seven questions presented in the Aesthetics, North Bend Gravel Operation, Final Environmental Impact Statement, Final Scope of Work are guidelines designed to be answered by the DEIS, the same questions are now answered from another perspective. Perception is everything.

For a moment, let common sense prevail if it looks like a gravel pit...well, it must be a gravel pit. All of the pats on the back, lunches and helicopter rides and all of the rose-colored glasses handed out to everyone, are not going to change what they are looking at, a gravel pit. We can pretend by playing dress-up with berms of mitigation or try tucking it away, but it will always be a gravel pit.

Aesthetics is what is perceived. In addressing DEIS Aesthetics, many areas of the DEIS are used, some in more detail than others, from an aesthetic perspective. The focus is what is received by our sense of sight, what is viewed and what is scenic. The focus is what is seen of our surroundings from near and far in the Upper Snoqualmie Valley and the aesthetic impacts those surroundings encounter with the implementation of the proposed project. Some questions are answered and some questions are posed in an effort to understand fully these potential impacts. By answering the seven questions it is hoped eyes will remain opened objectively. Two additional topics are addressed, Mount Si and Interstate 90 National Scenic Byway. These areas would have the greatest number of viewers and would be most visually and aesthetically effected. These areas are also protected.

Aesthetics Scoping Question 1. What are the primary views to the sites; including views from residential, roadway and recreational areas? Viewpoints "Initially, viewpoints were identified from which the applicant's project is visible. This was first undertaken using professional judgment..."

Given the aesthetic character of the DEIS Aesthetics area context as, "The rivers and forested hillsides and mountains of the area are also used extensively for recreation," only two of many formal and informal recreational areas or facilities' in the area were considered, Mount Si and Iron Horse Trail The viewpoints identified on "professional judgment" were non-inclusive.

From visual impact literature sources - some examples of viewpoint selection:

"Viewpoints were chosen based on the view they afforded of the planning area."

DEIS 'identified' some viewpoints for Aesthetics analysis - but not all were chosen, most viewpoints were not even identified. Had the above principle been exercised, many additional viewpoints would have been selected.

"Quantifying the area visible from any location is an objective measure of the extent to which a change in land cover will be visible to an observer [from a mountain summit trail]. Critical portions of the development can be identified, critical viewpoints can be located."

Objective quantification of critical viewpoints in the Upper Snoqualmie Valley and elsewhere was not the method employed in the DEIS Aesthetics.

"...the critical consideration is site visibility from individual locations, such as scenic drives or picnic sites."

"Wide area analysis uses two approaches. Viewsheds for selected visitor viewpoints are calculated to identify priority zones of visual importance to tourists. A census of the total area visible from all locations is also calculated. Analysis for viewpoints uses viewpoints to measure scenic potential by determining the number of viewpoints from which any terrain location is visible."

Response Comment acknowledged. Viewshed/topographic maps (Seen Areas figures) have been added to the Aesthetics Technical Report to illustrate the areas from which the site will be visible. The visualization viewpoints graphic indicates the relationship between selected viewpoints and topography in the viewshed. This helps indicate the areas represented by different views. Section views have been added to the technical report for key views from I-90. Additional viewpoints have also been added to both the technical report and chapter. The general concept behind viewpoint selection is to illustrate the effect on different key areas: (1) Areas nearby where views will be affected by the proposed operations; (2) Areas heavily used for recreation which will have views affected by the operations and; (3) heavily traveled roads which may have views affected by operations. The original and additional materials are intended to help reviewers extrapolate from a few examples to determine the impact that might be experienced at viewpoints of interest to them. This approach was chosen to be consistent with the intent of SEPA to present a concise analysis.

Comment *054-004* I can just imagine people taking friends and family that visit from all over the country to Mt. Si and have them view this massive destruction of such a wonderful area. I can just see that large brown/black cloud of smoke and dust that will hang over that once beautiful landscape. They will ask how we allowed such a disaster, we will just have to shake our heads, "you know, progress."

Response Comment acknowledged. Additional analysis on the potential for aesthetic impacts resulting from dust has been added to the FEIS. Please refer to the Aesthetics chapter and the Aesthetics Technical Report for detail.

Comment *048-004* I would like to address the View of the upper and lower sites. Lets start with the lower site; the berm will be visible by some residences to the north and east. As for the facility it will be visible from a small structure on the grounds of the Lu residence. Both sites will be seen from other vantage points around the area. Mailbox Mountain, Mount Si and Rattlesnake Ridge just to name a few. This may have been addressed, but not adequately. There will most likely be a road built along side or multiple roads built intercepting the conveyor belt for the purpose of construction, inspection and maintenance. You will find that this will create a 30-foot path down the hillside or a

mountain with too many roads cut into a small area. By the time the road is built and the conveyor belt is in, it will be too big and too long to have it be concealed by the tree line.

Response Comments acknowledged. Additional analysis on potential view impacts from Mailbox Peak and from development of the conveyor has been added to the FEIS. Please refer to the Aesthetics chapter and the Aesthetics Technical Report for detail.

Comment *045-075* Look at all the photographs in the Aesthetics Technical Report of Volume II of the DEIS. Those are the lands and waters you have worked to protect. Section 3.10.5 of the DEIS says that "the proposed plans have been designed to minimize visual impacts. However, [the Project] would represent a significant unavoidable impact to some viewpoints, [including] higher elevation recreation areas. Visual impacts.., would exist until mining on the sites ceased and reclamation activities were completed. The Proposal could increase the level of light in an area that currently contains low light levels." The Applicant correctly admits only a few of the impacts of the Project. And, considering the reclamation process alone (even if done correctly) and the time it takes to regrow to its pre-mining state, it would take even longer than 25 years to return this area to the beauty shown in the photographs. Is that what you envision as you continue to acquire valuable public open space for us all?

Response Comments acknowledged. Please note that the DEIS identified visual impacts from higher elevation areas and the Lu Residence accessory structure as a Significant Unavoidable Adverse Impact.

Comment *044-001* The aesthetics: I find it difficult to understand how we can fight to preserve the beautiful I-90 corridor only to offer about 5% of the most amazing part of it - exit 34 to the Pass, to a mining operation. Your kids can thank a previous generation for the foresight to keep hotels out of the Grand Canyon, mining out of Yellowstone, and Mt. Rainier free of ski resorts. All would have been sure-fire money makers but some things shouldn't be for sale. This 1-90 corridor is a treasure and if we disassemble it 5 miles at a time, it won't be long until it looks like I-5, pretty much the same as most highways in America. Once we develop a site, it never reverts back

Response Comment acknowledged. As indicated in the Project Description chapter of his FEIS, methodology for the proposed mining plan was based on a number of meetings between Weyerhaeuser and the Mountains to Sound Greenway Trust. The goal of these discussions was to allow for minimization of views to mining activities from I-90 and surrounding areas, and allow for public ownership and open space. The Proposal also includes the construction of landscaped earthen berms to further minimize views to the mining activities on the sites. The FEIS now indicates that as mining is performed, each completed segment will be reclaimed, replanted and donated to the State DNR in trust for King County.

Comment *098-004* Our nice peaceful star-gazing nights will be no more.

Comment *136-001* Light pollution.

Response Comments acknowledged. The DEIS included a qualitative lighting analysis. Additional analysis on the potential for lighting impacts has been added to the FEIS. Please refer to the Aesthetics chapter of this FEIS.

Comment *127-015* Second, conveyor belt. There is little mention of how the aesthetics of the area can be protected if a conveyor belt were to be constructed. Having it covered with a non-glare surface and concealed by a tree line is simply inadequate. For there to be any reliable assurance.

Response Comment acknowledged. Visual simulations of the conveyor alignment, including the associated roadway and water line, have been prepared for this FEIS. Please refer to the Aesthetics chapter and Aesthetics Technical Report for detail. The visual impact from the proposed conveyor alignment was determined to be medium.

Comment *023-051* Once this analysis is complete, a new visual impact study should be conducted that clearly illustrates the net effect to visual impacts for each alternative. This is required by WAC 197-11 -400 to meet the definition for adequacy.

Response Comment noted.

Comment *012-156* This region of the 1-90 corridor has designation as part of the National Scenic Byways program, a status that was supported by one of the co-proponents of the Grouse Ridge mine proposal, Mountains to Sound Greenway Trust. By definition, the views from 1-90 and the surrounding public areas are deemed to be significant from a national and not just regional perspective. Thus view impacts should be subjected to the strictest possible standards. In general, the tone of the DEIS is that aesthetic impacts are either nonexistent or 100% mitigable.

Response As indicated in the Aesthetics section of the DEIS, views to the mining activity on the Upper and Lower Sites are generally screened from I-90 by topography and vegetation. View impacts tend to be greater from higher elevation viewpoints and from viewpoints to the immediate north of the Lower Site. Please refer to the Aesthetics chapter of the FEIS for detail.

Comment *020-798* The DEIS failed to adequately address if visual conditions under the Proposed Action would impact the overall character of the area.

Response Comment noted.

Comment *026-004* Comment (3): The following is our intent for the Northern ridgeline and excavation activities: The northern edge has existing trees that were planted several years ago. They are now ten to twenty feet tall. Mining activity along the northern edge of the ridgeline will not occur for ten to fifteen years or more. Initial excavations on the ridge will focus on mining down and toward the south edge of the ridge. This will establish a long working face angle parallel with the Mt Si view corridor, severely limiting views of the face. The face angle orientation will also buffer noise to the Middle Fork Valley. Once the angle and depth are established, in 10 or more years, the working face will move east. At this point, the western edge of the ridgeline at 1600 feet elevation will be incrementally reduced by 45 feet. But, by then, the existing trees on the slope below the 1555 foot level will have grown to a height of 60 or more feet. As a result, the visual perception of the ridgeline height will be unchanged from viewpoints on the valley floor. The DEIS seems to conclude that this change in ridgeline will be in excess of 100'.

Response Comment acknowledged.

Comment *024A-096* Recognizing that assessment of visual impacts are necessarily subjective, would the DEIS consultants agree that until such time as the berm is substantively revegetated with trees at least 15 feet tall that views of this berm will be significant for many viewers on public roads and at residences. We believe that it will be many years until these berms are adequately revegetated (10-15 years) and that this long period of time is sufficient to rate this a significant impact.

Response Comment acknowledged. The berms could appear as a noticeable element in the view from some locations. A regular seeding program could help reduce the visual prominence of these berms until higher trees and understory are established.

Comment *024A-097* We believe the steady stream of large trucks on Edgewick Road will be a significant visual impact on local residents using that street to access their residences. Please discuss.

Response Please see the Aesthetics, Light and Glare chapter and the Aesthetics Technical Report in the FEIS for a discussion of potential lighting impacts, including from truck traffic. As indicated in these discussions, light associated with offsite truck trips would increase, particularly during the winter months when there are more hours of darkness. The increased light from trucks would be primarily limited to SE 146th Street and 468th Avenue SE from SE 146th Street to I-90.

Comment *024A-101* The DEIS should again provide a complete inventory of the number of residents that would experience a visual change for the proposed project as compared to Alternative 4. We believe that any objective comparison will show that substantially more people will have their visual experience changed substantially by Alternative 4 and that this impact would be substantially reduced by Alternative 4. Please discuss this conclusion and if a differing opinion is reached, please provide an explicit rationale.

Response Comment acknowledged. Alternative 4 was reviewed in terms of the number of people affected. To the extent that the Lower Site is visible from I-90, and cannot be effectively screened, the elimination of activity on this site would reduce the number of vehicle occupants able to view the project. A few residences are located in close proximity of the Lower Site and overlook it. Under Alternative 4, these residences would experience views of logging or residential development rather than mineral extraction under Alternative 4.

Comment *002-001F* As well as conflicting information on the use of lighting on the Upper Site.

Comment *002-009* Lighting on Upper Site: In section 2.5.5 on General Operations Principles on page 2-18, it states " Lighting is not planned for operations at the Upper Site." This is not consistent with information on page 3.6-6, that says " Electrical load on the Upper Site would be limited to area lighting." It also conflicts with information on page 3.10-14 that states that on the Upper Site, fixed lighting sources would be located primarily on conveyors and loaders. These discrepancies on the use of lighting on the Upper Site should be clarified.

Response The description of lighting in Energy, Aesthetics Light and Glare and the Proposal and Alternatives chapters have been corrected in the FEIS so that they are consistent and correct.

Comment *127-162* North Bend 98045. I have lived in the valley for 21 years, and it is one of the most beautiful places I have ever seen. I feel for the people that live close to the area of the gravel pit. Everything everybody has said here is true, and if this is done to this valley, it is going to destroy one of the most beautiful places in the world. I am so opposed to this, and I hope everyone comes to their senses. Thank you.

Response Comment acknowledged.

Comment *073-259* Enhancing The Area. "The mining area on the Lower Site would appear as a continuation of existing built features in the area, including commercial and residential development and 1-90."

This statement appears to be a stretch of the imagination.

A gravel pit is not the "continuation" of commercial development.

Gas, food, lodging, recreation supplies.., all the things one would find at a gravel pit. How many surge piles are seen on the way to the market? What business would want one in the parking lot?

A gravel pit is not the "continuation" of residential development.

How many residents would consider putting a gravel pit in their backyard versus a deck, a pool or a patio?

A gravel pit is not the "continuation" of the Interstate 90 greenbelt.

Synonymous: Greenbelt and Gravel Pit?

Well, it may seem like Interstate 90 traffic coming down 468th Avenue [see for example, Relative Impact of Tonnage on 468th Avenue, OTD].

Visualize this: "50-foot-high surge piles and approximately 50-foot-high concrete and asphalt processing facilities." This would be equivalent to a few five-story buildings. This is not comparable to the existing built features in the area. Only Phases 1, 6 and 10 of the proposed project were illustrated in relation to Aesthetics in the DEIS. Why does the DEIS Aesthetics not incorporate Phases 2, 3, 4, 5, 7, 8, and 9 for analysis of aesthetic import? Will the FEIS present all phases of the proposed project in detail for aesthetic analysis?

Response The cited statement refers to the visual character of the view from Mt. Si, approximately 3 miles from the sites; the statement did not relate to the relationship of land uses. From this distance, the cleared Lower Site with processing facilities would be visually consistent with the Seattle Truck Town East, commercial uses along 468th Avenue SE and I-90. Please note that the Aesthetics section of the DEIS identifies the visual change as perceived from Mt. Si as a Significant Unavoidable Adverse Impact.

Comment 023-049

Though we have not read the technical reports, readers should be interested in learning why such apparent detail (e.g. two development plans) was given to this alternative 4 when the DEIS does not provide a similar level of detail for the proposed conveyor, access road and ridge cut for each of the other alternatives. Discussion pertaining to slope stabilization and erosion control/stormwater management is addressed in an apparent justification for not utilizing alternative 4, but the items are scarcely addressed in other DEIS alternatives. Because, as we understand it, alternative 4 could mine the Upper Mine area from an existing mining operation and because an conveyor assembly/access road may not be necessary, the visual impacts of this alternative should be far less than the proposal and other alternatives. Also, due to the orientation of this existing operation, offsite recreational view impacts should be substantially less. Residential viewsheds and Interstate-90 viewpoints appear to also be far less impacted in this alternative 4.

Response

Additional information about the aesthetic impacts of conveyor alignment and access road is included in the FEIS. Alternative 4 does not propose mining at the existing operation on the ridge.

Comment *024A-091*

Even decently reproduced photographs such as occur in this DEIS cannot really portray the potential changes in a viewscape. First, one looks at the photo and, often, the project intrusion is a very small part of a much larger, unchanged viewscape. However, this is not the view that a resident or a motorist using local roads on a frequent basis sees. Their eye is attracted by this visual change, particularly if it is visually unattractive like a large unvegetated berm or industrial processes, and the change considerably affects their perception of the area. Second, the photosimulations frequently show the project site in a stage where the berms have been fully revegetated with relatively mature trees. This will take a long time to be realized

Comment *024A-092*

Photosimulations of later phases of the project and the alternatives show the site with mature landscaping in place (namely, with the berms fully covered with mature Douglas fir). However, landscaping generally takes many years to develop and is often much "spottier" than simulated in the photosimulations of Phase 6.

Comment *127-143*

I also found when I put up a deck, it took me much longer than I could have ever imagined. I had to have plans up at the wazzu. Everything had to be clear and all written out. I had an architect. It had to be approved. Just having an outdoor deck, that had to decide about water, as if I was going to put a toilet on it which really upset me.

And here we are talking about a conveyor belt of which there is no virtual plan and nothing is written out. It is kind of imaginative.

Now in this day of science, it seems to be that all this whole plan should have been done using a CAD system. We should be able to view it from every angle possible, and the public should be able to see that, not just a photograph here and a photograph there. I think that would make a big difference.

I think it is a poor excuse that Weyerhaeuser hasn't done that. Cadman hasn't done that. It will cost a few bucks, but I think before anything should be considered one should be able to see this thing from the public's point of view and everyone else's on a CAD system, three-D, what it will look like in five years, ten years, 20 years, and 25, and whatever it takes. Before, the after, and then have some decisions made here that make a bit more sense. Thank you.

Response

Comment acknowledged. Photo simulations do not produce the same effect on the viewer as actually standing in the field. Text has been added to the methodology

description in the technical appendix to explain the effect mentioned in this comment.. Additional photo simulations have also been added to show the conveyor effect of revegetation at different stages of growth.

3.10.2.1 Construction Impacts

Comment *020-773* The FEIS should address the visual impact of the "notch" created in the west slope of Grouse Ridge to accommodate the conveyor and water transfer systems.

Comment *023-018* The DEIS does not adequately analyze visual impacts associated with the proposed maintenance road. Figures illustrate a single corridor that is intended to accommodate the conveyor assembly, a water line and a maintenance road. The corridor is illustrated to occur linearly and directly up the slope from the lower mine to the upper mine.

Response Additional analysis on the visual conditions with the conveyor has been prepared. A view of the conveyor, including where it passes into the Upper Site has been added to the FEIS. Under a worst-case scenario, the width of the cut at the ridge would be 110 feet with a 1.5H:1V slope gradient.

3.10.2.2 Operation Impacts

Comment *017-001* Visual and Noise Impacts. Page 3.7-4, page 3.7-7, page 3.7-10 and page 3.10-1 Section 3. 10. 1. 1 do not contain any reference to Valley Camp being either directly North of the upper site or that we have a full view of the entire North face of Grouse ridge. Any lowering of this ridge will be visible from Valley Camp, lowering may also allow more noise, fugitive dust and light to escape the upper site into the Middle Fork

Response Viewpoint 3 is representative of the views from Vallley Camp. Please see the analysis of impacts from that viewpoint in Chapter 12 and the Aesthetics Technical Report.

Comment *020-756* The FEIS should address the growth rate of vegetated screening berms and the potential timeframes for adequate results as shown in Figure 3.10-6. This should include photosimulations of non-vegetated berms sequentially until adequate screening occurs. Will berms contain bio-solids materials?

Response Comment acknowledged. Views of the Lower Site with screening vegetation in different stages of growth have been added to the Aesthetics Technical Report, the view is in Chapter 12. The applicant indicates that biosolids may be used to assist with berm revegetation. Specific timing and application rates have not yet been determined.

Comment *020-777* The FEIS should address the visual, lighting and glare impacts to the 1-90 corridor from nighttime gravel trucks departing the Lower Site and Upper Sites.

Response Truck traffic from the proposal utilizing 468th Avenue SE and I-90 interchange 34 would be consistent in character to existing truck traffic and would not impact lighting conditions along the I-90.

Comment *020-778* The FEIS should address the number, location, height, and intensity of additional I-90 lighting proposed between Exit 38 and Exit 34. Would the lighting require Federal approval and/or limitations?

Response The Proposal does not propose or require additional I-90 lighting.

Comment *020-787* The DEIS states that "a slight lowering of the northern rim of Grouse Ridge would be visible by Phase 6, with some additional lowering of the northern rim of Grouse Ridge visible by Phase 10". The DEIS should quantify just what is meant by "slight lowering" and should include photosimulations or other diagrams showing the visual impacts of this lowering.

Response A section drawing showing reduction in the height of the rim of Grouse Ridge when viewed from the north has been added to the Aesthetics Technical Report. The 3D photosimulation in the Aesthetics Technical Report illustrates this impact.

Comment *020-788* The DEIS states that "'Glare from truck traffic using area roadways and 1-90 would increase the overall amount of glare on these roadways. However, because truck traffic from the Proposal would be a small percentage of the overall traffic on these roadways, a significant increase in glare is not anticipated". [DEIS, 3.10-15]. These statements dismiss the impact of nighttime truck traffic; where as, a quantitative analysis of the actual impact would be more reassuring then simply this non-quantitative dismissal.

Response Please refer to the Aesthetics, Light and Glare chapter and Aesthetics Technical Report in the FEIS for an expanded discussion on potential lighting impacts, including impacts from truck traffic. As indicated in these discussions, light associated with offsite truck trips would increase, particularly during the winter months when there are more hours of darkness. The increased light from trucks would be primarily limited to SE 146th Street and 468th Avenue SE from SE 146th Street to I-90. Significant impacts from offsite truck lighting is not anticipated.

Comment *020-789* The DEIS states that "new lighting could be required on the roadway from Exit 38, new light could be visible from the south". [DEIS, 3.10-15]. This impact should include a quantitative number of lights required, their proposed location, their height, their environmental impact, and their resultant light pollution to the nighttime sky. The visual impact of additional interstate lighting cannot be minimized on its adverse impact to the Snoqualmie Valley area.

Comment *020-791* The DEIS states that "Because of the existing overall low level of light, establishment of new lighting sources in the area would produce an indirect glow of light that would be visible in the nighttime sky on clear nights". [DEIS 3.10-14]. How much light would be visible? A quantitative analysis should identify the degree of impact to the Snoqualmie Valley in all weather conditions.

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. Please refer to the Aesthetics, Light and Glare chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report. As indicated in the analysis, a comparison of light levels anticipated within the Lower Site to existing levels in the vicinity of the sites indicates that light levels would be greater than the rural residential and forest areas and less than the commercial area along 468th Avenue SE.

Comment *020-792* The DEIS states that "Elimination of mining on the Lower Site and elimination of processing facilities entirely would result in lower levels of light than under Alternative 2. Impacts on nighttime sky viewing would be less than under Alternative 2". [DEIS, 3.10-17]. How much less would the impact be with Alternative 4?

Response A quantified modeling of the light levels with the Proposal was not provided for this FEIS. A lighting study was prepared and is summarized in the FEIS Aesthetics chapter and provided in full in the Aesthetics Technical Report.

Comment *020-793* The DEIS failed to quantify the increased lighting needs for the Proposal over the 25 year lifespan of the project. How will the impacts of light pollution vary during different phases of the project?

Response The light levels on the Lower Site would remain generally consistent throughout the life of the mining operation. Lighting on the Upper Site would move from west to east during the mining operations. Lighting on the Upper Site would remain below the rim of Grouse Ridge and would generate a glow that would move with the mining phasing. The general level of lighting impacts would not differ significantly.

Comment *023-036* Visual impacts to adjacent residential developments and homes are described as low to medium. For example, page 3.10-7 describes impacts relative to ridge grading as "From the residences along SE Middle Fork Road and SE Lake Dorothy Road, a slight lowering of the northern rim of Grouse Ridge would be visible by Phase 6, with some additional lowering of the northern rim of Grouse Ridge by Phase 10. This lowering would slightly increase the visibility of Mount Washington in the background. The level of visual impact from this viewpoint would be considered medium." (emphasis added). As stated in our firm's previous comment sections, we are concerned about the level of emphasis being attached to grading. To characterize a ridge cut of 700 feet (minimum) in width and 115 feet in depth as a slight lowering is questionable. We were unable to find any photo's or text in the DEIS that clearly illustrate the effects of this cut upon visual impacts. Certainly a ridge alteration of this magnitude would have visual impacts greater than the characterization of slight lowering and medium impacts. Figure 2-3 illustrates the placement of the conveyor corridor in Phase 1, not Phase 6 as noted above in the DEIS.

Response Comment noted. The medium impact consideration reflects that the content of the foreground view from this location is not changed by the proposal. Viewers are still looking at a forested hillside, the height of the ridge is reduced by about 15%, exposing more of the background view.

Comment *023-037* From the second floor of the Hahn Residence (representative of views from homes north of the Lower Site, across SE 144th Street), views to the Lower Site mining area would be limited to a glimpse of the southern side wall. As shown in Figure 12-3 in Chapter 12, the majority of the Lower Site mining area would be hidden by existing vegetation, and all of the Upper Site mining area would be hidden by existing topography. (Considering the screening provided by existing topography and vegetation, the level of visual impact from this viewpoint would be considered low.) (emphasis added). Based on our site visit and photographs taken from the adjacent Lu Residence, the lower site is clearly visible (please see photo below, Figure C). Existing vegetation consists of a mix of evergreen and deciduous trees. Since deciduous trees provide no visual buffering capacity for 6-7 months of the year, the Lower Site would be visible during these months. Douglas fir initially provide buffering capacity, but as they develop and compete for sunlight, the canopy rises high above the line of sight to the Lower Site-

again making the Lower Site visible and not buffered by existing vegetation as noted in the DEIS.

Response Comment acknowledged, the Lower Site could be visible from portions of these two sites, particularly during the winter. Buffering and screening provided by owners of the Hahn and Lu properties could be effective at screening views below the level of these two sites. The visual impact consideration has been revised for this site.

Comment *023-038* The DEIS states that existing vegetation and topography would hide all of the Upper Site mining area is only partially correct. While views to the Upper Site itself may not be available to nearby residences, the DEIS again fails to consider the visual impacts of the conveyor corridor and associated access road. Grading and slope stabilization for this corridor are described by Figure 2-3 to occur in Phase 1. Accordingly, the ridge displacement and access road grading and storm detention devices will occur in the initial phase. Visual impacts from these grading activities will be part of the residential view at the beginning of the project and remain for the estimated 20-year life of the project-a generation.

Response Comment acknowledged. The Lu property (Viewpoint 10) would view the conveyor and maintenance road at an angle that is close to parallel to the alignment. From this angle, trees are less effective at screening the facility than at angles closer to 90 degrees to the alignment. Trees will screen some portions of the conveyor, however portions of it may be visible from the Lu property. Text in the DEIS reflects that the conveyor alignment will be visible.

Comment *023-039* The DEIS proposes earthen berms with landscape plantings as a visual buffer to adjacent residential viewsheds. Figure 2-18 provides sectional views which illustrate relative elevations between the Lu Residence and mining operations of Alternative 2, the proposal. While the DEIS suggests visual impacts of this proposal are high to the Lu Residence, the suggested grading plan illustrates that proposed berms are somewhat 'flatter' within the line of sight from the Lu Residence to the Lower Mine area. The DEIS illustrations are such small scale it is virtually impossible to determine whether the mine operations would be visible from the Lu Residence or any other northern residences.

Response Comment acknowledged. Larger scale sections are provided in the Aesthetics Technical Report.

Comment *073-283* Aesthetics Scoping Question 5. Would light levels under the Proposed Action impact nighttime sky viewing conditions and what would light conditions be with low cloud cover?

An aesthetic perspective: Nighttime viewing...such a technical phrase for looking at the stars.., the inspiration of dreams, imagination and wonder. Looking at the stars has inspired civilizations, science, mathematics, prophets, poets, philosophers, romance, and friendship around campfires and guided explorers. Looking at the stars (and the northern lights) is no less important today.

Technically, as discussed previously, the glow of dusk/sunset, dawn/sunrise would impact nighttime viewing.

There are zero occurrences of the word "cloud" in DEIS Aesthetics. This represents a failure to address NBGO-FEIS Final Scope of Work (K)(6). Will this be addressed in FEIS Aesthetics?

Comment *073-284*

More Light And Glare. The visual impact of nighttime viewing also to be considered is duration of light. Since the proposed project plans of operation are 24/6, it will be assumed the lights will be on all the time at night. This does include the construction phase of the proposed project.

The significance of duration of visual impact should have been considered for nighttime viewing in the DEIS Aesthetics, Light and Glare, say, when Daylight Savings Time ends. From November to March, from 5 PM to 9 AM, [this is a minimum and generous time allowances] it is dark or nearing dusk and lighting is required. This would constitute 1 6 hours of visual lighting impact of dusk/sunset, dawn/sunrise per day, for 5 months, in nighttime conditions.

Will this be addressed and analyzed in the FEIS?

Response

Please see the Aesthetics, Light and Glare chapter of the FEIS for a revised discussion of lighting impacts. As indicated in the chapter, "because of the existing overall low level of light, establishment of new lighting sources in the area would produce an indirect glow of light that would be visible from surrounding areas." It is acknowledged that the number of nighttime hours is highest during the winter months.

Comment *073-282*

"...and the aesthetic quality of views from surrounding mountainsides (used for skiing and snow shoeing) could be affected (refer to the Aesthetics, Light and Glare section for details on visual impacts)."

DEIS Recreation referred to Aesthetics, Light and Glare and the information is not there.

Imagine this: Driving in the rain or snow at night when driving conditions are already 'tricky', to see two distinct areas of reflective glare from North Bend or the immediate light impact on westbound traffic coming down the Interstate 90 hill from Snoqualmie Pass. Isn't this a traffic safety issue or concern? Will the FEIS be determining the light and glare impact from Interstate 90?

Response

The proposed lighting on the sites would not anticipate to result in direct glare to I-90 and traffic safety impacts are not anticipated.

Comment *073-281*

Glare And Reflection The significance of glare and reflection impact during winter conditions, such as rain and snow, was not addressed in DEIS Aesthetics Light and Glare. Will this be addressed in the FEIS?

Response

It is acknowledged that wet or snowy weather could increase the glare conditions of all lighting in the area, including light from the proposal. However, the lighting impacts identified for the proposal would not be anticipated to be significantly increased under wet or snow conditions.

Comment *073-279*

Aesthetics Scoping Question 4. Would proposed onsite light sources reach nearby residents?

Light and Glare. In the DEIS Aesthetics no quantitative data is provided to determine intensity and duration of light and glare increase over baseline conditions. It does not appear that quantitative data was used to achieve the overall impact judgment of light and glare, i.e., ..."could increase the level of light."

This is not an informed objective technical evaluation. Anyone could have figured that out, given the existing proposed site contains non-existent light levels. The surrounding commercial area light does not filter to the proposed area sites. It is really dark. Any introduction of light would be an increase and an impact. "Could" is not the answer. "How much" of an impact should have been evaluated by DEIS Aesthetics.

Determining Light And Glare In the absence of any quantifying data for Light and Glare, assumptions will be made for the purpose of Light and Glare analysis.

Based on the description, the proposed project would introduce at least nine areas of additional light on the Upper and Lower Sites into an area with "low light levels." The DEIS does not address the issue of whether all lighting sources would be contained inside or outside. It will be assumed all lighting will be outside.

The Lower Site would introduce lighting and glare...

...on the concrete facility building...
...on asphalt facility building...
...on the aggregate processing facility...
...on the conveyors within the mining area...
...pole mounted security lighting...
...mobile sources from vehicular equipment...

The Upper Site would introduce lighting and glare...

...on conveyors...
...on loaders within the mining area...
...mobile sources from vehicular equipment...

The use of Low Pressure Sodium bulbs is a mitigation measure and it will be assumed this type of bulb will be used.

Bulb(s) is plural. Literally, from 2 to infinity. Certainly a conceptual plan of the concrete and asphalt facilities has been designed to determine the number of bulbs required for the overall project or the number of bulbs could have been determined from existing concrete and asphalt facilities. If there is no definitive lighting plan -- how can light and glare impact be assessed? Was the light impact judgment just merely speculation?

Comment *073-280*

Illuminance Sample Calculation And Discussion. Based on the areas of light introduction, for light conditions at the Lower Site only and excluding all vehicular equipment, let's assume:

- There are 12 light sources for the aggregate facility and around the surge piles
- There are 6 light sources for the asphalt facility
- There are 6 light sources for the concrete facility
- There are 20 security light sources around the perimeter of the Lower Site and on internal access roads.

"The low-pressure sodium (LPS) lamp is the most efficient of all, providing up to 183 lumens/watt."

"Low-pressure sodium lamps range in size from 18 watts to 180 watts."

Let's assume that each of these 44 light sources (the list above) uses 1 LPS lamp and that each of these is a "big bulb" and takes full advantage (good lighting means a higher degree of operational safety around the Lower Site) of the capability (183 lumens/watt) and wattage capacity (180 watts) of LPS lamps.

These light sources, under these reasonable but conservative assumptions, would produce 1,449,360 lumens of illuminance.

This result does not account for 'directioning' of the light source or the distance to an observer of the light source.

Accounting for distance:

- From 1/4 mile away, these light sources would represent 9.0 lumens of illuminance
- From 1/2 mile away, these light sources would represent 2.2 lumens of illuminance
- From 1 mile away, these light sources would represent 0.6 lumens of illuminance

What is the practical consequence of these results for an observer of the gravel pit? 9.0 or 2.2 or 0.6 lumens at their appropriate distances are in the range of what is classified as later sunset conditions, or poor to average street lighting conditions.

The sun will never set in the Upper Snoqualmie Valley. The glow of street lights will define the area of the Lower Site.

It is not made clear in DEIS Aesthetics how light sources would be 'directioned', to control the various degrees of perpetual dusk/sunset or dawn/sunrise glow visible during nighttime, and dawn and dusk, hours. Any useful 'directioning' of light sources (for the operations of the proposed NBGO) would not make the glow disappear, or necessarily take it out of category of perpetual dusk/sunset or dawn/sunrise glow.

Will the FEIS determine the additional lumen increase to the area from the proposed project Upper and Lower sites based on actual light sources, i.e., number of bulbs to be used. The analysis should also include, at least, an approximate number of project vehicles (vehicular equipment) using Non-Low Pressure Sodium Bulbs. Will the FEIS elaborate this sample calculation and discussion to portray the impacts of light and glare?

Response

Comments acknowledged. Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the proposal. The lighting study contains specifics on the type and height of the anticipated lighting on the sites, duration of lighting, conditions with cloud cover, and the level of impact anticipated, including nighttime viewing impacts. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report.

Comment *016-011*

Similarly, bright lighting must be contained on site, and not be allowed to impact nearby residential areas. Measures to monitor this and to ensure that this is complied with have not been defined, but should be.

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. Please refer to the Aesthetics chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report. The monitoring of light levels has not been identified as a mitigation measure.

Comment *073-246* Reclamation. "The proposed phased mining and reclamation plans have been designed to minimize visual impacts".

But, they cannot be eliminated.

"Visual impacts of the mining operations would exist until mining on the sites ceased and reclamation activities were completed."

Do the visual impacts just go away when mining is completed?

"Rooted Douglas fir seedlings would be planted during reclamation.

" Douglas firs are considered mature at 30 feet tall and reach a height of 230 to 250 feet. It takes 30 to 100 years to reach this maturity, "and they can live over 1,000 years."

If a seedling is 15 to 22 inches high, it would take 30 years minimum to reach maturity. Establishment period of a Douglas fir seedling is 1 to 3 years.

If the proposed project began January 1, 2000 and a child was born on January 1, 2000, the child would be 25 years old before mining activities would complete and full reclamation would begin. The child would be 55 years old before seeing the beginnings of a mature forest as well as the "two bowl shaped areas where the mines were: A person now 25 years old would be 50 by the end of the mining activities and at 85 years old would see the beginnings of a mature forest. With the advancements in medical technology, just maybe, some of us would live to see at least the beginnings of a forest on Grouse Ridge.

Response Comments acknowledged. As described in Chapter 2 of the DEIS, as mining within each 50-acre mining phase is completed, mined areas would be vegetated with Douglas-fir trees for future forestry or open space use. It is anticipated that mining in each phase would be completed in approximately 5 years.

Comment *048-006* This operation will require Lighting 24 hours a day. That's not what we moved out here for. The berm will redirect some of the light, but not all.

Response Comment acknowledged. Additional analysis on the potential for lighting impacts has been added to the FEIS. Please refer the Aesthetics, Light and Glare chapter and the Aesthetics Technical Report for detail.

Comment *012-165* Since the Lower Site is very close to hundreds of homes, lighting impacts and mitigations need to be detailed. How many and which residences, businesses and recreational areas will be exposed to these light sources? What is the total lighting impact when mining lighting is added to extant light sources around Exit 34? What mitigations are proposed?

Response A lighting study conducted by a registered engineer was prepared for the FEIS. As indicated in the analysis, a comparison of light levels anticipated on the Lower Site to

existing levels in the vicinity of the sites indicated that light levels would be greater than the rural residential and forest areas and less than the commercial area along 468th Avenue SE from SE 146th Street to I-90. Please refer to the Aesthetics chapter and the Aesthetics Technical Report.

Comment *024A-098*

Please clarify the statement "Mobile sources of light from vehicular equipment would increase on both sites. Because the mobile sources of light would primarily be located on the floor of the mining areas, would be anticipated to be contained within the mining areas." (Appendix J, page 68). In light of the fact that the Lower Site is proposed to operate 24 hours a day and that the trucks must enter and exit the mine site, it would seem that there would be an increase in glare from mobile light sources.

Response

Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. The lighting study includes a more detailed discussion on the anticipated lighting on the sites. Please refer to the Aesthetics, Light and Glare chapter of this FEIS for a summary of the lighting study. Please also refer to the Aesthetics Technical Report.

As indicated in the Aesthetics, Light and Glare chapter of the FEIS, light levels associated with offsite truck trips would increase, particularly during the winter months when there are more hours of darkness. The increased light from trucks would be primarily limited to SE 146th Street and 468th Avenue SE from SE 146th Street to I-90.

Comment *045-072*

Even though the Applicant has proposed night lighting appropriate to current County regulations, the night sky would lose a lot more stars now visible to the human eye. "Because of the existing overall low level of light, establishment of new lighting sources in the area would produce an indirect glow of" light that would be visible in the nighttime sky on clear nights" (Page 3.10.14, para. 5). What a sad and frustrating sight for overnight hikers and campers, amateur and professional astronomers, and especially local residents (who have consistently lost more and more of their view of the night sky as development and growth continues in the Snoqualmie Valley). Many counties across the country have adopted much more stringent night lighting regulations, including Deschutes County in Oregon (Ordinance 94-0124), which King County should do also. But even those regulations would not completely remove the night glare skyward.

Response

The comment related to night lighting and King County lighting regulations are acknowledged. Additional analysis on the potential for lighting impacts has been added to this FEIS. Refer to the FEIS Aesthetics chapter and the Aesthetics Technical Report for detail.

Comment *039-007*

Having to look at the conveyor/pipeline and the gravel pit for 25 years? No Impact?

Response

Comment acknowledged. Additional visual simulations of the conveyor have been incorporated into the FEIS. Refer to the Aesthetics Chapter of the FEIS and the Aesthetics Technical Report for a discussion of these simulations.

Comment *012-164*

Lighting can have significant impacts on quality of life of nearby residents as well as on the breeding and migration behavior of wildlife. The DEIS provides inadequate details about the quantity and placement of lights. What will be the height of towers or poles used for lighting? Will electrical lines be above ground or buried? Will the conveyor system and its maintenance road including separate lighting? What lighting is proposed for the aggregate processing plant, and concrete and asphalt batching facilities on the

Lower Site? How tall will these manufacturing structures be and what lights are included?

Comment *071-006* Precise description of all lighting equipment to be used.

Comment *127-090* Will be used and where will each light be located?

Response Based on comments received on the DEIS, a lighting study conducted by a registered engineer was performed for the Proposal. Although no specific lighting plan has been prepared for the Proposal, the lighting discussion in the Aesthetics, Light and Glare chapter of this FEIS describes the anticipated location and specification of lighting on the Upper and Lower Sites. Fixed light sources are anticipated on the concrete and asphalt plant buildings, aggregate processing facility, conveyors within the mining area and pole-mounted security lighting. Please refer to the Aesthetics, Light and Glare chapter for a summary of the lighting study. Please also refer to the Aesthetics Technical Report. The Land Use chapter of this FEIS discusses the number of households and residents within the vicinity of the project site. There are 1,492 households within 3 miles of the western boundary of the Lower Site and 263 households within 3 miles of the northern boundary of the Upper Site, according to 2000 demographic data.

Comment 024A-093 The visual simulations should be done for other locations where local residents using the road network have views of the site. The DEIS authors should inventory all public road vantage points and conduct simulations from those viewpoints that have the least impeded view of the site. We suggest that additional simulations be taken from at least 1) 468th Avenue S.E. north of S.E. 146th Street looking towards the Lower Site and 2) from S.E. 144th Street looking toward the Lower Site.

Response Comment noted. It is infeasible to inventory and prepare visual simulations for all public road vantage points, nor is this required under SEPA. WAC 197-11-425 (2) indicates that "EIS's shall not be excessively detailed or overly technical." Topographic maps and field visits were used to identify representative views. A plan map has been added to indicate the areas represented by each visual simulation. Additional simulations have been added for major public viewpoints.

3.10.3 Cumulative Impacts

No comments were received on this section of the DEIS.

3.10.4 Mitigation Measures

Comment *142-015* "Specifications for outdoor lighting on site could require a color rendering index..." They require this consistent with the US National Park Service.

Response Comment acknowledged. The cited mitigation is identified as a Mitigation Measure.

Comment *012-166* Do the mitigations use the guidelines set forth by the Illuminating Engineering Society of North America (see Illuminating Engineering Society of North America 1999 in References) or some other recognized standards?

Response The additional lighting study is discussed in the FEIS Aesthetics chapter. Mitigation measures are recommended to reduce impacts of lighting but are not specifically based on the guidelines mentioned.

Comment *127-089* Point No. Nine, provide a precise description of all noise and lighting mitigations included in the proposal. What type of lighting

Response Although no specific lighting plan has been prepared for the proposal, the Aesthetics, Light and Glare chapter of this FEIS describes the anticipated location and specification of lighting on the Upper and Lower sites. Please refer to the Aesthetics, Light and Glare chapter of the FEIS for a listing of lighting mitigation measures. Mitigation measures include locating lighting high on buildings and independently mounting lighting, rather than attaching it directly to equipment.

Comment *012-023* Throughout, mitigations are expressed in such vague terms that no clear action is required by the proponent and no obvious follow up or monitoring would be possible by oversight agencies. Given the vast scale of potential impacts --both spatially and temporally--- and the critical strategic nature of the underlying ground water resources, mitigations must be explicitly delineated. The document suggests mitigations in language like "The mining plan has been designed to minimize visual impacts to the extent practical" [DEIS §3.10.4]. The "how" in such cases is too often left to the imagination.

Response The cited mitigation stating that the "mining plan has been designed to minimize visual impacts to the extent possible" indicated that it is may not be practically possible to completely screen views to the mining activity on the sites. The measures to minimize visual impacts include phasing of mining activity, naturally vegetated buffers, and mining activity conducted behind the rim of Grouse Ridge.

Comment *012-157* The notion of staged mining and re-vegetation as presented in the DEIS fails to acknowledge the time frame needed for re-vegetation efforts to have any noticeable impact on views. A reasonable estimate based on data in Washington Department of Natural Resources (1998) is a minimum of ten years before new plantings begin to create a forest canopy effect. Thus for much of the project life span, re-vegetation efforts will have no mitigating effects on views. Furthermore, some experts contend that vegetation is not a preferred screening material because of its susceptibility to blow down, disease, and fire.

Response The vegetation on the perimeter berms would be planted at the initiation of mining activity. The vegetation would have minimal screening effect in year one, with increasing screening effectiveness in subsequent years. Visual simulations illustrating the screening effectiveness of vegetation has been added to the FEIS. Please refer to the Aesthetics chapter and the Aesthetics Technical Report of this FEIS for detail.

Comment *024A-094* As requested previously, the DEIS should provide a more thorough discussion and mapping of all proposed berms and the schedule for their replanting. How long will the unvegetated berms be visible for? How long will it take for the berms to be basically covered with Douglas fir so that bare soil is not visible?

Response A visual representation of the screening conditions of the berms at various stages of vegetation growth has been prepared for the FEIS. Refer to the Aesthetic chapter and the Aesthetics Technical Report for details.

Comment *024A-095* Generally, visual simulations are presented as pairs with the existing and post-project views on facing pages in the EIS so one can look back and forth between the photos to determine the difference. This should be done in the revised DEIS. In addition, the DEIS authors should use an arrow or some other marker to point out the project in the visual simulation. Again, the reader not familiar with the area will look at these large photos, most of which remain the same, and be unable to see the difference. However, this by no means that the change is not eminently visible, especially to those whose viewshed it is.

Response Placing the existing photo and visual simulation on opposing pages is one way to format the visual analysis. Characterizing the existing condition in one section and characterizing the future condition in a separate section is another way to format the visual analysis. The later format is utilized for this EIS. The visual simulations in this EIS illustrate the view of the site as they are anticipated to appear under the proposal. In most viewpoints, the site comprises the majority of the view, so arrows indicating the site are not necessary.

3.10.5 Significant Unavoidable Adverse Impacts

Comment *024A-100* Under Significant Unavoidable Adverse Impacts the DEIS states that "...mining activity and processing facilities would represent a significant unavoidable impact to some viewpoints in the vicinity, particularly higher elevation recreation areas (Mount Si Natural Resources Conservation Area) under Alternatives 2, 3, and 4.." Please provide a discussion of the differences between the impact under these alternatives addressing the fact that Alternative 4 would remove the impact of the Lower Site on the Mount Si viewshed. It is not adequate to lump the sites nor the alternatives together. For example if the entire forested area visible from Mount Si were mined this also would be a significant unavoidable adverse impact.

Response Comment acknowledged. As indicated in the DEIS, under Alternative 4, no change in visual conditions on the Lower Site would occur and visual conditions on the Upper Site would be similar to Alternative 2. Although the overall visual impacts would be less than under the Proposal, the level of visual impact from this viewpoint would be considered high.

Comment *020-795* For the DEIS to conclude that "the Proposal in either form of Alternative 2 or 3 could increase the level of light in an area that currently contains low light levels" validates the publics concern over the adequacy of the Huitt-Zollars, Inc. analysis. [DEIS, 3.10-23].

Response Comment acknowledged. The cited text in the Aesthetics chapter has been revised to indicate "the proposed project in the form of either Alternative 2 or 3 would increase the level of light in an area that currently contains low light levels."

Comment *020-750* The DEIS correctly identifies the Proposal's aesthetics effects as unavoidable significant impacts. However, to state that the Proposal in the form of either Alternative 2 or Alternative 3 would have comparable visual impacts as Alternative 4 ignores the numerous people who will be affected at the Lower Site versus the Upper Site. This

project, if implemented as proposed, will substantially affect the aesthetic environment of the Upper Snoqualmie Valley. The character of Valley will be substantially altered, both during the daytime by visual impacts and particularly at night by light pollution. Alternative 4 will substantially reduce these visual and lighting impacts. The DEIS, is its current form, is inadequate in its discussion of the context of the proposed visual and lighting changes, and in comparing effects for the project with regard to Alternative 4.

Response Comment acknowledged. As indicated in the DEIS, under Alternative 4, no change in visual conditions on the Lower Site would occur and visual conditions on the Upper Site would be similar to Alternative 2. Although the overall visual impacts would be less than under the proposal, the level of visual impact from higher elevation viewpoints (Mt. Si) would be considered high.

Comment *073-253* Temporary Impacts? "The natural topography will be altered, essentially leaving two bowl-shaped areas where the mines were."

This alteration would be permanent. No amount of reclamation activities would reverse this.

As an aesthetic permanent Significant Unavoidable Adverse Impact, why was this not mentioned or considered in DEIS Aesthetics for visual impact? It would be visible.

Response Comment acknowledged. The visual impact deemed to be a Significant Unavoidable Adverse Impact related to the conditions with exposed mining areas and visible processing facilities. It is acknowledged that the existing topography would be permanently altered. However, the permanent change in site topography was identified as a Significant Unavoidable Adverse Impact in the Soils and Geology section of the DEIS.

3.11 PUBLIC UTILITIES

3.11.1 Existing Conditions

Comment *020-737* Throughout the DEIS Public Utilities section minimum and maximum levels are not provided for proper analysis. Baseline measurements and threshold levels are not provided for proper analysis.

Response Baseline measurements and threshold limits are used in an EIS when needed to provide insight into the level of impact. In the Public Utilities chapter of the FEIS they are used to determine the adequacy of the local utilities in the context of sustaining the additional burden of the proposed project.

Comment *010-001* Seattle Public Utilities (SPU) has an interest in the proposal because of SPU's long-term interest in the future development and viability of the Snoqualmie aquifer as a regional drinking water supply. SPU staff has reviewed the information provided in the DEIS, and has sought the opinion of other parties who are participating in the future water supply project. Based on this, it would appear that the level of protection afforded the Snoqualmie aquifer is adequate relative to the potential impact of the gravel quarry operation as it is proposed in the DEIS.

Response Comment acknowledged.

3.11.2 Environmental Impacts

Comment *020-726* The FEIS should identify and address the quantity of trucks during each “construction” phase for each alternative, and the impacts of these trucks on the availability and quality of public utilities and services.

Comment *020-727* The FEIS should identify and address the quantity of trucks-during each “operational” phase for each alternative, and the impacts of these trucks on the availability and quality of public utilities and services.

Response A more detailed schedule of phases is presented in the Proposal and Alternatives chapter in the FEIS. More detail should be available in each stage of design. The number of trucks has been addressed in the Transportation chapter. Impacts on public services are addressed in the Public Utility and Transportation chapters.

Comment *127-116* The other two topics I want to talk about are common sense and fantasy. Common sense because I think one of the obligations of elected officials is to use common sense. Let's talk about that for a second. Not very long ago most of us in King County received a notice, I think from the DES, asking us to limit our use of water and I guess no point of how to go about doing that. Yet, according to the assumptions, Cadman will use millions of gallons of water, and that will have no impact on the rest of us. I don't see the common sense there.

And I also have articles that I have cut from the local newspapers talking about water shortages in North Bend. Here is one from not very long ago, it says North Bend faces water crisis and there is a building moratorium. And yet the Cadman proposal -- in

fact, they took out an ad -- talked about the fact that they will use 300 gallons a minute of our water to wash trucks. I don't think that is the trade-off I want to make.

Response The DEIS and FEIS describe the quantity of water required for operations. Impacts of site water demand are discussed in the Water chapter in the FEIS. Cadman, Inc. proposes to obtain their water from a new well. The Washington State Department of Ecology would need to approve a water right to allow Cadman, Inc. to use the groundwater. During the first five years of the gravel operation when sand and gravel would be excavated at the Lower Site, water use would be reduced because processing would be limited and the concrete and asphalt plants would not be operational. Water use requirements would then increase as processing begins at the Lower Site and the asphalt and concrete plants become operational. The FEIS recommends mitigation measures to minimize the impact of this water use.

Comment *019-352* The FEIS should detail the effect of the increased truck traffic at Exit 34 on emergency medical, fire and police response times.

Comment *019-356* The DEIS did not and the FEIS should provide measurements and mitigations for emergency medical services, police, fire services, vehicular traffic, pedestrian and or bicycle traffic, schools, bus traffic and local businesses for the following item:
a. Vol. II app. L, sec. 2.3.3 Congestion, pg. 2-28 "Congestion can also occur in the interchange when Snoqualmie Pass is closed by winter weather conditions".

Comment *019-378* The DEIS did not and the FEIS should adequately address the delays and degradation of police, fire and emergency medical services as submitted by WoodRiver Homeowners Scoping Issues, book #1 section 1 and book #2 sections 2 and 3.

Comment *019-381* The residents of WoodRiver are deeply concerned about accidents or emergency incidents that could occur in the proposed project. The availability of fire and emergency service to area residents, schools, and local businesses is already at a minimum, and would be negatively impacted by the projects extensive resource requirements. It is clear that the DEIS has not adequately discussed the impacts of the proposal on emergency vehicle response times.

Comment *020-749* The DEIS did not adequately address the delays and degradation of police, fire and emergency medical services as submitted by WoodRiver Homeowners Scoping Issues area.

Response Chapter 16, Transportation, of the FEIS and the Transportation Technical Report include a discussion of the impacts to emergency service vehicles. Police, fire and emergency medical vehicles would experience more conflicting traffic on 468th Avenue SE and at Exit 34 without implementation of mitigation measures. These conflicts could increase emergency response times. As described the FEIS (Chapter 16), the degradation in the level of service at the intersections in the proposed project vicinity would be minimal if the recommended mitigation measures are implemented. The mitigation measures include adding one lane and increasing the width of the shoulders on 468th Avenue SE. These improvements would provide additional areas for vehicles to pull over and for emergency vehicles use. Therefore, emergency vehicle response times are not expected to change significantly if appropriate traffic mitigation measures are adopted.

Comment *019-358* The DEIS did not and the FEIS should provide potential impacts to sidewalks and the future potential requirements for ADA sidewalks due directly or indirectly by the proposed project.

Response Pedestrian safety issues including impacts to sidewalks are discussed in the Transportation chapter of the DEIS. ADA compliance issues would be addressed at the design and permit stage of the project.

Comment *020-718* The public and environmental protection should be a priority and yet this DEIS is negligent in addressing these issues in a forthright, comprehensive and objective manner. The citizens submitted, in the "Scoping Process", comments requesting an in-depth study to ensure the safety and well being of the community and their requests were not fulfilled by this DEIS.

Response The EIS is intended to identify potential impacts from implementation of the project and identify potential mitigation measures. Project safety issues would be taken into account during the planning, design and permitting phases of the project.

Comment *020-709* The DEIS Public Utilities Section is mandated to address potential impacts on public services and utilities from the proposed gravel extraction and processing operations on Grouse Ridge. Public Services include police, fire, and emergency medical services. Utilities include electrical, telecommunications, natural gas, water supply, storm water drainage, sanitary sewer and solid waste services (vol. ii, app. K, pg. 1-1).

Response The FEIS Public Utilities chapter addresses potential impacts to public services and utilities.

Comment *020-677* Determine the cost of police/highway patrol personnel to monitor county roads on 468th Avenue SE, Noah Bend Way and SE 140th SE.

Response Impacts on the King County Sheriff's office are expected to be low. King County provides police patrols and is reviewing this EIS.

3.11.2.1 Construction Impacts

No comments were received on this section of the DEIS.

3.11.2.2 Operation Impacts

Comment *020-676* Determine the additional cost to pay for police/highway patrol personnel to monitor traffic on 1-90 because of the Grouse Ridge Project.

Response Impacts on the King County Sheriff's office are expected to be low. The EIS is not required to identify the cost for increased services.

Comment *012-116* [DEIS §3.11.2.2; p. 3.11-6] refers to 14,000- and 15,000- to 20,000-gallon diesel fuel storage tanks. Can residences in areas around Middle Fork Road be safely evacuated if there is a fire or explosion in these or the proposed 10,000-gallon propane tank? Evacuation plans need to be provided.

Response The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and

operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities. Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project. The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

Comment *012-120*

Given the proximity of residential and commercial properties --including gas stations, motels and, in the future, schools-- the EIS should include a detailed analysis of what are called "alternative flammable release scenarios," that is, cracked tanks, broken valves and pipes, and the like, that can lead to fire and explosions. EIS authors and plan proponents are directed to the "EPA Risk Management Program Guidance for Propane Storage Facilities" (40 CFR PART 68) [cited herein as EPA CEEP (1998)], which describes proper risk management analysis for on-site storage of propane. See especially Chapter 2, "Offsite Consequence Analysis."

Note that Federal statutes covering hazard assessment specifically reference so-called "public receptors" for these kinds of analyses and they include groups that are in immediate proximity to the proposed Lower Site: "public receptors" include "offsite residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release [40 CFR §68.3]."

Response

The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities. Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project.

The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance

activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

***Comment** 019-360*

The DEIS has proposed the usage of a 10,000 gallon propane storage tank with an annual usage of 300,000 gallons for the Asphalt Batch processing in lieu of natural gas (Vol. II, Appendix K, Fuel, page 3-3). The DEIS did not and the FEIS should address the location, safety monitoring, frequency of monitoring and emergency service plans.

***Comment** 019-362*

The DEIS addressed the proposal to use diesel fuel for "fueling vehicles" with an on site 14,000 gallon storage tank (Vol. II, Appendix K, Fuel, page 3-3). The DEIS did not and the FEIS should address the location, safety monitoring, frequency of monitoring and emergency service plans.

Response

The DEIS and FEIS documents reflect the proponent's commitment to comply with applicable standards and regulations for fuel and chemical storage. The propane tank would be located in the base of the mine pit at the Lower Site. The Environmental Health Section of the FEIS discusses general fuel and chemical storage quantities, concerns and mitigation. Specific evaluations regarding final fuel and chemical storage locations within the property, safety monitoring, frequency of monitoring and emergency service plans are not part of the EIS process, and are appropriately addressed during the design phase of the project.

***Comment** 019-359*

The DEIS did not and the FEIS should provide a worst-case scenario for the collective spectrum of hazardous and flammable sources located on the project site (in case of fire, etc). This should include all storage tanks, trucks and maintenance items/machinery. To include cumulative impacts and their mitigations for each phase within each Alternative. Comparisons between each should be provided.

Response

The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities. Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project. The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

***Comment** 012-114*

[DEIS §3.11.2.2; p. 3.11-6] refers to 14,000- and 15,000- to 20,000-gallon diesel fuel storage tanks. The DEIS does not address how local fire and emergency services could deal with a fire associated with these storage facilities. What are the risks, impacts and mitigations?

Response The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities. Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project. The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

Comment *012-115* The DEIS is mute on the issue of brush fires and forest fires. What additional fire risks are associated with mining and associated support activities? What would be the impact of a large-scale brush fire on slopes already weakened by mining? Does mining activity hinder fire-fighting actions? Should some or all mining activities be curtailed during certain high-risk drought periods? What are the impacts and mitigations?

Response The gravel mining activities of the proponent are not expected to pose a significant additional risk of brush or forest fires. The gravel extraction activities require removal of the vegetative cover that could provide fuel for a brush fire, creating large fire breaks around the mining facilities and the machinery operated within the site. The excavations will be recessed below and surrounded by berms and ridge lines, creating a buffer area between forested portions of the property. County fire service providers have noted some mitigation-related considerations during the EIS process, but have not indicated that this proposed operation poses any significant risk compared to existing residential/commercial activities in this area.

Comment *019-364* The DEIS also states (Vol. II, Appendix K, Fuel, page 3-3) that "If diesel fuel is chosen to fuel the Asphalt Batch Plant, another 15,000- to 20,000-gallon storage tank is necessary. The DEIS did not and the FEIS should address the location, safety monitoring, frequency of monitoring and emergency service plans.

Response The DEIS and FEIS documents reflect the proponent's commitment to comply with applicable standards and regulations for fuel and chemical storage. The Environmental Health Section of the FEIS discusses general fuel and chemical storage quantities, concerns and mitigation. Specific evaluations regarding final fuel and chemical storage locations within the property, safety monitoring, frequency of monitoring and emergency service plans are not part of the EIS process, and are appropriately addressed during the design phase of the project.

Comment *020-134* The FEIS should address the availability of potable water to customers of Sallal Water Association, given the possibility that up to 44,000 gallons of fuel could potentially contaminate one or more aquifers.

Response The impacts of a potential fuel spill are addressed in the Environmental Health chapter of the FEIS. The FEIS recommends that Cadman, Inc. prepare a contingency water supply plan that would be implemented if impacts to groundwater quality or quantity occur as a result of the gravel operation.

Comment *019-649* Should the project choose to select either Tanner Electric, or, Bonneville Power, the FEIS, should clearly define how it will not exceed the 2% standards for dropouts, when those standards cannot be met with existing demand.

Comment *019-650* The FEIS should impose as a condition of the grading permit that should the project select Tanner Electric, or Bonneville Power, and the projects use cause the level of service to exceed the 2% standard, that the mining operation reduce output until the standard can be maintained. If the standard cannot be met within one week, the lower site should be shut down until such time as the standard can be met consistently.

Comment *020-808* Should the project choose to select either Tanner Electric or Bonneville Power the FEIS should clearly define how it would not exceed the 2% standards for dropouts, when those standards cannot be met with existing demand.

Response The FEIS does not impose conditions; it documents issues and whether mitigation can prevent impacts. The electric company providing power to the project and proponent would be held to all applicable industry standards.

Comment *019-368* The DEIS did not and the FEIS should provide the location of the septic system and it's proximity to groundwater, springs, surface water, wells and aquifers.

Comment *019-369* The DEIS did not and the FEIS should provide preventative measures for the septic system to prevent contamination to groundwater, springs, surface water, wells and aquifers.

Response Septic system design should be addressed during the design phase of the project, and not in the EIS. The septic system would be designed in compliance with applicable regulations.

Comment *019-683* The DEIS failed to and the FEIS should address in-depth Fire, Police and Emergency Services for each phase within each Alternative and compare the differences. The worst-case scenarios, cumulative impacts and mitigations should be provided for the aforementioned.

Response Impacts to Fire, Police and Emergency Services are addressed in Chapter 13, Public Services and Utilities, of the FEIS. The FEIS also identifies appropriate mitigation measures.

Comment *019-376* The DEIS did not and the FEIS should address the projected occurrences, impacts, preventative measures and mitigations for power quality issues (i.e. flickering and dimming) caused directly or indirectly by the project, to area businesses, schools and residences. This should be provided for each phase and each alternative. Comparisons should be provided between each.

Response The electrical utility and proponent will abide by industry standards for power quality. Mitigation measures in the EIS are suggestions to help achieve that standard. Further

analysis of the potential impacts is not necessary. The EIS does not set forth requirements for the project; rather, it is a document used solely to identify potential impacts.

***Comment** 019-375*

The DEIS did not and the FEIS should address all treatment and preventative measures to "by-product or process" water and the drainage control to prevent contamination to groundwater, springs, surface water wells and aquifers. This should be provided for each phase within each alternative. Comparisons between each should be provided.

***Comment** 019-684*

The DEIS failed to and the FEIS should address in-depth cumulative impacts and extensive mitigations in the event of a disaster caused directly or indirectly by the project to the groundwater and aquifers. This should be covered in Public Utilities section as well as the Water section.

Response

Chapter 6, Water, of the FEIS identifies potential impacts to the aquifer, springs and wells in the vicinity of the project site. This chapter also addresses potential impacts related to the infiltration of storm water and how the water would be treated prior to infiltration. Mitigation measures to prevent impacts to water resources are also described in Chapter 6. The FEIS also recommends that Cadman, Inc. prepare a contingency water supply plan to provide a high quality source of water to the Sallal Water District. In the unlikely event that the quantity or quality of groundwater is impacted as a result of the gravel operation, then the plan would be implemented.

***Comment** 019-681*

The DEIS states a 14,000 gallon diesel fuel storage tank for refueling, a 15,000 to 20,000 gallon diesel fuel storage tank for Asphalt Batch Processing during may used (as an alternative to natural gas) and another 10,000 gallon propane storage tank for Asphalt Processing. The DEIS estimates that only 55 gallons of contaminant would be released. This does not represent a worst-case scenario. The DEIS fails to indicate how emergency services will be able to handle a worst-case condition. Due limited, equipment, water and accessibility to the site.

Response

The FEIS addresses the nature and quantity of fuel and chemicals that may potentially be stored at the project site. It also discusses engineering controls, including double-walled storage tanks and secondary containment structures, and institutional controls that are typically implemented for this type of industrial operation. Prudent design and operation by the proponent includes preplanning for typical spill events (small quantity, greater potential frequency of occurrence) and larger releases (worst case scenarios) at the site, such as a large fuel spill or an explosion. Cadman's proposal includes a commitment to use effective prevention and control technologies for its industrial fuel and chemical storage, and comply with applicable regulatory requirements. Federal and state regulations define specific planning and design considerations that are required for these activities. If a large spill or explosion occurred, contingencies and emergency response planning requirements developed by Cadman in accordance with these regulations would mitigate impacts and ensure that the proponent addressed its responsibilities. Issues such as emergency service plans, and coordination with local emergency service providers, should be further evaluated during the design phase of the project. The Environmental Health Section of the FEIS discusses general fuel and chemical storage concerns and mitigation. A detailed evaluation of the design and compliance activities to carry out the approved project is not part of the EIS process. If the project proceeds, these activities will occur in later phases of the project development.

Comment *019-361* The DEIS did not and the FEIS should address what would be the water source utilized in the event of an emergency for the above item. The FEIS should provide a worst-case scenario.

Comment *019-363* The DEIS did not and the FEIS should address what would be the water source utilized in the event of an emergency for the above item. The FEIS should provide a worst-case scenario.

Comment *019-365* The DEIS did not and the FEIS should address what would be the water source utilized in the event of an emergency for the above item. The FEIS should address a worst-case scenario.

Comment *020-135* The FEIS should provide the water source to be utilized by fire and emergency services.

Response Fire water supply would be the same as the primary water supply source. The water would be supplied by a well and stored in an underground vault at the Lower Site. The proposed source of water for the site is discussed in further detail in the Water chapter of the FEIS.

3.11.2.3 Cumulative Impacts

Comment *019-350* The DEIS accurately acknowledges "The North Bend area is experiencing rapid growth" and "Growth is also occurring in the immediate area of this project, including a new school, and a commercial office park near Truck Town (vol. II, Appendix K, page 2-10 table 2; vol. II, Appendix L, page 2-31, section 2.6.2, 2.6.2.1, 2.6.2.2, and page 2-32, section 2.6.2.2). However, the DEIS fails to provide for this known growth when considering cumulative impacts throughout the entire section.

Response The increment of impact to services due to growth is minor when compared with overall growth in the area. Public services and utilities are expected to continue to grow to match demand from the community. Potential impacts to police, fire and emergency services are documented in the EIS. Significant and unavoidable cumulative impacts were not identified.

Comment *020-712* Comparisons for the proposed project do not include the aforementioned known growth factors nor the planned/permitted residences, planned/permitted churches and planned/permitted commercial operations etc. in the factoring of the impacts analysis. Additionally, the projected future growth for the aforementioned is not factored and does not provide a meaningful analysis of the impacts.

Comment *020-731* The FEIS should address the impacts of the project on future growth of schools, commercial businesses and residences.

Response The EIS is not intended to be a master-planning document. It is used to indicate potential impacts to the site and its surroundings. The scope of the EIS is limited to identifying known future projects in the immediate vicinity and the cumulative impacts of overall development. The EIS was not intended to identify all potential future growth in the North Bend area.

3.11.2.4 Mitigation Measures

Comment *011-007*

The DEIS proposes the following mitigation measures: fencing, emergency medical equipment unique to the Project, training of emergency response staff in the use of specialized medical equipment, and security services during non-working hours. See DEIS, Section 3.11.2.4 (page 3.11-11). The District is concerned that these mitigation measures will not sufficiently protect school children. If one of the Exit 34/Lower Site alternatives is selected, the District urges the County to require Cadman to provide site security services during the day, when children are most likely to be present. Employees on the site may not notice a child entering or wandering around on the site during working hours. A security guard could help prevent any unauthorized and dangerous exploration of the site.

Response

Site security concerns addressed in the DEIS and the FEIS, and the identified mitigation measures, are intended to evaluate whether the proposed gravel operations can be compatible with the surrounding community and its activities. Specific site security measures should be developed during the design phase of the project through discussions between Cadman, King County and the North Bend Community.

Comment *011-013*

The Gravel Operation will also increase demands on electrical energy services and water supplies in the area. The DEIS proposes measures to ensure that local power and water supplies are not adversely affected. See DEIS, Section 3.11.2.4 (page 3.11-11); Section 3.4 (page 3.4-47). The District urges the County not to allow development of the Lower Site unless such protective measures are taken.

Response

The electrical utility and the proponent will have to abide by industry standards for power quality. Mitigation measures in the EIS are suggestions to help achieve that standard. The EIS does not set forth requirements for the project; it is a document used to identify potential impacts.

Comment *020-742*

The DEIS does not provide mitigations to prevent degradation of services and identify who bares the burden of cost for needed improvements or preventative measures.

Response

The ability of public services to absorb added use due to the project is addressed in the EIS. The DEIS and FEIS propose mitigation measures. Impacts to public services are mitigatable; therefore, no degradation is expected. If impacts are directly related to the project, then the proponent is responsible for mitigation.

3.11.3 Significant Unavoidable Adverse Impacts

No comments were received on this section of the DEIS.

3.12 TRANSPORTATION

Comment *073-027*

Summary: Accessibility And Portrayal Of DEIS Transportation Data is a classic rejoinder, when faced with multiple errors and inconsistencies of the types outlined in the last few pages, to say they are proofreading issues or editorial issues or expected characteristics of a draft document. In fact they are all content errors, some significant, some less significant, that limit the acquisition of meaning as far as an audience is concerned.

They are not the only examples in the Transportation portions of the DEIS. All of them add up and add up to make the Transportation portions of the DEIS less accessible.

Was that the intention? If the answer is, Yes it was...well -- that answer takes a big step towards malfeasance.

So the answer is, No it was not. Well -- that answer raises such issues as competence, the level of standards applied to yield the output, the grasp of the subject matter in relation to the requirements of a broad-based audience, even the seriousness with which the EIS process is taken by the originators of the Transportation portions of the DEIS. It is disheartening, to understate it in the extreme, to consider that tax dollars, in the big-picture sense, are funding the lead agency for the DEIS in the delivery of a document governing a critical, public environmental process, when that document displays such marginal or mediocre qualities.

Response

Comment acknowledged. We have made some format changes in an attempt to make the FEIS a more reader-friendly document. Note that the EIS is prepared by King County and is a King County decision-making document. Regarding terminology, SEPA does not require a quantifiable risk analysis of impacts. Of necessity, subjective terms such as “most likely,” “unlikely,” etc. are used based on the professional experience of the experts who prepared each section.

Comment *073-200*

King County Intersection Standards

King County C 14.65.010:
There are three (3) components of the Integrated Transportation Program. These components are as follows:

C. Intersection Standards (IS) by which King County will evaluate intersections affected by new development to assure safe and efficient operation and that improvements to mitigate the adverse impacts of such developments are completed, in accordance with tile State Environmental Policy Act (SEPA), King County C 20.44.080, and the King County Comprehensive Plan.

King County C 14.65.020:
E. Application of Standards. The standards set forth above shall be used in the ITP as follows:
3. For the determination of traffic impacts for the SEPA evaluation of a proposed development, the Intersection Standard will be used, as well as other criteria for bicycle/pedestrian, traffic congestion, safety, and road design.

King County C 14.80.030:
For the purposes of SEPA and this chapter, a significant adverse impact is defined as

any traffic condition directly caused by proposed development that would reasonably result in one or more of the following conditions at the time any part of the development is completed and able to generate traffic:

A. A roadway intersection that provides access to a proposed development, and that will function at a level of service worse than "E", and that will carry thirty (30) or more added vehicles in any one hour period as a direct impact of the proposed development, and that will be impacted by at least twenty (20) percent of the new traffic generated from the proposed development in that same one hour period; or

B) A roadway intersection or approach lane where the director determines that a hazard to safety could reasonably result.

Response Comment acknowledged. The proposed NBGO would satisfy the "thirty or more added vehicles" criterion of King County C 14.80. 030 (A).

Comment *073-296* Has a project application been submitted to the Federal Highway Administration, Secretary of Transportation for approval of the proposed gravel pit on a National Scenic Byway corridor?

Comment *073-303* To comply with designation criteria and achieve funding for the Interstate 90 National Scenic Byway Program was the Middle Fork of the Snoqualmie River Valley: River Corridor Public Use Concept Plan used for the Upper Snoqualmie Valley in the Corridor Management Plan?

Comment *073-310* Explain how a gravel mining, asphalt and concrete facility on the Interstate 90 corridor is consistent with, intends to foster and will carry out a Corridor Management Plan consistent with TEA-21 as an Eligible Project.

Comment *073-313* Has the Secretary of Transportation and the National Scenic Byway Program been provided with information about the proposed project and informed of the location of the proposed gravel mining, asphalt and concrete manufacturing facility on a Scenic Byway Corridor since designation?

Comment *073-316* The increase of proposed project truck traffic is not going to leave the pit sites and just disappear, they will be traveling on a National Scenic Byway. Trucks, buildings, aggregate surge piles, light, glare, smoke, steam and dust will be visible from Interstate 90. These factors are a potential safety hazard rather than a safety improvement.

Explain how gravel mining truck traffic is consistent with and is construed as safety improvements to the Interstate 90 National Scenic Byway.

Comment *073-318* Explain how the existence of the proposed gravel pit will comply with the construction and "restrictions" of pedestrians, bicyclists, rest area, turnout, highway shoulder improvement, passing lane, overlook and an interpretive facility.

Response The FHWA (through) WSDOT has reviewed the DEIS. The National Scenic Byways program does not place restrictions on land use within scenic corridors.

Comment *020-694* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists in the Exit 34 corridor.

Comment *020-696* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists on SE 140th Street.

Comment *020-698* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for putting a weight or axle limit for traffic on 140th Street.

Comment *020-699* Determine procedures and responsible parties for monitoring and mitigating conflicts with traffic, pedestrians, and bicyclists.

Response King County and WSDOT are responsible to maintain the roadways under their jurisdiction. Vehicle operators are responsible for securing their loads, and operating their vehicles safely.

Comment *019-453* The FEIS must address the following:

Interchange, Intersections, and Traffic Corridors:

Response Impacts to traffic at Exits 34 and 38 are analyzed in the FEIS Transportation chapter.

Comment *019-504* Determine how long will the roadway construction will take and what will the economic impact be on the businesses located at or around Ken's truck town, such as the Edgewick Inn.

Comment *019-507* Determine what the applicant can do to compensate businesses and residents for missed business/inconvenience?

Response SEPA does not require analysis of economic impacts.

Comment *019-533* Analyze the actual congestion caused by truck traffic that currently parks on either side of 468th Avenue SE.

Response Generally, trucks park on the shoulders during Snoqualmie Pass closures and other temporary reasons. These conditions are not part of the EIS analysis.

Comment *019-569* Determine procedures and responsible parties for monitoring and mitigating conflicts with traffic, pedestrians, and bicyclists.

Response See mitigation measures in the Transportation Chapter of the FEIS indicating Cadman Inc.'s responsibilities.

Comment *019-570* Determine procedures for large trucks that find themselves in situations where it is necessary to turn around or back up within the Exit 34 corridor.

Response Developing these types of procedures is not part of EIS. Gravel trucks would be maneuvering on-site.

Comment *020-184* Identify and describe how the offsite improvements required as mitigation measures related to State of Washington Department of Transportation roads, utilities, storm

water conveyance systems, water retention, detention and bio-filtration systems (including but not limited to the Exit 34 intersection of Interstate 90) required for the development and operation of the proposed Grouse Ridge Project will comply with the provisions of the Salmon Recovery Office of the State of Washington.

*The DEIS did not address this item for each Alternative.

Response Salmon are not identified as potentially occurring on or near the project site. Please see the FEIS Plants and Animals chapter for a discussion of impacts to threatened and endangered species.

Comment *020-185* Identify and describe how the aforementioned improvements will comply with the provisions of the Washington State Department of Natural Resources, Washington State Department of Ecology, Washington State Department of Fish & Wildlife, Washington State Department of Transportation, Puget Sound Water Quality Management Plan and King County Water Quality Management Plan requirements.

*The DEIS did not address this item for each Alternative.

Response Improvements would be built in accordance with all regulations.

Comment *020-516* The FEIS should address in further detail the mitigation measures and the implementation schedule proposed for widening of 468th Ave. and the transition from 2 to 3 lanes, as well as the installation of 8' wide paved shoulders on 468th Ave.

Response The FEIS addresses 468th Avenue SE mitigation measures required for each alternative.

Comment *020-519* Will this be the result of regular washing operations? (Refer to hard copy for photo, pg 90)

Response Truck washing would be done on the Lower Site, not 468th Avenue SE.

Comment *020-534* Trucks parking on North Bend Way and 468th Avenue SE. (Comment refers to a photo in the comment letter.)

Response Comment noted. The pictured parking is informal.

Comment *020-557* The DEIS states, "Local truck traffic was observed on SE 140th Street." [DEIS Vol. I, page 3.12-4, Section 3.12.2.2]. The FEIS should address where is the supporting baseline data to substantiate the types and volume of truck traffic on this local access street?

Response See Table 3.12-2 in the DEIS for the supporting data. Traffic data was gathered at 468th Avenue SE/140th Street/SE Middle Fork Road.

Comment *073-020* It should read: "Figure 3.12-9 shows...generated volumes (see Figure 3.12-8) forecasted volumes (see Figures 6, 7 and 8 in the..."This is a spot in the Transportation

portions of the DEIS where the reader can get a pair of hands on the data, and the DEIS bungles the reader's access.

Response Figure titles clearly indicate what is represented, whether it is existing peak-hour volumes, projected peak-hour volumes, or projected generated volumes.

Comment *020-555* Winter congestion on a day without Pass closure (Refer to hardcopy for photograph, pg. 99)

Comment *069-005* Traffic is crazy this summer at off Exit 34. The additional trucks will create a traffic and safety bottleneck. Since trucks are big and those of driving fuel efficient cars are much smaller - we know who will win and who will get their way.

Comment *073-125* Summary: Perspective On DEIS Transportation Data

DEIS Transportation Data: Done And Not Done

Project Truck Trips
In the Transportation portions of the DEIS, there are project truck trips and analysis and discussion of project truck trips.

DEIS Transportation on project truck trips -- Done.

Comment *073-133* DEIS Transportation adopting qualities and quantities of Capacity and its Relative Impact, as factors or results of an analytical method, and portraying the impacts they represent relative to baseline conditions --Done.

Comment *073-142* Back To Cases.

The continuous case (and qualities and quantities of Magnitude, Acceleration, Duration, Persistence, Concentration, Frequency, Relative Impact, Capacity, and portraying the impacts they represent relative to baseline conditions, with qualitative and quantitative analogies to bring data down to earth, as distinguished from mere capacity, which is the simple science of the proverbial five-pound bag) -- the continuous case is more a measure of overall impact than analysis on point data or point circumstances representing boundary conditions. It is actually easier, a less demanding effort, to analyze and to portray a condition or circumstances based on boundary conditions, because the audience tends to be captive in the absence of an alternate approach. Analysis of point data or point circumstances to frame a perspective is a limitation of vision, and calls for -- in the sense of active intent -- a limitation of vision in an audience.

Focusing an audience is important in portraying information, but leaving an audience without varieties and choices of perspective in doing so contravenes a process that requires openness and evenhandedness. The absence of consistent, explicit and detailed quantitative analysis and discussion in the Transportation portions of the DEIS on a variety of topics does not mean those topics do not have significant or adverse or unavoidable impacts that need to be considered in an explicit and detailed quantitative analysis and discussion, and in a decision-making process.

Comment *073-145* Enough Data
The analysis and discussion provided in the present Section OTD on transportation data has not provided anything the analysis and discussion of the Transportation portions of the DEIS could not have provided. There is the same baseline data. There

are sources in the transportation literature; or there is acquired knowledge through education and experience in the transportation engineering profession. There is the application of uncomplicated mathematics. DEIS Transportation was a year or two in the making?

***Comment** 073-147*

Calling All Project Trucks. Figures 3.12-3 and 3.12-4 portray configurations of aggregate- and asphalt-hauling trucks. Tare weights and dimensions are labeled. A GVW-to-horsepower ratio is provided in Figure 3.12-4 only. There is a table in Figure 3.12-4 that provides additional data (some applicable to California, as are some dimension labels in the Figure), but it is not afforded further discussion. There are no Figures portraying concrete-hauling trucks.

***Comment** 073-150*

Low-Speed Off trackers.

"The largest truck Washington permits on its roadways is a smaller version of the Rocky Mountain Double, with a total trailer length of up to 68 feet and a maximum weight of 105,500 pounds."

A Rocky Mountain Double is a tractor pulling two daisy-chained trailers -- 3 independent, moving segments -- over 7 axles. A typical combined trailer length of the two trailers is 81 feet, the first at 48 feet, the second at 28 feet, with 5 feet of connecting tongue visible between them. Typically the full length of a Rocky Mountain Double, tractor plus trailers, is 90 to 95 feet (a Boeing 737-700 is 110 feet long).

A B-Train Double is a tractor pulling two daisy-chained trailers -- 3 independent, moving segments -- over 8 axles. A typical combined trailer length of the two trailers is 61 or 71 feet, both at 28 feet or both at 33 feet, with 5 feet of connecting tongue visible between them. Typically the full length of a B-Train Double, tractor plus trailers, is 70 to 75 feet or 80 to 85 feet, depending on trailer configuration.

The combination truck depicted in Figure 3.12-4: Typical Belly Dump Truck, "that would be moving mined materials from the proposed project site" is a tractor pulling two daisy-chained trailers -- 3 independent, moving segments -- over 8 axles. The combined trailer length of the two trailers is 65 feet (80% of the combined trailer length of a Rocky Mountain Double; 107% or 92% of the combined trailer length of a B-Train Double, depending on trailer configuration). The two trailers are both approximately 28 feet, with approximately 9 feet of connecting tongue visible between them (virtually identical to the trailer configuration of a B-Train Double). The full length of the Typical Belly Dump Truck is 81 feet (85% to 90% of the full length of a Rocky Mountain Double; 108% to 116% or 95% to 101% of the full length of a B-Train Double, depending on trailer configuration). The Typical Belly Dump Truck is comparable to a Rocky Mountain Double (as a worst case) and virtually identical to a B-Train Double (as a typical case) in critical characteristics that determine maneuvering capability -- and that effect safety.

The Rocky Mountain Double and the B-Train Double are two of four types of combination trucks called Longer-Combination Vehicles (LCVs).

***Comment** 073-151*

DIAGRAM 3
COMMON LCV CONFIGURATIONS

LCVs are controversial from a number of standpoints. "Nationally, two out of three AAA members oppose the expanded use of LCVs."

Comment *073-152* Low-Speed Off trackers: Traffic Operations And Roadway Geometry

"It is generally agreed that proper roadway design and vehicle operation requires that no incursion into the path of vehicles traveling in opposing directions of flow be allowed.

"The greater length and weight of LCVs makes them incompatible with mixed-vehicle traffic.

LCVs have problems accelerating and maintaining speeds on upgrades."

"Because LCVs have difficulty maintaining speeds on uphill grades, they can create 'rolling roadblocks' [picture a Typical Belly Dump Truck ascending the grade of 468th Avenue northbound from the I-90 Ramps to 146 Street, with a platoon of vehicles behind it]."

"...operations at rural...intersections. The off tracking problems of LCVs have a significant impact at intersections."

"LCV handling and maneuverability problems are magnified off the interstates. At intersections Caltrans found that Rocky Mountain Doubles required two full lanes and sometimes more to complete a left turn [picture a Typical Belly Dump Truck turning left onto 468th Avenue from a full stop on 146th Street, crossing two lanes of oncoming opposing traffic, or three lanes of oncoming opposing traffic per the mitigation idea to widen 468th Avenue to include a center, two-way left-turn lane]. That doesn't leave much room for passenger cars."

"...when LCVs operate on roads with moderate to severe curves [like 90-degree intersections, e.g., 468th Avenue/146th Street], pavement widths should be significantly increased to prevent encroachments into an adjacent lane or dropping a wheel off a pavement edge."

"Truck combinations with long trailers are often prone to producing relatively large amounts of off tracking beyond that provided for in the [AASHTO Green Book].

"At-grade intersections pose the most serious problems for off tracking. To accommodate large trucks adequately, AASHTO recommends curb radii of 40 feet or more, yet this is less than the minimum design turning radii recommended by AASHTO for tractor semi trailers and [another type of LCV]. As a result, AASHTO also recommends the use of three-centered compound curves or simple curves with tapers for trucks negotiating sharp turns such as intersections.

Response Comments noted.

Comment *073-154* But some truck combinations, when confronted by a 90-degree intersection with a 45-foot curb radius, may encroach into adjacent lanes on the exiting or receiving leg of the intersection. One study showed that Rocky Mountain Doubles...would be forced into opposing traffic lanes far more often than semi-trailers to avoid running over curbs when negotiating right turns at intersections [picture a Typical Belly Dump Truck northbound on 468th Avenue turning right onto 146th Street]."

Response The specific curb return radius recommended in the mitigation section of the DEIS was removed and replaced with a truck turning template analysis to be completed as part of the design during permitting.

Comment *073-206* HCM 1994 itself states its limitations and makes its disclaimers, including noting the results of its calculation model should in no way mandate specific decisions or implementations, or be the only input to decisions or implementations.

Comment *073-222* 2.4 Transportation Response Summary

There is much to summarize. See above, again:

- Summary: Derivation Of Data
- Summary: Accessibility And Portrayal Of DEIS Transportation Data
- Summary: Pavement Conditions
- AM And PM Peak Hours: Answer
- Summary: Perspective On DEIS Transportation Data
- Summary: Off tracking
- Summary: Level Of Service (LOS) Analysis Issues
- Summary: Safety Issues
- Summary: Mitigation Ideas Issues

Based on the veracity of these summaries, DEIS Transportation is best used as fire-starter.

Comment *073-229* Section 3.12.14 tries to assert, in conclusion to all of DEIS Transportation:

"No significant unavoidable adverse impacts from transportation are expected. "A stronger, more confident statement in conclusion to all of DEIS Transportation would be:

There will be NO significant unavoidable adverse impacts from transportation. But this is not the statement that concludes it all.

The assertion that does concludes DEIS Transportation is like saying a very large asteroid probably won't hit in the Exit 34 environs and wipe it out, but there may be earthquakes, tornadoes and tidal waves there. But you won't notice them. Capacity analysis seems to say so.

Comment *115-013* p. 2-36, 2.6.2 Exit 38/Homestead. We do not see any indications in the DEIS of some of the supposed Concerns Hart Crowser had about Exit 38. A brief description of some of their supposed concerns would be useful and enlightening to those of us who do not have the Hart Crowser report. Again, this points to incompleteness on the part of Dames and Moore.

Comment *115-067* p. 3.12-49, 3.12.14. Of course, are we surprised that "no significant unavoidable impacts from transportation are expected?"

Response Comments noted.

Comment *127-095* On the weekends when the peak traffic is at its highest in that area due to tourist traffic on the weekends. That whole intersection is a complete mess as it is. And as an additional mitigation measure, I would like to see no operation on the weekends.

Response Additional counts were done verifying weekend volumes are less than weekday volumes.

Comment *127-110* And I would like King County to come back like they did on the first phase and stand in front of all of us and be able to say it would be okay to put their kids on a bus on 468th or have their kids in a school or worry about trucks stopping. And in the event of an emergency, are you going to look in one of these family's faces and say, it is okay.

Comment *140-004* The traffic on the roads of the trucks will overwhelm our community with dust and diesel fumes.

Response Comments noted.

Comment *020-572* Determine the funding sources for Exit 38.

Comment *020-663* Indicate whether or not there are any analogous intersections to Exit 34 anywhere in the U.S. that can be presented as a successful example of similar traffic flows to what is being proposed by the Grouse Ridge operation.

Response Exit 34 is a typical interstate intersection and traffic modeling can be conducted.

Comment *020-665* Analyze the cumulative effect of snow and other materials dripping/falling off of trucks idling on 468th Avenue SE while waiting to make turns, entrances, exits, etc.

Response Trucks would be washed before leaving the Lower Site. This should minimize any site-related impacts in the off-site areas.

Comment *020-666* Study the likely impact on accidents and traffic citations from a large increase in traffic at Exit 34. How would these projections change compared to the proposed operation being located at Exit 38?

Comment *020-668* Determine the likelihood of accidents as a result of large truck traffic mixing with passenger vehicles getting on and off I-90 at Exit 34?

Comment *020-667* Determine the likelihood of accidents as a result of large truck traffic mixing with passenger vehicles on 468th Avenue SE.

Response That accidents would increase in proportion to traffic volume increases is assumed.

Comment *020-671* Estimate the number of people that will be seriously injured or killed on North Bend Way, or turning on or off of North Bend Way, over the course of 25 years of operation.

Comment *020-672* Estimate the number of people that will be seriously injured or killed getting on I-90 Westbound at Exit 34 over the course of 25 years of operation.

Comment *020-673* Estimate the number of people that will be seriously injured or killed getting off of I-90 Westbound at Exit 34 over the course of 25 years of operation.

Comment *020-674* Estimate the number of people that will be seriously injured or killed getting on I-90 Eastbound at Exit 34 over the course of 25 years of operation.

Comment *020-675* Estimate the number of people that will be seriously injured or killed getting off of I-90 Eastbound at Exit 34 over the course of 25 years of operation.

Comment *020-669* Estimate the number of people that will be seriously injured or killed on 468th Street, or turning on or off of 468th, over the course of 25 years of operation.

Comment *020-670* Estimate the number of people that will be seriously injured or killed on 140th, or turning on or off of 140th, over the course of 25 years of operation.

Response An estimate of this type is not standard procedure or required.

Comment *020-680* Determine impact of the Lower Site on school bus routes as compared to Exit 38.

Response With the addition of two schools, more buses would use Exit 34 than Exit 38. School traffic volumes were included in the FEIS analysis.

Comment *022A-003* I observed, and the video tape shows, a substantial amount of gravel being left on the roads by the gravel trucks in the vicinity of the intersection of 468th Avenue SE (Exit 34) and SE 146th Street. Gravel was also left by the gravel trucks on the surrounding roads and intersections. Gravel on these roadways creates a substantial adverse impact to the Edgewick Inn because of aesthetics and potential windshield damage for the management and guests of the Edgewick Inn.

Response The transportation technical report discusses "Special Washing Procedures" recommended of the hauling trucks and their wheels prior to leaving the site to minimize the amount of gravel left behind on the roadways.

Comment *069-006* The new middle school will create additional traffic issues. The kids will also be walking and riding bikes to the convenience stores near the school off exit 34 and this will create grave safety concerns.

Response Comment noted. The school traffic has been included in the traffic analysis for the FEIS.

Comment *073-021* Replicated Factual Errors All LOS analysis results Tables -- there are 11 -- have an invalid movement label. The I-90 WB Ramps/468th Avenue intersection does not have a SB Left movement. It does have a NB Left movement. A riddle of sorts until all the applicable movements at the intersection have been visualized with certainty. 11 annoyances after that.

Response Tables in the FEIS have been revised to reflect intersection movements.

Comment *073-119* [Question: Will the FEIS revamp the Transportation portions of the DEIS by using a set of more robustly-derived and arguably more valid traffic volume growth rate assumptions, as described above?]

Comment *073-124* [Question: Again, will the FEIS revamp the Transportation portions of the DEIS to use a set of more robustly-derived and arguably more valid traffic volume growth rate assumptions, as described above in Growth Rates?]

Response Yes. Base volumes were increased to add schools traffic volume in year 2005. Additional traffic counts were collected.

Comment *073-131* In the text of Section 3.12, Transportation, the word or phrase:

- 'capacity' appears 15 times and more
- 3 times in the context of legal weight load
- 3 times in the context of hauling
- 1 time in the context of queuing
- 8 times in the context of LOS analyses
- countless times in that context because the LOS analyses, which consume a good portion of DEIS Transportation, are capacity analyses

Comment *073-132* In the Transportation portions of the DEIS, there are miscellaneous, scattered pieces of data and discussion that evince qualities and quantities in the guiding list above, but there is no descriptive, analytical or discursive focus on them, besides Capacity.

DEIS Transportation adopting qualities and quantities of Magnitude, Acceleration, Duration, Persistence, Concentration, Frequency, their Relative Impacts, as factors or results of an analytical method, and portraying the impacts they represent relative to baseline conditions, with qualitative and quantitative analogies to bring data down to earth -- Not Done.

Response Baseline conditions are adjusted in FEIS. The VISSIM analysis incorporates some of these qualities, including gap analysis, type of vehicles, typical speed, and frequency.

Comment *073-153* [Question: Is the southeast corner of the intersection of 468th Avenue/146th Street built per these AASHTO recommendations?].

Response No. Mitigation would require reconstructing the curb return radius to meet AASHTO standards.

Comment *019-382* Although the DEIS has identified the planned Middle and Elementary schools to be constructed beginning in 2004, it has declined to accurately account for their impact on traffic volume and safety. The school's exclusion from consideration does the children of WoodRiver, and our surrounding communities a grave injustice. The Snoqualmie Superintendent of Schools, Dr. Richard McCullough details the school specific issues in his letter for the public record. Why should the residents consider the DEIS a viable document when it fails to address the safety of our children?

Response Schools traffic volumes are included in existing 2005 traffic projections. Mitigation requirements for the proposed schools may include pedestrian facilities when the schools are constructed.

Comment *125-006* I ask that you consider the proposed school, the kids, the fact that t his area of North Bend is increasingly used for recreational activities (Twin Falls Park, etc.) Look at the proposed recreations uses along the Middle Fork - the recent acquisitions by King County DNR. Look at the commercial and Industrial uses that are in the preliminary

proposal phases adjacent to Kens Truck Town. This area (like Preston) is a hub that will experience heavy development pressure, new construction, and significant traffic increases.

Response Comment noted. The two schools and a proposed Industrial Park have been added to year 2005 existing traffic volumes in the FEIS. The FEIS Recreation chapter discusses impacts on recreation.

Comment *019-386* The FEIS should address the efficacy of the statement "Extraction would initially occur only in the Lower Site, with material hauled by truck from the site via I-90 at Exit 38." [DEIS Vol. II, Appendix L, page 1-2, Section 1.1.2.2]. The FEIS should indicate that the Lower Site will enter I-90 at Exit 34.

Comment *020-509* The FEIS should address the efficacy of the statement "Extraction would initially occur only in the Lower Site, with material hauled by truck from the site via I-90 at Exit 38." [DEIS Vol. II, Appendix L, page 1-2, Section 1.1.2.2]. The FEIS should indicate that the Lower Site would enter I-90 at Exit 34.

Response Comment noted. The FEIS has been corrected to read I-90, Exit 34.

Comment *127-108* I am tired of us submitting in the scooping process just unbelievable hazards of traffic, with kids getting picked up off of 468th and fighting at that time when there is a pass closure, fighting to round buses to be able to get on them safely because trucks are parked illegally up and down, and we don't have the manpower right now to ticket them.

Response Project trucks would not park along 468th Avenue SE during pass closure or any other time.

Comment *020-260* The FEIS should address the width of the maintenance road and whether it will be widened to King County standards to permit truck traffic in both directions.

Response The maintenance road in the conveyor corridor would be 10 feet wide with pullouts. The private road would not fall under King County road standards.

Comment *073-203* King County C 14.80.060:

The procedures set forth in this chapter do not limit the authority of King County to deny or to approve with conditions the following:

B. Any proposed development or zone reclassification if King County determines that a hazard to safety would result from its direct traffic impacts without roadway or intersection improvements, regardless of level of service standards.

One reading of this is: King County has the authority to deny any proposed development whose traffic would present a safety hazard, regardless of level of service standards, and without taking into account any proposed roadway or intersection improvements.

Response Comment acknowledged.

Comment *065-003*

The Driver Mentor Program is a very unique program. The different site employees vote for a driver to be their mentor on training classes. The mentor not only discusses project safety issues, but he/she also discuss current safety, environmental, and job site issues, such as: speed limits, where to enter/exit the job site, etc. They make sure that the other drivers always make a monthly inventory and inspection of required materials that are suppose to be on the truck at all times. Such as:

1. First Aid Kits
2. 5-gallon Emergency Spill Kit, in case one of the hydraulic lines brake
3. Fire Extinguisher
4. Road Hazard Triangles and/or Flares, etc.

Response

The Driver Mentor Program is mentioned in the transportation technical report document.

Comment *073-126*

Project Truck Tonnage

There is project truck tonnage: transported quantities, empty-weight project trucks, project trucks carrying transported quantities.

In the Transportation portions of the DEIS, specifically in the text of Section 3.12, there are zero occurrences of the word 'tonnage' -- there are, however, 41 occurrences of the word 'tons':

- 2 of 41 are part of unique uses in the context of bridge weight limits
- 3 of 41 are identical uses in describing total aggregate mining production in a year
- 2 of 41 are identical uses in describing total asphalt production in a year

It is a stretch to associate these last 5 with analysis and discussion of transported quantities, empty-weight project trucks, or project trucks carrying transported quantities.

- 3 of 41 are identical uses in describing a project truck loaded to the legal load limit
- 1 of 41 is a unique use describing the amount of pit-run aggregate in a year

These last 4 (2 unique) qualify as a level of analysis and discussion in reference to transported quantities, empty-weight project trucks, or project trucks carrying transported quantities in the text of Section 3.12.

30 of 41 are associated with trip rates or trip generation for project trucks, 3 sets (Alternatives 2, 3 and 4) of 10 identical uses.

- 24 of 30 are labels or annotations in three identical Tables
- 3 of 30 are identical uses in describing the average truck load of aggregate
- 3 of 30 are identical uses in describing the average truck load of asphalt

These last 6 (2 unique) qualify as a level of analysis and discussion in reference to transported quantities, empty-weight project trucks, or project trucks carrying transported quantities in the text of Section 3.12.

- Also, Figures 3.12-3 and 3.12-4 present data about empty-weight and loaded-weight

Response The word “tonnage” is used where grammatically correct.

3.12.1 Methodology

Comment *081-001* Referring to Section 3.12 TRANSPORTATION, subsection 3.12.1 Methodology, the statement is made, “"The technical report provides a current traffic baseline for the transportation study area. In addition, it forecasts future traffic conditions in the study area under each of the project's four alternatives."“ However, when one refers to the transportation technical report, section 2.1.5 Planned Improvements, one sees the statement, “Although this report addresses potential traffic impacts of other planned projects in the vicinity of the Proposal on a subjective basis, no attempt has been made to perform quantitative analysis on these projects. Any attempt to, quantify the cumulative impacts of these projects at this point would be purely speculative. “

The former statement clearly leads one to believe that “future traffic conditions” are being estimated taking into consideration all factors. The latter statement, buried in the technical report, indicates no factors other than the annualized increases of 2.5% in auto traffic and 1.5% in truck traffic are considered.

Response The growth factors do account for “all factors” as best as we can predict them based on past trends. The FEIS includes analysis of traffic volumes for two schools and an industrial complex to existing year 2005 traffic data.

Comment *093-001* Referring to Section 3.12 TRANSPORTATION, the validity of the statistics used for calculations are not adequately supported. Without statistically sound data, the conclusions drawn are not reliable.

Reference subsection 3.12.3.3 Traffic Volumes, Future Volumes, page 3.12-8. The DEIS states, “...it was assumed that background (not project-related) auto traffic would increase by 2.5% per year and truck traffic would increase by 1.5% per year.” How were these numbers derived? They are extremely low, based on the growth in North Bend's population in the last 3 years. What are the sources of the data? On what studies are they based?

Reference subsection 3.12.4.2 Peak Hour Analysis, page 3.12-12. The DEIS states, “The AM and PM peak commuter hours were selected for operational LOS analyses. The AM peak hour is from 7 a.m. to 8 a.m., and the PM peak hour is from 4:30 p.m. to 5:30 p.m. How were these hours selected? What traffic count measurements were taken? What dates and days of week were used for the traffic counts? If these peak hours were selected without the benefit of reliable measurements, then all the peak hour traffic flow calculations in the DEIS must be redone.

Response The statistics are based on the HCM (2000) requirements. The base year 2005 traffic for the FEIS includes the proposed two schools and the new industrial building on 144th Street. As stated in the DEIS, the growth rate data from WSDOT is based on historical growth of I-90 traffic in the area from Exit 32 to 38. The methodology for selecting the AM and PM peak hours are in the DEIS Transportation section. A list of days used for traffic counts (including an additional 24-hour count at the end of February, 2001) is in the FEIS Transportation chapter.

3.12.2 Highway and Street Systems

Comment *019-572* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning at Exit 25/Hwy 18, Exit 31, Exit 32, and Exit 34.

Comment *019-574* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning on 468th Avenue SE.

Comment *019-576* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning on North Bend Way.

Comment *019-578* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning SE 140th Street.

Response An EIS is not required under SEPA to discuss economic liabilities.

Comment *019-571* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining safe and efficient roadways at Exit 25/Hwy 18, Exit 31, Exit 32, and Exit 34.

Comment *019-573* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on 468th Avenue SE.

Comment *019-575* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on North Bend Way.

Comment *019-577* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on SE 140th Street.

Response King County has responsibility and liability for the roadways; WSDOT has responsibility for the interchanges.

Comment *019-664* The vague evaluations used for the pavement and maintenance conditions for the Exit 34 off & on ramps and all the associated ingress/egress paths identified by the project do not provide specific impacts, cumulative impacts or mitigations.

Response King County and WSDOT are responsible to maintain the roadways under their jurisdiction. Vehicle operators are responsible for securing their loads, and operating their vehicles safely. A pavement analysis is included as an attachment to the Transportation Technical Report.

Comment *020-701* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining safe and efficient roadways at Exit 25/Hwy 18, Exit 31, Exit 32, and Exit 34.

Response King County and WSDOT are responsible to maintain the roadways under their jurisdiction. Vehicle operators are responsible for securing their loads, and operating their vehicles safely.

Comment *020-627* Determine whether or not the increased truck traffic at Exit 34 will comply with the North Bend Transportation Plan.

Response The Project does not impact the transportation element of the North Bend Comprehensive Plan.

Comment *022B-003* Trucks turning into SE 146th Street from northbound 468th Avenue SE encroach on the opposing lanes. There is no mention in the DEIS transportation section that combination trucks turning right into SE 146th from northbound 468th must encroach on either the southbound lane of 468th or the westbound lane of SE 146th, or both, in order to make a right turn onto SE 146th. I personally observed a fuel truck with a trailer swing across both lanes of SE 146th Street nearly to the north curb face in order to make the right turn. I also viewed a video make by Mr. Lee of haul truck and trailer combinations earlier this year performing the same maneuver. Right-turning trucks which encounter a vehicle approaching the intersection westbound on 146th a must stop, block the intersection, and wait until the vehicle backs up to provide sufficient room for them to complete their maneuver, or, if they have observed a vehicle stopped at the stop line on 146th", they must swing completely across the southbound lane of 468th blocking that traffic stream, in order to make their turn at a much reduced speed.

Comment *022B-004* In addition to creating a significant safety hazard by encroaching on the opposing lanes, these maneuvers further reduce the capacity of both the 468th and 146th approaches to the intersection Please make the appropriate adjustments to the LOS calculations for this intersection to reflect the capacity reductions and additional delays caused by these maneuvers by project-generated trucks.

Comment *022B-005* Safety impacts of maneuvers discussed above. Please describe the likely impacts on vehicle, pedestrian and bicycle safely which would be created by the high volumes of combination haul trucks making the lane encroaching maneuvers described in #3.

Response Roadway improvements for these right-turning vehicles are included in the mitigation measures of the Transportation chapter. The VISSIM analysis takes into account the turning trucks movement.

Comment *073-159* The Exit 34 environs would have long, heavy, unwieldy-enough, multi-component project trucks moving up and down 468th Avenue making right and left-hand turns at 146th Street, in a roadway geometry that may or may not be appropriate for these project trucks...Is the roadway geometry within standards or not? DEIS Transportation does not establish whether it is or isn't, or how it is or how it isn't. Could this be established first, before rushing ahead to re-build 468th Avenue based on some mitigation ideas?]

Response Please see the FEIS Transportation chapter for a discussion of mitigation related to 468th Avenue.

Comment *073-217* 2.3.4 Safety Issues

The most important thing about transportation safety is that it is the most important thing. Everyone knows this. Not everyone practices it.

Safety issues arising from analysis and discussion in this document have been emphasized or elaborated in place elsewhere.

Statistics and horror statistics about accidents and fatal accidents involving trucks and trucks moving tonnage are readily available. The facts are: the accidents happen and the deaths happen. Anyone who has any doubt should look at the following web-sites:

- www.ntsb.gov
- www.bts.gov
- www.trucksafety.org

See also Chapter 8: Safety of TS&W 1998.

The discussion of safety in DEIS Transportation is a high-level evaluation. Safety appears or is implied in various discussion topics. The analytical foundation for this discussion is occasional, but not focused and frequent with regard to the facts and implications of many project trucks moving much tonnage in the Exit 34 environs. However, the obvious conclusion, about the intersection of 468th Avenue/146th Street, is drawn.

"The conflict areas of greatest safety concern are the right-turn movements into the Lower Site from 468th Avenue SE to SE 146th Street and the left turns from SE 146th Street onto 468th Avenue SE heading south to I-90."

Comment *073-218*

Sight Distance

Driving is primarily a visual sensory activity. The other senses may come into play to various degrees -- the sense of hearing second-most -- but if you cannot see, you do not operate a motor vehicle, and if your vision is impaired or blocked, you do not operate a motor vehicle safely.

"Sight distance is a critical element in the design [and use] of streets and highways. It is the length of the highway visible to the driver, as per [three] different applications: stopping sight distance (SSD), ...decision sight distance (DSD), and intersection sight distance (ISD). These elements take into consideration driver performance measures. For SSD, the value is based on the concept of providing enough distance for the majority of the drivers to stop safely to avoid collision with an object in the road [a project truck emerging from 146t Street]. DSD is that distance required for a driver to perceive an unexpected or complex situation [a project truck emerging from 146th Street], arrive at a decision regarding a course of action, and execute that decision in a reasonable manner. ISD involves the distance for a driver approaching an intersection needed for an unobstructed view of sufficient length [a project truck heading west on 146th Street towards at the intersection at 468th Avenue] to permit control of the vehicle [in anticipating a potential obstacle or situation].

"Because at-grade intersections define locations with the highest probability of conflict between vehicles, adequate sight distance is particularly important. Not surprisingly, a number of studies have shown that sight distance problems at intersections usually result in a higher accident rate. The need for adequate sight distance at an intersection is best illustrated by a quote from the [AASHTO Green Book]: The operator of a vehicle approaching an intersection at-grade [a driver heading north on 468th Avenue from the I-90 Ramps area] should have an unobstructed view of the entire intersection

[468th Avenue/146th Street] and sufficient lengths of the intersecting highway [a sufficient view along 146th Street ahead and off to the driver's right] to permit control of the vehicle to avoid collisions. Sight distances at an intersection can be reduced by a number of deficiencies including physical obstructions too close to the intersection. The [presence of visual obstructions near] an intersection [trees, commercial signs] impacts upon the sight distance available to the driver and thus affects the ability of the driver to perceive the actions taking place both at the intersection [a sufficient view of what is ahead at 468th Avenue and 46th Street for a driver approaching on 468th Avenue from the south] and on its approaches [a sufficient view along 146th Street ahead and off to the driver's right]. Since proper perception is the first key to performing a safe maneuver at an intersection, it follows that sight distance should be maximized …

[One study states] that the provision of intersection sight distance (ISD) is intended to give drivers an opportunity to obtain the information they need to make decisions about whether to proceed, slow, or stop in situations where potentially conflicting vehicles may be present [a project truck emerging from 146th Street].

" Sight distance problems usually result in a higher accident rate. [One study] showed the accident rate for 41 intersections with restricted sight distances to be 1.33 accidents per million entering vehicles. This is compared to 1.13 accidents per million entering vehicles for all 232 intersections included in the study, i.e., an 18 percent increase. The large increase in angle collisions (30 percent) at the restricted sight distance intersections was the primary reason for the higher accident rate. [The study concluded] that drivers were unable to adequately view and discern the actions of drivers on the cross streets."

"In another study, a relationship between available sight distance and the expected reduction in accidents a intersections was quantified. The results of the study showed that intersections with shorter sight distances generally have higher accident rates."

"[Collectively, studies] indicate a positive relationship between available intersection sight distance and a reduction in accidents"

Comment *073-219*

Sight Distance at the Intersection of 468th Avenue and 146th Street.

There is one safety issue that is given short shrift in DEIS Transportation. It has the qualities of a show-stopper for the presence of the proposed NBGO in the Exit 34 environs.

Driving northbound, up a small grade on 468th Avenue from the I-90 Ramps area, the intersection of 468th Avenue/146th Street does not begin to become usefully visible until at least the middle of the intersection of 468th Avenue/North Bend Way. And that is if you are looking for it. The street sign on the northeast comer of the intersection of 468th Avenue/146th Street is not discernable in a background of commercial signs and landscape features until then -- again, that is if you are looking for it. The commercial property on the southeast comer of the intersection of 468th Avenue/146th Street has certain features -- trees that will grow larger and larger over the life of the proposed NBGO, and a large on-premise sign. They currently block any useful view along 146th Street ahead and to a driver's right. It is proposed that project trucks would emerge outbound from the proposed Lower Site in Alternative 2. They would do so with significant frequency between 7 a.m. and 4 p.m. for at least 7 months of the year (see Frequency Of Project Truck Traffic On 468th Avenue: Between 7 a.m. and 4 p.m. in Days In All Months above). And they would go virtually unseen by drivers northbound on 468th Avenue south of 146th Street, until virtually the moment they presented themselves at the head of 146th Street at 468th Avenue. Even if these

features were not there, it is not clear there would be a sufficient view along 146th Street in an easterly direction. (This is a lesser practical issue today because 146th Street is relatively untraveled, in the absence of the proposed NBGO.) The intersection of 468th/146th Street is not at all an obvious piece of roadway geometry to sight, even for those who know it is there. For strangers to the Exit 34 environs, or for those who only travel it occasionally, it is even less obvious.

It is not clear the intersection of 468th Avenue/146th Street meets safe sight distance standards of the Washington State Department Of Transportation and/or the King County Department of Transportation, for the use the intersection would undergo by the proposed NBGO.

Traffic signs and pavement markings won't cut it.

[Questions: Does the intersection of 468th Avenue and 146th Street meet all applicable State and County safe sight distance standards? Were applicable safe sight distance standards analyzed and assessed for the intersection as part of the development and preparation of DEIS Transportation, especially for the scenario described above? If so, why wasn't the topic covered in DEIS Transportation, with details in the TTR? If not, will the FEIS incorporate such analysis and assessment?]

See the discussion about safety in King County Intersection Standards above, especially in reference to King County C 14.80.030 (B) and King County C 14.80.060 (B).

Comment *073-220*

Summary: Safety Issues

It would be one Significant Avoidable Adverse Impact if any collisions with project trucks pulling out of 146th Street, and seen too late, killed one person. It would be two Significant Avoidable Adverse Impacts if any collisions with project trucks pulling out of 146th Street, and seen too late, killed two persons. It would be three Significant Avoidable Adverse Impacts.

Response

There does not appear to be a sight distance problem on 468th Avenue SE with the intersection of 146th Street. This issue would be analyzed during the permitting process.

Comment *019-083*

"Access" shall describe the offsite area which includes: all on/off ramps of Interstate 90 at Exit 34, all the right of ways to the south and north of Interstate 90; all easements and conveyances which currently carry surface water and / storm water (above ground and underground), King County roads north and south of Interstate 90 which exist within the boundaries of the Interstate-90 right of way, all portions of the intersection north of Interstate 90 which extend as 468th Avenue SE up to and including the intersection SE 140th Avenue.

Response

Comment acknowledged. I-90 access control authority of WSDOT ends at the right-of-way limits of I-90 near North Bend Way.

Comment *019-466*

Determine the maximum size limit, maximum weight limit, and maximum volume of trucks that can safely operate in the Exit 34 corridor.

Response The corridor through mitigation would be improved to safety operate all trucks on the Exit 34/468th Avenue SE corridor.

3.12.2.1 Existing Conditions

Comment *019-559* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the 468th Avenue SE road surface.

Comment *019-560* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the SE 140th Street road surface.

Comment *019-561* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the North Bend Way road surface.

Response The roadways are to be maintained by King County.

Comment *019-562* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the Exit 34 road surface.

Comment *019-563* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the Exit 25 road surface.

Response The interchanges are maintained by WSDOT.

Comment *019-568* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for putting a weight or axle limit for traffic on 140th Street.

Response King County has responsibility and liability for the roadway.

Comment *005-010* Winter conditions consist of snow and freezing rain; snow and ice create poor driving conditions. Because the Department of Transportation does not maintain the access road, the Academy must keep the road open and free of snow in the wintertime with its own snowplow.

Response State Patrol Academy maintenance of SE Grouse Ridge Road (including keeping the road open and free of snow) as well as other road improvement needs and plans are discussed in the Transportation chapter of the FEIS.

Comment *020-684* Determine accommodations on 468th Avenue SE for pedestrians and cyclists.

Response Currently pedestrians and cyclists use sidewalks and road shoulders on 468th Avenue.

Comment *145-005* In Volume I, Section 3.12.2.1 -Existing Conditions, Table 3.12-2 indicates traffic counts were taken at Exit 38. Section 3.12.4.2 - Peak Hour Analysis, fails to mention either portion of Exit 38 or Homestead Valley Road, nor does it provide a reason for its absence. Please provide the missing data.

Response The FEIS Transportation chapter includes a discussion about existing low traffic volumes and LOS at Exit 38.

3.12.2.2 Lower Site Access

Comment *019-437* The FEIS should address why the DEIS finds it necessary to identify that "SE North Bend Way…is two lanes wide with paved 6-foot shoulders and is a truck route." [DEIS Vol. I, page 3.12-4, Section 3.12.2.2]. Is this for the "occasional" trip or to accommodate overflow that cannot access I-90 at the Exit 34 on ramp?

Comment *020-556* The FEIS should address why the DEIS finds it necessary to identify that "SE North Bend Way ... is two lanes wide with paved 6-foot shoulders and is a truck route." [DEIS Vol. I, page 3.12-4, Section 3.12.2.2]. Is this for the "occasional" trip or to accommodate overflow that cannot access I-90 at the Exit 34 on ramp?

Response SE North Bend Way is a truck route in the vicinity of the project.

Comment *019-438* The DEIS states, "Local truck traffic was observed on SE 140th Street." [DEIS Vol. I, page 3. 12-4, Section 3. 12.2.2]. The FEIS should address where is the supporting baseline data to substantiate the types and volume of truck traffic on this local access street?

Response See Table 3.12-2 in the DEIS. Traffic data was gathered at 468th Avenue SE/140th Street/SE Middle Fork Road.

Comment *019-465* Determine if Exit 34's construction specifications indicate whether the road surface can handle the type and volume of traffic proposed by Grouse Ridge operation.

Response King County would be responsible for the roadway maintenance. The roadway surface is designed to handle truck loads.

3.12.2.3 Upper Site Access

Comment *005-007* Blind curves restrict visibility. The road is posted with various signs, "20 mph/Blind Curves Ahead for 2 1/2 miles/One Lane/Narrow Road."

Response Roadway improvements to correct blind curves are recommended as mitigation measures in the FEIS for Alternatives 3 and 4.

Comment *005-008* There are no turnouts for vehicles.

Response Roadway improvements to provide two lanes are recommended as mitigation measures in the FEIS for Alternatives 3 and 4.

Comment *005-009* The sub-base of the road cannot handle the volume of truck traffic anticipated. Old logs and unsuitable sub-base material were never removed when the road was initially built. There are underground springs throughout the length of the road.

Response Roadway improvements are recommended as mitigation measures in the FEIS for Alternatives 3 and 4.

Comment *005-012* The State Patrol owns the one-lane concrete bridge, which crosses the South Fork of the Snoqualmie River. The bridge is rated 72,000 pounds gross weight. A new, two-lane bridge would have to be installed to handle the anticipated truck traffic and fire truck traffic.

Response Noted. A traffic control system for controlling one-way traffic flow back and forth over the bridge is recommended as a mitigation measure in the FEIS.

Comment *005-014* The State Patrol Commercial Vehicle Division would be required to set up operations to weigh the gravel trucks using this road to protect the integrity of the road itself.

Response The gravel operation would, for its own interest, have to protect the integrity of SE Grouse Ridge Road.

Comment *004-002* The following points summarize our concerns with respect to Alternatives 3 and 4. Truck traffic on Homestead Valley Road would increase levels of noise and dust in proximity to Ollalie State Park.

Comment *004-004* Over a mile of Old Highway 10 parallels Ollalie State Park. Park visitors frequently cross the roadway from parking areas within the Park, or pull-offs along the road, to access the popular Deception Crags Climbing Area. We have significant safety concerns should visitors be negotiating approximately 3 trucks per minute as they attempt to cross the road.

Response Comments noted.

Comment *004-003* Truck traffic along Old Highway 10 would restrict pedestrian and vehicular movement at parking areas within Ollalie State Park.

Response Truck traffic should not restrict movement within parking areas.

Comment *004-006* Level of truck would likely congest access to I-90 at Exit 38.

Response Traffic analysis does not show congestion at Exit 38 under any alternative.

Comment *004-007* Very little commercial or industrial traffic occurs along Old Highway 10. The roadway is, in fact, “old” and was not designed to withstand the level of use proposed. Significant road modifications and renovations may be needed to make it suitable for heavy truck use. We also note that use of the Fire Training Academy Road (as part of Alternatives 3 and 4) would require significant road and culvert improvements, impacting numerous wetlands and streams.

Response Roadway improvements are recommended for the Fire Training Road. Old Highway 10 was designed for this level of truck use and our structure report of pavement conditions confirms this. Details are provided in the Transportation Technical Report pavement analysis attachment.

Comment *005-003* Four recruit classes (or schools) are scheduled throughout the year. Each class lasts nine weeks. In addition to in-classroom training, recruits participate in rigorous physical training. This training includes marching and running on roads throughout the Academy complex. Other live fire training at the Academy can occur any time during the day or night using fire trucks along any of the roads. The roads located on the Academy property are used regularly, if not constantly during the year.

Response A discussion of regular use of roads at the Fire Training Academy is included in the FEIS.

Comment *005-004* The mix of fully loaded gravel trucks, pedestrian activity and moving fire trucks during the day and night causes great concern for our students' safety.

Response Comment noted.

Comment *005-006* It is impossible for two gravel trucks to meet and pass safely on the road.

Response Roadway improvements would be needed for two way operation and are recommended in the EIS.

Comment *026-013* Given the higher altitude, what would be the effect of weather, including fog and snow, on the Fire Training Academy Road? Are there times when the road might be closed due to fire hazard?

Response Road would need to be maintained and kept open for project operations, but there could be times of closure due to weather, fire, or other natural conditions.

3.12.2.4 I-90

Comment *020-575* See Addendum A

"Both of these resources, timber and gravel, do not total the estimated cost of the Scott Pit Interchange (Exit 38). A review should be made of the justification for the Scott Pit Interchange." [United States Department of Transportation, Federal Highway Administration, Bureau of Public Roads, November 22, 1967].

Comment *020-576* See Addendum C

A right of way location Design Estimate has been prepared for the Scott Pit area based on three plans, consisting of (1) the design recommended in the Design Report, (2) a frontage road from Garcia and (3) landlocking the area. The estimate indicates that it will be difficult to justify the recommended Scott Pit Interchange based on landlocking damages alone."

"The District is presently communicating with Weyerhaeuser Company concerning their interests in this and other areas within this report section. Weyerhaeuser is reviewing our plans in respect to their access needs and a meeting will be held in approximately two weeks to discuss their requirements. Justification data and a recommendation will be forthcoming following this meeting and the compiling of other pertinent data." [Washington State Highway Commission, Department of Highway, Office of District Engineer, January 26, 1968].

***Comment** 020-577*

See Addendum D

"Prior to approval of this road, we will require a realistic cost estimate for the construction, and further information concerning the lands of the Department of Natural Resources. The access to these lands does not appear critical." [United States Department of Transportation, Federal Highway Administration, Bureau of Public Roads, February 13, 1968].

***Comment** 020-578*

See Addendum E

"Attached are minutes of a meeting held on March 15, 1968 with the Weyerhaeuser Company, regarding their access requirements on SR 90 between Edgewick Road and Olallie Creek." As a result of this meeting, we are performing a study of the entire access pattern on the North side of the SR 90 between Edgewick Road and the Garcia Interchange. Weyerhaeuser has agreed to furnish us with information on the value of the affected resources as well as their plans for recreational development for use in this study."[Washington State Highway Commission, Department of Highway, Office of District Engineer, March 25, 1968].

***Comment** 020-579*

See Addendum F

"Approval of the Scott Pit Interchange will be dependent on whether or not the Weyerhaeuser Company has definite plans for developing the area. They have indicated that they have such plans." [Sverdrup and Parcel & Associates, Inc., May 2, 1968]

***Comment** 020-580*

See Addendum H

"All known references to the Weyerhaeuser Company have been revised to a "private timber company."" Seems the Weyerhaeuser Company wishes to remain anonymous while spending the taxpayers money on major highway construction?

"The Garcia Rest Area is no longer referred to as, "a minor rest area". [Washington State Highway Commission, Department of Highway, Office of District Engineer, October 4, 1971].

Response

These comments refer to the construction of Exit 38 back in the late 1960's. Further improvements to the Exit 38 interchange with I-90 are not proposed for this project under any alternatives.

***Comment** 145-002*

For clarification and mutual understanding, the Draft Environmental Impact Statement (DEIS) refers to Exit 34 and the 468th Avenue SE Exit. Historically, WSDOT has referred to Exit 34 as the Edgewick Road Interchange. Also, the DEIS refers to an "Exit 38 (West)" and an "Exit 38 (East)". WSDOT identifies what the applicant calls "Exit 38 (West)" as the Homestead Valley Interchange. "Exit 38 (East.)" is called the Garcia Interchange by WSDOT. The frontage road (Homestead Valley Road)

connecting the Homestead Valley Road I/C with the Gareia Road I/C is also maintained by WSDOT.

Response Comment noted. The FEIS Transportation chapter references WSDOT interchange names.

Comment *019-449* The FEIS must address the following:

Comment *019-450* Funding of Exit 38:

Comment *019-451* Determine the construction specifications and funding sources for Exit 38.

Comment *019-452* Determine the intended purposes for the construction of Exit 38.

Response No construction is proposed for Exit 38.

Comment *073-299* (3) Nomination.--To be considered for the designation, a road must be nominated by a State or a Federal land management agency and must first be designated as a State scenic byway or, in the case of a road on Federal land, as a Federal land management agency byway.

(b) Grants and Technical Assistance

(1)In general --The Secretary shall make grants and provide technical assistance to States to--

(A) implement projects on highways designated as National Scenic Byways or All-American Roads, or a State scenic byways; and

(B) plan, design, and develop a State scenic byway program

(2) Priorities.--In making grants, the Secretary shall give priority to

(A) Each eligible project that is associated with a highway that has been designated as a National Scenic Byway or All-American Road and that is consistent with the corridor management plan for the byway;

(B) Each eligible project along a State-designated scenic byway that is consistent with the corridor management plan for the byway, or is intended to foster the development of such a plan, and is carried out to make the byway eligible for designation as a National Scenic Byway or All-American Road; and

(C) Each eligible project that is associated with the development of a State scenic byway program.

“Corridor means the road or highway right-of-way and the adjacent area that is visible from and extending along the highway. The distance the corridor extends from the highway could vary with the different intrinsic qualities [scenic natural, historic, cultural, archeological and recreational qualities]."

“Corridor Management Plan means a written document that specifies the actions, procedures, controls, operational practices, and administrative strategies to maintain

the scenic, historic, recreational, cultural, archeological, and natural qualities of the scenic byway."

"Corridor Management Plans identify the location of the route and its corridor; describe the physical condition of the road and its safety; analyze and describe the intrinsic qualities and how they are to be managed and interpreted; identify the elements that are in place and are planned to meet the needs and expectations of both visitors and the local residents and businesses; describe how the route's promotion and marketing; and, finally, describe who, how, and when the local byway management group will implement plans and take responsibility for actions along the route.

(c) Eligible Projects -- The following are projects that are eligible for Federal assistance under this section:

Interstate 90 as a National Scenic Byway is a federally funded Program - emphasis on Eligible Projects on byway corridors.

Federal funding has been granted to further the development and implementation of project completion on a sooner-than-anticipated schedule than without federal assistance. Acceptance of designation and federal funding assistance ensures compliance with federal granting agency guidelines.

"The likelihood that assistance under this subchapter would enable the project to proceed at an earlier date than the project would otherwise be able to proceed."

Eligible Project compliance and the implementation of the Corridor Management Plan are to be adhered to upon National Scenic Byway designation. Also note TEA-21, Section 1219. 162(d) and (e).

(1) [Eligible Projects] An activity related to the planning, design, or development of a State scenic byway program.

Where is it stated in the DE1S the plans of the proposed gravel pit are related to the planning, design and development of Interstate 90 as a National Scenic Byway?

Comment *073-300*

(2) [Eligible Projects] Development and implementation of a corridor management plan to maintain the scenic, historical, recreational, cultural, natural, and archaeological characteristics of a byway corridor while providing for accommodation of increased tourism and development of related amenities.

"A corridor management plan, developed with community involvement, must be prepared for the scenic byway corridor proposed for national designation. It should provide for the conservation and enhancement of the byway's intrinsic qualities as well as the promotion of tourism and economic development. The plan should provide an effective management strategy to balance these concerns while providing for the users' enjoyment of the byway. The corridor management plan is very important to the designation process, as it provides an understanding of how a road or highway possesses characteristics vital for designation as a National Scenic Byway or an All-American Road...a strategy for maintaining and enhancing those intrinsic qualities."

Comment *073-315*

(3) [Eligible Projects] Safety improvements to a State scenic byway, National Scenic Byway, or All-American Road to the extent that the improvements are necessary to accommodate increased traffic and changes in the types of vehicles using the highway as a result of the designation as a State scenic byway, National Scenic Byway, or All-American Road. Safety improvements are restricted to the highway that has been

designated as a scenic byway and must be the direct result of increased traffic and/or changes in the types of vehicles using the highway. The safety improvements are only considered eligible when they arise as a result of designation of the highway as a scenic byway. Any safety deficiencies that existed prior to designation of the highway as a scenic byway are not eligible for funding considerations."

Safety improvements...for vehicles using the highway as a direct result of the designation as a scenic byway...

Explain how increased project traffic will be using Interstate 90 as a result of designation?

Response Consistent with the MOU between Weyerhaeuser, the Mountains to Sound Greenway Trust, King County, DNR, and the Trust for Public Lands, the applicant proposes to mitigate mining activities and protect scenic values in the corridor. The FHWA (through WSDOT) reviewed the DEIS; and, while they are concerned with the scenic values in the I-90 corridor, they do not have jurisdiction over private property along I-90.

Comment *005-013* At least three fiber-optic cable companies have recently laid cable under the entire length of the access road from Interstate 90 to the Fire Training Academy. Each has been laid independently of the other and the condition of the road was so poor after the third installation that the road needed to be completely resurfaced.

Response State Patrol Academy maintenance of SE Grouse Ridge Road as well as other road improvement needs and plans are discussed in the Transportation Section of the FEIS.

3.12.2.5 Planned Improvements

Comment *082-001* Referring to Section 3.12 TRANSPORTATION, subsection 3.12.2.5, Planned Improvements. The section indicates that only the residential projects are expected to generate AM or PM peak hour trips. (Peak hours are defined in 3.12.4.2 as 7 a.m. to 8 a.m. and 4:30 p.m. to 5:30 p.m.). However, in Section 3.12.3.2 Pipeline Projects, the DEIS indicates the proposed middle and future elementary schools on SE Middle Fork Road are "expected to be completed and are planned." The completion of the schools will generate additional traffic of 450 car trips and 64 bus trips (see Sections 2.6.2.1 and 2.6.2.2) in the AM peak. These must be included in the traffic studies and all the LOS calculation for the FEIS.

Response Adjustments that account for this increase of school vehicles through the study area are included in the FEIS.

Comment *019-439* The DEIS states under Planned Improvements that "Although this report addresses the potential traffic impacts of other planned projects in the vicinity of the Proposal on a subjective basis, no attempt has been made to perform quantitative analysis on these projects. Any attempt to quantify the cumulative impacts of these projects at this point would be purely speculative.., the responsibility for evaluating project-specific and area-wide impacts of the project lies with applicants at the time they submit their plans to King County for review and approval." [DEIS Vol. II, Appendix L, page 2-9, Section 2.1.5].

Comment *019-440* However, the DEIS in Volume I states, "Therefore, the increase on any single roadway is expected to be small. The additional trips generated by proposed development in the area were accounted for in the future growth rate used for analyses." [DEIS 3.12-6]. The FEIS should address the efficacy of this statement and the data baseline that was used to arrive at this conclusion. If the John Day residential project that is under construction was not included in the future planned improvements of the area, then how can the accuracy of the planned improvement study be relied upon.?

Comment *020-558* The DEIS states under Planned Improvements that "Although this report addresses the potential traffic impacts of other planned projects in the vicinity of the Proposal on a subjective basis, no attempt has been made to perform quantitative analysis on these projects. Any attempt to quantify the cumulative impacts of these projects at this point would be purely speculative.., the responsibility for evaluating project-specific and area-wide impacts of the project lies with applicants at the time they submit their plans to King County for review and approval." [DEIS Vol. II, Appendix L, page 2-9, Section 2.1.5]. However, the DEIS in Volume I states, "Therefore, the increase on any single roadway is expected to be small. The additional trips generated by proposed development in the area were accounted for in the future growth rate used for analyses." [DEIS 3.12-6]. The FEIS should address the efficacy of this statement and the data baseline that was used to arrive at this conclusion. If the John Day residential project that is under construction was not included in the future planned improvements of the area, then how can the accuracy of the planned improvement study be relied upon?

Response Traffic growth is accounted for in the growth rate factors. Additional school volumes and traffic from an industrial park have been added in the FEIS analysis.

3.12.3 Traffic Volumes

Comment *128-003* As you are aware, the Edgewick Inn only has two entrances, both located along the south side of SE 146th street. Customers who drive large trucks use the driveway on the east side of our property as a convenient means of entry onto our property. All customers exit our property by the main driveway. Our main driveway is located approximately 30 feet east of 468th Avenue SE. Because of its proximity to the intersections (468th Avenue SE and SE 146th street), even a single large truck waiting to enter 468th Avenue SE from SE 146th street prevents our customers from using the main driveway to exit our property.

Response The proximity of the driveway to the existing intersection is not an ideal traffic situation in any scenario including the existing condition. To improve operations, the property owner may choose using the alternative access east of the intersection for egress from the site.

Comment *020-522* The FEIS should address if the Highway Capacity Data Manual from 1994 is the most current data available or if more current Highway Capacity information has been published.

Response The LOS has been recomputed using HCM 2000 methodology for the FEIS.

Comment *020-583* Determine visually and quantitatively how much traffic and what type of traffic currently use Exit 25/Hwy 18 interchange, to include the weigh station.

Comment *020-599* Determine what the actual impact will be from the Lower and Upper Site operations on traffic at the Exit 25/Hwy 18 interchange.

Comment *020-600* Determine WSDOT capability to handle the increased traffic at Exit 25 weight scales. Can the scales process projected numbers of gravel, concrete, and asphalt trucks fast enough to prevent serious delays and congestion on I-90.

Comment *020-608* Determine visually and quantitatively how the traffic patterns change at Exit 25/Hwy 18 interchange by days of the week and seasons of the year e.g. spring, summer, fall and winter.

Response Exit 25 is outside the study area for the Transportation analysis presented in the EIS. WSDOT reviewed and commented on the DEIS.

Comment *020-664* Analyze the actual congestion caused by truck traffic that currently parks on either side of 468th Avenue SE.

Response As parking is not legally allowed along 468th Avenue SE, this was not considered in the LOS analysis.

Comment *020-060* It is not clear from the DEIS if the "conversion factor" representing 75-foot trucks entering and leaving the project was applied to existing truck traffic

Response The conversion factor applies to all truck traffic.

Comment *020-585* Current truck queuing on Exit 38 frontage road. (Refer to hardcopy for photographs, pg 106)

Response It was noted in the EIS that Army (truck) convoys also queue on Exit 38 frontage road.

Comment *073-176* These things should have been provided in the detail requested above by DEIS Transportation in a discussion of methodology in the TTR, and summarized in Section 3.12.

Because it was not mentioned in any explanation of methodology in DEIS Transportation, and would have been and should have been if something special had been done, and because its data is non-trivial to acquire in the field, it is a reasonable guess, without a response to the question above, that a parameter not based on empirical data, and for which the HCM 1994 or other default was taken, is the critical gap.

The critical gap is a key calculation parameter subject to influences of driver judgment and behavior factors.

Response The use of PCE = 4 was noted as an exception. The critical gap was measured in the February 2001 traffic counts and incorporated into the base data for traffic analysis.

3.12.3.1 Existing Volumes

Comment *019-662*

The DEIS consistently fails to perform it's purpose by not using measurements and data that truly reflect the conditions of the current and projected traffic patterns and impacts for the Grouse Ridge Project. The Exit 34 interchange, 468th Street, integrating traffic from North Bend Way, truck turnarounds, pass closure impacts, tourism, residential, school bus traffic, identification of truck traffic versus vehicular traffic are all minimized because of the dates and the times of measurements utilized in developing their baseline data.

Response

The base line data was adjusted for the date and time the traffic counts were taken, as discussed in the Transportation Technical Report. Analysis covers the AM and PM peak hours, which would be most affected by current, future, and project volumes.

Comment *019-397*

The DEIS states, "Friday volumes were excluded from this analysis since it proceeded the Labor Day weekend, and therefore, represents a condition that occurs only a few times per year." [DEIS Vol. II, Appendix L, page 2-11, Section 2.2.1]. The FEIS should address the fact that heavy traffic occurs all year especially Friday through Sunday. Traffic counts should accurately reflect and include the high volume times of the week, month, and year.

Comment *020-520*

The DEIS states, "Friday volumes were excluded from this analysis since it proceeded the Labor Day weekend, and therefore, represents a condition that occurs only a few times per year."" [DEIS Vol. I1, Appendix L, page 2-11, Section 2.2.1]. The FEIS should address the fact that heavy traffic occurs all year especially Friday through Sunday. Traffic counts should accurately reflect and include the high volume times of the week, month, and year.

Response

Friday and weekend traffic was counted and analyzed for the FEIS.

Comment *020-582*

Determine visually and quantitatively how much traffic and what type of traffic currently use the Exit 34 corridor.

Response

Existing traffic was video taped in February 2001. Traffic counts were also conducted and are discussed in the FEIS.

Comment *037-003*

Traffic jams at Exit 34 from 1000+ truck trips per day. This exit is already congested by heavy truck use.

Response

Current traffic analysis does not show a roadway level of service (LOS) that would be considered congested.

Comment *041-005*

D&M said on page 3.12-7 that a "conservative approach" would be taken in this report. Yet they say on the very same page that September traffic is one of the lightest traffic months of the year per WSDOT but they didn't like a heavy day in September that preceded Labor Day SO THEY DIDN'T EVEN INCLUDE IT IN THEIR DAILY AVERAGE! That doesn't sound particularly conservative to me. Nor does sound conservative when D&M tells us that project trucks are equivalent to 8 axles. Then on page 3.12-16, their estimate for future peak hour traffic volume is projected to be 800 vehicles with trucks calculated equivalent to between 2 and 3.5 two axle passenger vehicles. By my calculation, a car is 2 axles. 3.5 x 2 = 7 axles. That isn't the 8 axles

estimated above. And no where do they tell us whether the 800 vehicle figure is calculated on 2 or 3.5. (2 would in reality be half of D&M's own estimate of project truck equivalents.)

Response The September traffic volumes were increased by 17% to account for the seasonal traffic variations, per WSDOT. To include the day before Labor Day weekend (Friday) and the seasonal adjustment would produce unrealistic volumes that would not accurately portray the average daily traffic conditions. The project haul truck is represented in the traffic modeling as four passenger cars, as discussed in the FEIS.

Comment *073-002* Table A provides hourly traffic volumes between 7 AM and 7 PM for days during the Peak-Month on 468th Avenue between 146th Street and North Bend Way. This is the critical segment of 468th Avenue. All project trucks traveling to or traveling from the Lower Site in Alternative 2 or Alternative 3 must navigate this segment. It leads to and away from the critical intersection of 468th Avenue/146th Street.

Figure 3.12-9 was reverse-engineered to obtain Table A, rows 15, 16, 27 and 28. The figure was enlarged substantially, and the graph's grid and data bars were measured closely. Measurement data was normalized to account for the enlargement factor and chart-generation-software anomalies. Normalized data for rows 27 and 28 was adjusted (only very minor adjustments were required) to match project trip totals in Table 3.12-8 exactly. Table A, rows 11, 12, 19, 20, 23 and 24 were obtained by applying yearly increase factors for passenger car and heavy truck traffic volumes of 2.5% and 1.5% (Parameters 1 and 2 in P 1 and P2). Data derived from C 11 plus C 12, C 15 plus C 16, C 19 plus C20, C23 plus C24, M11 plus M12, M15 plus M16, M17 plus M20, and M23 plus M24 was compared to data for 468th Avenue between 146th Street and North Bend Way in TTR Figures 11, 6, 7 and 8 -- the average error for the reverse-engineered data was 1.0%. Table A, rows 31 and 32 were obtained by applying hourly proportions of volume data in rows 27 (to row 31) and 28 (to row 32) relative to volume totals, to appropriate project trip data in Table 3.12-14, and then adjusting (only very minor adjustments were required) to match appropriate totals in that table exactly.

Hourly volume data in tabular form, similar to Table A should have been provided by the TTR. While it was obtainable with insignificant error as described above, its absence raises questions about the decision-making process in determining what should have been made readily available to the public audience for the DEIS.

Response The peak hour volumes are provided in the EIS figures. The other hourly volumes were not used in the analysis, and therefore were not deemed necessary to include in the EIS.

Comment *073-003* [Question: Will complete hourly traffic volume data be made available in tabular form, for all relevant traffic points in the Exit 34 environs for all relevant study years, in the FEIS?]

Response The peak hour volumes are provided in the EIS figures.

Comment *073-005* Table C represents the fundamental data for transported quantities for two Alternatives proposed for the Exit 34 environs. The information is squirreled away in the North Bend Trip Generation Worksheet in Chapter 6, and it could be clearer there. Why did the authors of/contributors to Section 3.12 omit this fundamental data in clear form from Section 3.12?

Response Comment acknowledged. The FEIS format has been revised to make the document more reader - friendly.

***Comment** 073-113* Traffic Data Collection Methodology. Both HCM 1994 and TEH 1999 suggest that in rural highway design there are ways to collect data that allow a roadway design engineer or a traffic operations analyst to account for typical conditions that also account for occasional atypical conditions:

"Customary practice in the United States is to base rural highway design on an hour between the 30% and 100th highest hour of the year. For rural highways, [the transition from extraordinary volume conditions to typical volume conditions] has often been assumed to occur at the 30th-highest hour."

There are 8760 hours in a year The Transportation portions of the DEIS report:

"Current intersection traffic counts in the study area were collected in September 1998 by Heffron Transportation and in March-April 1999 by Dames & Moore. The counts were collected over a continuous three-day, or 72-hour, period.

144 hours of traffic volume and data were collected.

The Heffron Transportation counts were performed during the week prior to the Labor Day weekend and represent one of the highest traffic volume periods of the year. The traffic volumes for Wednesday and Thursday were averaged. Friday volumes were excluded from this analysis since it proceeded the Labor Day weekend and, therefore, represents a condition that occurs only a few times per year.

24 hours of traffic volume data were excluded.

The Dames & Moore counts were averaged for the three days they were performed. Vehicle turn movements were observed during morning and evening peak periods (7 to 9 a.m. and 4 to 6 p.m.)."

120 hours of traffic volume data were collected in all.

This is a not a statistically significant number of hours of traffic volume data in the framework of the customary practice noted by HCM 1994 and TEH 1999.

***Comment** 073-114* The Transportation portions of the DEIS continue to report:

"According to WSDOT's 1997 Annual Traffic Report, traffic volumes on I-90 in this sector of King County are lower than average in September and in March/April. Currently (1998), 26,000 vehicles per day (VPD), on average, use I-90 east of North Bend. The peak traffic month for this section of King County and I-90 is July. Seasonal traffic variations are normal, and standard engineering practices provide a means of accounting for them. For purposes of this report, a conservative approach was taken. To ensure that the analysis considered a worst-case scenario (such as highest traffic volumes), an adjustment factor was applied to the September and March data to account for seasonal traffic variations. Specifically, traffic volumes collected in September were increased by 17%. Likewise, traffic volumes collected in March and April were increased by 45%. The result yields traffic volumes equal with those that would be expected in the summer peak period."

Fair enough, solely from the standpoint of taking a short-cut to some input data for a certain class of capacity analysis.

This short-cut does not provide any more hours of traffic volume data. The number of hours collected is still not a statistically significant number of hours of traffic volume data in the framework of the customary practice noted by HCM 1994 and TEH 1999.

[Question: Why was the customary practice described in the Institute Of Transportation Engineer's 1999 Traffic Engineering Handbook and in the Transportation Research Board's 1994 Highway Capacity Manual not employed to gather traffic volume data in the Exit 34 environs?

Response Additional 5-day counts were done for the EIS in February 2001. These counts affirm the previous traffic counts and validity of their use.

Comment *073-129* Analytical Timeframes. There are timeframes: hours, days, months, a year, years, the life of the proposed project. There are types of timeframes based on hours: 7 a.m. to 8 a.m., 11 a.m. to 12 p.m., 3 p.m. to 4 p.m., 4:30 p.m. to 5:30 p.m., 10 a.m. to 4 p.m., 7 a.m. to 4 p.m., 7 a.m. to 7 p.m., etc. There are types of timeframes based on days: Peak-Month days, days in 11 other average months. There are types of timeframes based on months: Peak-Month, Average-Month, Valley-Month; 11 average months; collections of months in a year. These all roll-up to discussion and analysis in their own context and in contexts of a year, years, or the life of the proposed project.

In the Transportation portions of the DEIS, there is a Peak-Month with Peak-Month days and two selected peak hours. There are other kinds of time quantities mentioned, but they are afforded limited discussion and analysis, and virtually all discussion and analysis is performed over four limited durations, one of which is erroneous, another of which is irrelevant (see AM And PM Peak Hours above). These can only purport to roll-up to discussion and analysis for other months of a year, for an entire year, for years, or for the life of the proposed project.

DEIS Transportation undertaking sufficient analysis and discussion in relevant timeframes -- Attempted, But Done In Too-Limited A Way, With Error And Irrelevancy.

Response The February 2001 5-day counts reaffirm previous traffic counts and the use of specific times as peak hours.

Comment *019-380* The stretch of road between SE 144th Street and Exit 34 includes currently consists of heavy trucks entering and exiting at Ken's Trucks Town; regular I-90 vehicular traffic utilizing the BP station, the Texaco station, Ken's Restaurant, and the Edgewick Inn; 574 projected school buses and cars leaving the planned Middle and Elementary schools; recreationalists accessing the numerous parks and rivers adjacent to Exit 34; local school children on foot and bicycle transiting the Exit 34 corridor to reach Subway Restaurant, Taco Bell, or Pizza Hut; the local commuters; and finally the proposed 936-1152 truck trips per day accessing the Lower Site. Additionally, trucks entering the roadway of 468th Avenue SE and 146th already conflict with the routine traffic patterns, pedestrians, bicyclists, recreationalists, and commercial traffic. Clearly, the potential for gridlock on 468th Avenue SE and SE 146th Street has not been accurately or reasonably evaluated.

Response Comment noted.

Comment *133-003* More in depth study of traffic in "Truck Town". Don't evaluate in the best time zones! Come in the summer on weekends with tourist traffic compounded with trucks!

Response Traffic volume has been corrected for summer time peaks.

Comment *136-009* Traffic at "truck town".

Response Traffic at "Truck Town" is included in traffic volumes.

Comment *020-586* Exit 38 Frontage road- note heavy traffic volumes on a routine summer weekday. (Refer to hardcopy for photograph, pg 106)

Response The traffic volumes along SE Homestead Valley Road are stated in the EIS.

Comment *020-596* Exit 38 off ramp from I-90 (Refer to hardcopy for photograph, pg 107).

Comment *020-597* Connector between on and off ramps at Exit 38. Unimpeded by other truck traffic, businesses, intersections, or local residential traffic. (Refer to hardcopy for photograph, pg 108).

Comment *020-598* Exit 38 On ramp from frontage road to I-90. (Refer to hardcopy for photograph, pg 108).

Response As the pictures show, Exit 38 is under utilized. Adding the proposed project traffic to the existing Exit 38 traffic would not change this status.

Comment *019-394* The FEIS should address in further detail the mitigation measures and the implementation schedule proposed for widening of 468th Ave. and the transition from 2 to 3 lanes, as well as the installation of 8' wide paved shoulders on 468th Ave

Response The FEIS describes recommended 468th Avenue SE mitigation measures for each alternative.

Comment *125-004* Take a look at the Cadman site in Issaquah - drive that road at 10:00 a.m. or 3:00 p.m. Look at the impact to the traffic flows that result when you have large trucks, commuter traffic, commercial business activity, and I-90 off ramps in such close proximity. Pedestrians don't use that area due to the extreme danger associated with doing so.

Comment *125-005* Take a look at the I-90 and Hwy 18 interchange, or the Preston I-90 interchange. Traffic consultants probably didn't anticipate the traffic or growth patterns at those intersections 5 years ago - Now that there are signal devices on the Snoqualmie Ridge I-90 intersection you c an safely cross traffic. NOT so just 18 months ago. Just visit Preston and try to get on the Park & Ride lot in the morning and you see whether people are driving to Issaquah Park & Ride or using the High Point Exit to back track to the Preston lot. The point that I'm trying to make is that concurrence should

consider real life examples and not hypothetical tables from an engineering reference manual.

Response Analysis and traffic modeling shows a substantial increase in traffic especially over a 25-year period. The models are based on real life examples and current CADMAN operations.

Comment *073-173* The relationships between volume and performance are subject to variance due to local driving habits and other factors. Thus estimations of operational criteria will rarely duplicate exactly field-measured values at specific locations. Therefore field measurements of existing traffic are desirable." First of all, accurate field measurements. Next of all, accurate field measurements that account for driver judgment and behavior factors and geo-physical factors.

Response Additional field measurements were done in February and March 2001 that supported initial assumptions of local traffic characteristics.

Comment *145-007* Valid and complete traffic data must be provided using conventional traffic analysis means.

Response The analysis followed HCM (2000) standards.

Comment *019-454* Determine visually and quantitatively how much traffic and what type of traffic currently use the Exit 32 corridor.

Comment *019-455* Determine visually and quantitatively how much traffic and what type of traffic currently use the Exit 34 corridor.

Comment *019-456* Determine visually and quantitatively how much traffic and what type of traffic currently use the

Comment *019-457* Exit 38 corridor.

Comment *019-459* Determine visually and quantitatively how much traffic and what type of traffic currently use North Bend Way.

Comment *019-460* Determine visually and quantitatively how much traffic and what type of traffic currently use 468th Avenue SE.

Comment *019-461* Determine visually and quantitatively how much traffic and what type of traffic currently use Ken's Truck Town.

Comment *019-462* Determine visually and quantitatively how much traffic and what type of traffic currently use SE 140th Street.

Comment *020-581* Determine visually and quantitatively how much traffic and what type of traffic currently use the Exit 32 corridor.

Comment *020-584* Determine visually and quantitatively how much traffic and what type of traffic currently use the Exit 38 corridor.

Comment *020-587* Determine visually and quantitatively how much traffic and what type of traffic currently use North Bend Way.

Comment *020-588* Determine visually and quantitatively how much traffic and what type of traffic currently use 468th Avenue SE.

Comment *020-589* Determine visually and quantitatively how much traffic and what type of traffic currently use Ken's Truck Town.

Comment *020-590* Determine visually and quantitatively how much traffic and what type of traffic currently use SE 140th Street.

Response Quantitative traffic counts were taken at the intersections listed. A visual record was made on 468th Avenue SE.

Comment *019-458* Determine visually and quantitatively how much traffic and what type of traffic currently use Exit 25/Hwy 18 interchange, to include the weigh station.

Response Highway 18 is outside the study area for the EIS and this was not included in scope of work.

Comment *019-436* The DEIS states, "Congestion occasionally occurs along 468th Avenue SE between I-90 and SE 144th Street." [DEIS Vol. I, page 3.12-16, Section 3.12-4.3]. The FEIS should define "occasionally" and provide supporting data on how often this corridor is congested. If this corridor is under capacity and congestion is occurring then is this not a unique traffic area?

Response Congestion referred to in the EIS is based on the peak hour volumes or the worst-case traffic volume scenario. Capacity is proposed to be increased through mitigation measures to minimize congestion impacts.

3.12.3.2 Pipeline Projects

No comments were received on this section of the DEIS.

3.12.3.3 Future Volumes

Comment *026-007* Traffic generated by the schools, if and when they are built, was not included in the analysis. Cadman would like the FEIS to include specific analysis as to school traffic impacts, mitigation measures and long-term monitoring.

Response School traffic volumes have been included in the FEIS analysis.

Comment *041-004* The projected growth rates are appalling. There is no data presented to explain where the 2.5 and 1.5 percent per year increases come from, nor any consideration given to the possibility that future growth might be different than past. Wouldn't some comparisons to Issaquah be in order here? Hopefully to avoid a similar traffic mess to Issaquah's? What traffic data did Dames & Moore look at in 1994, 95, 96 and 97? And do these growth rates jive with anything else regarding growth in the area to

justify its use? For example, how many housing permits have been issued and what are the projected growth rates based on these? How about commercial or business license sales? Or projected property or sales tax growth rates? Every day I read in the paper about growth in this area, and the numbers are always much higher than those used by D&M.

Response The growth rates used are reasonable based on available data and current trends. Pipeline projects and both schools have been added to in the year 2005 traffic data and projected to 2015 and 2025.

Comment *073-116* Way 1 is a limited method of derivation of future rates and volumes, but was used by DEIS Transportation. Why?

Response This is the growth rate applied to I-90, the major generator of traffic on 468th Avenue SE.

Comment *073-117* 27 DEIS Transportation, Section 3.12.3.3, Page 3.12-8. Way 2 accounts for more available factors of the past, present and future, and is a more robust method of derivation of future rates and volumes, but was untried by DEIS Transportation. Why?

Response The FEIS factors in schools and a new industrial park into existing year 2005 traffic volumes.

Comment *073-118* Traffic volume forecasts used in DEIS Transportation rest on questionably valid growth rate assumptions -- the implication is that much of the entire quantitative analysis in DEIS Transportation, including "operational LOS analyses", is to be taken with some amount of salt, and much more than a grain.

Response These are standard growth rates used by WSDOT and King County planners. The growth rates are based on actual traffic counts from 1994 to 1999.

Comment *073-191* School Transportation Traffic

Per NBGO-FEIS Final Scope of Work (D)(3):. "Issues To Be Analyzed...Evaluation of the cumulative impacts...including, if applicable, the proposed elementary and middle schools..."This is covered in DEIS Transportation, Section 3.12.7. A reading shows there would be:

- 70 school bus trips per weekday (Middle School)
- 250 passenger car trips per weekday (Middle School)
- 60 vehicle trips over at least two weeknights (Middle School)
- 58 school bus trips per weekday (Elementary School)
- 200 passenger car trips per weekday (Elementary School)
- 60 vehicle trips over at least two weeknights (Elementary School)

Traffic volume data is back-of-the-envelope, but it is there. Why doesn't the FEIS provide at least sample LOS analyses (say, for the years 2005 (Middle School) and 2015 (Middle School and Elementary School)), that account for these traffic volumes in the Exit 34 environs, using a refined set of assumptions that account for school-related traffic flows, to move a step closer to clarifying the issues surrounding project impacts to school transportation, which is a community safety concern.

Comment *073-192* Or why doesn't the FEIS include school transportation as a matter of the course in operational LOS analyses of 468 Avenue, as discussed above in 468th Avenue Traffic.

Response The school traffic volumes are included in 2005 volumes in the FEIS.

Comment *073-115* Traffic Volume Forecast Assumptions.

Growth Rates. "The annual traffic growth rates for I-90 and the various roadways within unincorporated King County were established by comparing the September 1998 and March 1999 traffic counts, as adjusted, against available traffic data from 1994, 1995, 1996, and 1997. As a result, it was assumed that background (not project-related) auto traffic would increase by 2.5% per year and truck traffic would increase by 1.5% per year. The background traffic growth rate was applied to current traffic data to determine the future traffic baseline."

There is past, present or future data -- or, historical, present empirical and forecasted.

Historical data ("available traffic data from 1994, 1995, 1996, and 1997") has a limitation: past performance is no guarantee of future returns.

Present empirical data ("the September 1998 and March 1999 traffic counts, as adjusted") is limited by the statistical significance of the data relative to the methodology used to collect it. See Traffic Data Collection Methodology above.

Forecast data can be generated in more than one way.

One way (Way 1) is to apply historical data growth rates to a present empirical data baseline. This is what DEIS Transportation does: "The background traffic growth rate was applied to current traffic data to determine the future traffic baseline.

"Another way (Way 2) -- and, it is maintained, the more robust and valid way, yielding more valid results -- is to apply future growth rates to both present empirical data and historical data, separately or in conjunction, to obtain forecast data. This depends on the availability of future growth rate factors. The future, via future growth rates, is predicted in Washington State as a matter of law -- in implementations of the Growth Management Act.

See 'Washington State County Population Projections By Age And Sex: 1990 to 2020 --1995 Projections Developed For the Growth Management Act: High, Medium And Low Series', at www.ofm.wa.gov/pop902020/~ma95hml.pdf-- and other relevant statistical data at www.ofm.wa.gov. It is stated on the web-site of the State Office of Financial Management that projections beyond 2020 will be generated once the 2000 census is completed.

These are population growth forecasts and from them rates of future population growth can be derived (see an application of derivation and use in Section 4.3.20TD). Rates of future traffic volume growth must vary as a function of future population growth or rates of future population growth. It is to be expected that the Washington State Department Of Transportation or its King County analog would know or be able to derive this relationship.

Response The 2000 census data is just now becoming available. The method using pipeline traffic volumes and growth rates is acceptable and has been used in the FEIS analysis.

***Comment** 012-169* In [DEIS §3.12.1; p. 3.12-1] the statement is made:

The technical report provides a current traffic baseline for the transportation study area. In addition, it forecasts future traffic conditions in the study area under each of the project's four alternatives.

Using this information, the DEIS conjectures that "auto traffic would increase by 2.5% per year and truck traffic would increase by 1.5% per year" [DEIS §3.12.3.3; p. 3.12-8].

However, in the transportation technical report (Section 2.1.5, "Planned Improvements"), a different conclusion is reached with respect to projected traffic growth:

Although this report addresses potential traffic impacts of other planned projects in the vicinity of the Proposal on a subjective basis, no attempt has been made to perform quantitative analysis on these projects. Any attempt to quantify the cumulative impacts of these projects at this point would be purely speculative.

Thus it is impossible to relate the findings in the DEIS proper to the technical backup. Are there or are there not statistically valid projections for traffic growth? Based on the Technical Report, it sounds like there are not. Yet the DEIS authors provide precise figures.

***Comment** 084-001* Referring to Section 3.12 TRANSPORTATION, the validity of the statistics used for calculations are not adequately supported. Without statistically sound data, the conclusions drawn are not reliable.

***Comment** 084-002* Reference subsection 3.12.3.3 Traffic Volumes, Future Volumes, page 3.12-8. The DEIS states, "...it was assumed that background (not project-related) auto traffic would increase by 2.5% per year and truck traffic would increase by 1.5% per year." How were these numbers derived? They are extremely low, based on the growth in North Bend's population in the last 3 years. What are the sources of the data? On what studies are they based?

Response Growth rates are from WSDOT based on I-90 traffic which currently feeds traffic onto 468th Avenue SE. The growth rates also factor in existing land use, zoning, and potential growth and development opportunities.

3.12.3.4 Army Convoys

***Comment** 019-547* Determine frequency of military convoys at Exit 34.

Response See 2.2.3, Army Convoys, in the Transportation Technical Report.

***Comment** 020-678* Determine frequency of military convoys at Exit 34.

Response See the discussion of army convoys in the Transportation Technical Report.

3.12.4 Level of Service (LOS)

Comment *019-400* The FEIS should address if the Highway Capacity Data Manual from 1994 is the most current data available or if more current Highway Capacity information has been published.

Response The LOS has been recomputed using HCM 2000 methodology for the FEIS.

Comment *022B-001* Incorrect LOS Methodology. Although the DEIS is dated June 15, 2000, the transportation impact analysis does not use the current level of service methods and procedures which are now standard traffic engineering practice. According to page 3.12-9 of the DE1S, levels of service at intersections affected by the project were computed according to procedures in the 1994 Highway Capacity Manual and using HCS soft-ware release 2.1g. The Highway Capacity Manual was revised in December 1997 and revisions to signalized and unsignalized issued in early 1998, or more than two years ago. Release 3 of the HCS software was issued in 1998 with subsequent updates in 1999, and was readily available to the authors of the transportation section for use in preparing this document for a June 2000 issuance. There have been some significant changes in both the general approach to level of service (the current HCM measures control delay rather than stopped delay) and the procedures used to calculate LOS for both signalized and unsignalized intersections. Although I do not have copies of the detailed calculation sheets that were used for the analysis presented in the DEIS, I calculated levels of service without and with project traffic for 2005 using typical scenarios of turning movements at the intersection of 468th Avenue SE and SE 146m Street from Figures 6 and 8 of the Transportation Technical Report and Figure 3.12-7 of the DEIS. My results indicated LOS B without the project and LOS D or E (depending upon the specific assumptions used) with the project. The levels of service should be recalculated using the currently accepted methods and procedures. Please recompute levels of service at all affected intersections using the current LOS methodologies [however, please also see comments 2 and 3 below].

Response HCS 2.1 was the most current version of the software at the start of the project. The LOS has been recomputed using HCM 2000 methodology for the FEIS.

Comment *073-188* Question: How will the operational LOS analyses in the FEIS handle the issue of parameterizing intersection clearance times for different vehicle types?

Comment *073-189* Question: How will the operational LOS analyses in the FEIS handle the value for critical gap ?

Response The LOS analysis has been revised using HCM 2000. Critical gap and intersection clearance for various vehicle types, including existing vehicles and project trucks have been incorporated into the VISSIM analysis.

Comment *073-170* "Ideal conditions for intersection approaches include the following:

- Lane widths of 12 feet
- Level grade; no curb parking on intersection approaches
- Only passenger cars in the traffic stream
- All vehicles traveling straight through the intersection; intersection located in a non-central business district area; no pedestrians

At the intersection of 468th Avenue/146th Street, there is a discernable and measurable difference in elevation between the crest-level of the pavement running longitudinally down the middle of 468th Avenue and the level of the pavement at the stop-sign governing westbound traffic on 146th Street. There is a mini-grade. As project trucks poised westbound on 146th Street accelerate from a full stop to turn left onto 468th and head south, they would have to negotiate this mini-grade. This would have an effect on intersection clearance times for project trucks. Especially project trucks carrying transported quantities. Here is a non-ideal condition particular to the intersection of 468th Avenue/146th Street.

[Question: Was this non-ideal, mini-grade condition taken into account in parameterizing the operational LOS analyses for the intersection of 468th Avenue/146t Street in DEIS Transportation and, if not, will it be measured and taken into account in the operational LOS analyses in the FEIS?]

Response

The "mini-grade" is too small to impact the LOS on 468th Avenue SE at SE 146th Street. This was taken into account for both the HCS and VISSIM modeling.

Comment *073-172*

"There are several other implicit or explicit considerations (assumptions) of driver characteristics in the HCM procedures. One of these relates to the manner in which level of service is measured. [In the HCM,] average stopped-time delay [per the LOS report cards] is the principal measure of effectiveness used in evaluating level of service at. intersections. Given that the definition of stopped-time delay is straightforward (the time a vehicle is stopped in queue), it is related to driver characteristics indirectly through other mechanisms; for example the start-up time may be longer for [some] drivers. To the extent that delay on the link between intersections [like 468th Avenue itself between North Bend Way and 146th Street, either NB or SB] is considered when making delay calculations for [a roadway], it also is effected by speed selection by different types of drivers."

"[It] is important to recognize that the HCM is largely empirically based [actual data must be gathered, the more correctly and accurately the better] -- for example, the impact of wider or narrower lanes on driver behavior (chosen speed and following distance) finds its way into the HCM calculations as an adjustment factor in the uninterrupted flow calculations [that is, 468th Avenue itself along and between all intersections, an analysis not performed in DEIS Transportation -- see below]. These adjustments are based on how "average" drivers seem to behave [how it is expected they behave] on roadway sections with wider or narrower lanes, i.e., [it is a reasonable guess that] not as many vehicles will, on average, traverse a section with narrower lanes in a given unit of time, all other factors being equal. Of course, this in turn depends on who the drivers were on a given day when the data were collected -- one of things taken as "equal" by the HCM is the driver [as well as the characteristics of the day the data was collected]. To the extent that [an over- or under-representation of drivers of a certain personality type, or a certain vehicle type, or a certain age group, or a certain level of fatigue, or a certain level of familiarity with the area, or a certain gender, or a certain level of sobriety, or certain level of decision-making skills, etc.] were observed in the empirical base of data [during [the five] vehicle-count days in September 1998 and March-April 1999], "all other factors" clearly are not equal. What may be required is an adjustment [in HCM calculations] for the percentage of [different classes of drivers with varying characteristics] in the traffic stream--similar to heavy trucks, terrain, and so on [in HCM 1994, for two-way stop-controlled intersections, no such driver population adjustments exist]."

HCM 1994 says:

"The various performance procedures [e.g., calculations to arrive at the level of service for a two-way stop-controlled intersection] are based on average conditions throughout North America. They reflect normalized estimates of capacity and level of service, assuming that a given facility operates like the national average of facilities with the same physical, control and traffic characteristics.

[Questions: In North America, how many intersections (a count is requested) are there "with the same physical, control and traffic characteristics" as 468th Avenue/146th Street? How many of these intersections (a count is requested)provide both the ingress to a major truck-stop and the ingress and egress of a major mining operation on a two-lane roadway off an Interstate highway exit in a busy commercial and seasonal recreation area? Do these counts represent average and normalized? Can either the lead agency of the DEIS or the developer of the proposed NBGO or anyone else point to enough examples to make the circumstances of the proposed NBGO at the intersection of 468th Avenue/146th Street qualify as average and normalized?]

Response The count requested is not standard traffic engineering practice. The characteristics of this intersection have been taken into account as mitigations were developed.

Comment *073-190* LOS Analysis Selection Rationale.

468th Avenue Traffic.

"On...two-lane highways, it is often necessary to examine points of fixed interruption [like intersections] as well as uninterrupted flow segments [like 468th Avenue itself]."

"Cumulative transportation impacts. At least Alliterative 2 would accelerate the need to improve 468th Avenue SE from I-90 Exit 34 to SE 140th Street."

DEIS Transportation provides no LOS analysis of 468th Avenue itself. It is a two-lane stretch of roadway and the part of it that is in play, according to the description of the applicable study area in DEIS Transportation, and the assessment of cumulative impacts quoted above, stretches from I-90 EB Ramps to 140 Street. 468th Avenue is more than a reference point for the 4 intersections along it that are afforded most of the LOS analysis. HCM 1994 provides an entire chapter on capacity analysis procedures for two-lane roadways.

This is another example of point data or point circumstances (4 intersections) framing a limited perspective, when a larger perspective (468th Avenue between I-90 EB Ramps and 140th Street is invoked to make a much larger point. Another limitation of vision. And a sweeping conclusion drawn without the requisite analytical foundation.

[Question: Will the FEIS provide operational LOS analyses for 468th Avenue as a two-lane roadway stretching from I-90 EB Ramps to 140th Street?]

Response Because of the close intersection spacing on 468th Avenue SE the LOS at intersections control, not the LOS of the corridor itself. A VISSIM traffic analysis looked at the 486th Avenue SE corridor from I-90 past SE 146th Street.

Comment *073-177* Critical Gap And Gap Acceptance Behavior. "Operations at stop-controlled intersections are defined in the HCM as dependent on "judgmental tasks." Two critical factors are identified:

(1) The gaps that are available in the flow of traffic on the primary roadway [468th Avenue from the point of view of a project truck westbound on 146th Street, stopped at the head of the intersection, ready to make a left-turn onto 468th Avenue, across two lanes of opposing oncoming traffic].

(2) The acceptability of those gaps to motorists on the minor (controlled) approach [is there enough room between vehicles moving on 468th Avenue in two opposing oncoming streams to maneuver the project truck across them and onto 468th Avenue, and head south?].”

[W]hat constitutes an acceptable or usable gap is defined by the driver and this is fundamental to determining the expected or actual LOS of a facility. To the extent that the definition of what constitutes an acceptable gap or vehicle-spacing changes over time with changes in the driver population, both theoretical and observed LOS and capacity will change."

The HCM 1994 parameter for the critical gap, to is dependent on and defined by human gap acceptance behavior.

Comment *073-178*

Qualitative Factors In Gap Acceptance Behavior. Characteristics of the driver population will impact both what a gap means and what gaps will be accepted. “In terms of traffic flow on the primary roadway [like 468th Avenue], car-following behavior will define the size and number of gaps. [Some motorists] drive more slowly than others, [and] they will cause at least marginally more and larger gaps to be available in the traffic stream. [Some motorists] have different gap acceptance behavior than others while waiting on the minor approach [like 146th Street] -- this will not only effect their own behavior (more delay) but also the behavior of those who are queued behind them. The effect of the latter...is that the longer a motorist waits for a gap or has waited in the queue, the shorter the gap that will be accepted. Thus, the HCM assumption of a constant critical gap is questionable, which directly impacts capacity calculations. [D]river characteristics...will effect the operation of stop-controlled intersections: the potential availability of larger if not more gaps due to different car-following behavior of [some] drivers in the traffic stream; the needs of [some] drivers for larger gaps to cross or turn into the traffic stream; and the effects of prolonged waits in the queue on the length of acceptable gaps."

“The driver must first recognize that an intersection is ahead. The initial recognition may be as a result of physically seeing and recognizing some characteristics of the intersection, e.g., ...crossing traffic, or actually seeing the intersecting roadway, or slowing traffic ahead. Moreover, the encounter with the intersection can range from completely expected (the area is well known to the driver) to completely unexpected (the area is unknown). The general action that is required at the intersection is dependent on the navigational needs of the driver. For example, is a turn necessary, or is it appropriate to travel straight through? Given the need to turn or not, the driver must then determine what more specific type of action is required at the intersection. The range of actions includes simply proceeding with some degree of caution (the driver has the right-of-way); proceeding with caution and making a judgment about surrendering the right-of-way (e.g., an uncontrolled intersection); and responding to a [traffic control device] (sign and/or signal) in an appropriate way, given the presence or absence of other vehicles. Finally, the driver executes the appropriate maneuver(s) (e.g., stop and turn, proceed straight ahead without stopping) and passes on through the intersection. In this [framework], there are numerous places where the characteristics of the driver can have an effect on operations…”

And on operation calculations.

"[T]he intersection is unexpected and recognition occurs in terms of recognition/conspicuity and then legibility of [traffic control devices] (e.g., a flashing beacon over an intersection, or the standard intersection-ahead symbol sign). If a turn is necessary...differences in recognition and legibility distances for [different classes of drivers with varying characteristics] could have an effect on operations parameters. On the approach to the intersection, the driving "style" of older versus younger drivers can be characterized by differences in the speed at which each group drives. [It was found in a recent study] that older persons drove more slowly and were more likely to make navigational errors. Another aspect of driver performance as the intersection is approached is car-following behavior. [A deliberate] strategy might be to purposefully follow at greater and more cautious distances. [T]he reduced speed at which [some] drivers...operate would act to offset car-following problems as the driver, because of the speed differential, would more likely be the lead vehicle in a platoon [a slower moving vehicle regulating the speed of following vehicles]. [I]n terms of approaching an intersection, it would be expected that [some] drivers would be driving more slowly, which would have the general impact of slowing the overall traffic stream and possibly increasing platoon formation. [It was found in a recent study] that older drivers had, on average, legibility distances of about 100 feet less when compared with younger drivers for both day and night conditions. [It was found in a recent study] that older persons had differential speed responses and recognition distances that were 15 to 17 percent lower than other age groups (which equates to a 100-foot difference at about 600 feet). [It was found in a recent study] that while older drivers generally have more problems with low contrast signs, their visibility distances do not degrade at night, compared to younger drivers, whose night visibility distances are 15 to 20 percent shorter than during the day for positive contrast signs."

"Negotiation of the intersection itself has been identified as being a high risk maneuver to all drivers...Hesitancy on the part of the driver will tend to increase delay for other users with whom they interact. The problems include vehicle-vehicle interactions (e.g., is it safe/appropriate to make a left turn in front of an oncoming vehicle).

[A recent study] showed that [some] drivers require longer gaps in the opposing stream of through traffic when turning left, and [where] they are less likely to position themselves within an intersection while waiting to turn when compared to [other] drivers, their intersection clearance times are longer.. Once the driver actually enters the general area of the intersection, it is necessary to execute the required maneuvers while keeping track of numerous other potentially conflicting activities. The number and complexity of these activities depend on whether the intersection is signalized or not."

"At an unsignalized intersection...[all] other vehicles and any pedestrians must be monitored. Thus, the driver must be more alert to other vehicles and more closely monitor his/her position and speed. Unsignalized intersections would also typically require more active driver movements (e.g., head-turns) in the monitoring process. To the extent that [a] driver has difficulties in, for example, judging gap times or even in keeping track of oncoming vehicles, there will be some degradation of LOS for the intersection." "The speed at which a vehicle operates is a function of the driver's perceived capabilities of the vehicle...and perceptions about his/her own driving capabilities and skills. Based on reviews of accident and violation statistics and the self-reports of the drivers themselves, younger drivers tend to drive more aggressively and faster while older drivers tend to drive more slowly." "[S]lower-moving vehicles (regardless of why they are slower moving) tend to create platoons of vehicles in traffic, and the effect increases with increasing same-direction and opposing volumes [and no passing lanes on a roadway]." "[T]he driving task [requires] visual searching and vehicle control.

[A recent study] discusses "spare glance" duration in terms of how drivers allocate their visual search time among different tasks/stimuli. The tasks ranged from mirror glances during turning to reading roadway name signs. [The study] asserted that 85th percentile glance times at signs (about 2.4 seconds) were likely too long as 2.0 seconds is the maximum that a driver should divert from the basic driving task. [Some drivers] have problems dividing attention between searching for/reading signs and the basic driving task.

[Another study] made covert observations of random drivers at stop signs. For the stop and turn maneuvers, drivers had search times of 1.2 seconds to 2.6 seconds. [Various studies] imply that drivers, and especially older drivers, may have some difficulty appropriately allocating time and attention to different aspects of the driving task. To the extent that this is realized by the driver, there will be some compensation -- e.g., drivers may slow down to be able to successfully search for the appropriate information or they may not check other aspects of vehicle operation (e.g., gauges). The results of the compensation will either merely impede operations (e.g., slowing which potentially will cause platoon formation) or may reduce safety (e.g., erratic lane use or sudden speed changes)."

Comment *073-179*

What types and sub-types of drivers do as they drive -- how they perceive and think and react to internal and external stimuli and translate perception and thought and reactions into driving actions -- sequences of events, macro and micro, that are causes or consequences of other sequences Of events, macro or micro, in the process of driving -- all these things have been the subject of research, observation and modeling, over many years. The magnitude of information available about qualitative factors that influence gap acceptance behavior is very large. The survey of the last three pages is a sampling -- of the variability of driver judgment and behavior factors and their implications for calculations of roadway and intersection capacity.

Comment *073-180*

Quantitative Factors And Field Data On Gap Acceptance Behavior. The HCM 1994 default value for the critical gap, to is 6.5 seconds for a left-turn from a minor roadway (from WB 146th Street onto 468th Avenue SE) and 5.0 seconds for a left-turn from a major roadway (from NB 468th Avenue onto 146th Street/Seattle East Driveway WB)."..

[A] study of gap acceptance for the simple turning maneuver [left-turn from the minor approach road to a T-intersection, similar to the current configuration of the 468th Avenue/146th Street intersection, discounting the Seattle East Driveway portion of 146th Street] with subjects classified by age (31 to 40 versus 61 to 70) and gender found that females are more conservative than males, and that the judgment of older females is "appreciably worse than that of other classes of drivers."... [Data showed that] at about 30 MPH [the speed of the traffic on the major road, and comparable to speeds on 468th Avenue], older females would accept a minimum gap of 11+ seconds, young females about 10.4 seconds, older males about 7.8 seconds, and younger males about 6.8 seconds. Older drivers showed more variation than younger drivers, males less than females, and there were not statistically significant differences between young and old males.

"[Another study] looked at variations between day and night behavior...and found that drivers behave more conservatively regarding far-side gaps [for a driver stopped at a minor approach to a major roadway, relative to the lane of the major roadway in which oncoming traffic is approaching from the driver's right] at night (gaps are 1.0 seconds longer), whereas there are no differences for near-side gap acceptance [ditto, approaching from the driver's left] between day and night conditions."

"[Another study] examined both younger and older drivers as well as those with and without restricted range-of-neck movement [stopped at a minor approach to a major roadway, looking left and right over and over again, and in the rearview mirror]. Decision time [gap acceptance] increases with age. Only younger persons were found to be able to overcome their impairment. The overall decision times were: 14.4 seconds for impaired older persons, 12.1 seconds for unimpaired older persons, 11.4 seconds for impaired younger persons, and 11.3 seconds for unimpaired younger persons."

You have a bad night's sleep because the pillows weren't set right and you wake up with a stiff neck -- your gap acceptance behavior will be different that day and maybe for a few days more and you will probably only accept longer gaps."[One study] collected judgments about the acceptability of gaps and lags in traffic. [Some] subjects accepted shorter gaps and rejected lags later than [other] subjects. The 50-percent gap acceptance point was about 7 seconds (i.e., if a gap is 7 seconds long, only about half of the subjects would accept it). The 85th percentile point is approximately 11 seconds. [One] group required about 1.1 seconds longer than the [another] group. Subjects were willing to accept a briefer temporal margin for rejection of a lag than for acceptance of a gap (i.e., subjects were willing to execute a maneuver until an approaching vehicle was 5.3 seconds away). The [one] group had a 0.5 second longer lag rejection point than those in the [other] group." "[Another study] relates changes in driver behavior to operational considerations, [and argues] that use of median gap acceptance times [fixing it at a single value for the entire driver population] in calculating capacity and LOS of minor movements at unsignalized intersections [again, the left-turn from WB 146th Street onto 468th Avenue SB] is biased, primarily because virtually all gaps greater than 14 to 15 seconds are accepted. Moreover, drivers were observed to accept shorter gaps as a function of how long they had already waited -- e.g., a driver who waits long enough will likely eventually accept a gap which is shorter than one...already rejected. That is, the critical gap to be accepted is not constant (as is assumed in the Highway Capacity Manual). Thus, HCM calculations will be in error until situational influences, as noted above, can be taken into account."

"[Another study] examined the gap acceptance behavior of auto and truck drivers and found that a gap of 8.25 seconds was accepted by 85 percent of the automobile drivers for both right and left turns at a moderate-to-high volume intersection. For low volume situations...a gap of 10.5 seconds was accepted by 85 percent [at a 'lower-energy' intersection, gap acceptance increased -- what human traits explain that?]. For truck drivers, the respective gaps were 10.0 and 15.0 seconds [ditto]. [The study] compares these results with those of several other gap acceptance studies and concludes, in general, that while these results are comparable, the HCM appears to be on the low side [in the default values of its critical gap parameters]."

"Overall, [studies of] gap acceptance [have] indicated that there are differences in the behavior of drivers at unsignalized intersections and that, notwithstanding these differences, calculations of operations-related parameters (e.g., capacity) are subject to...error because of the underestimation of gap acceptance embodied in standard reference materials such as the Highway Capacity Manual...the assumption of a constant critical gap appears unwarranted as the result of observations that it may decrease with increasing wait time, which would lead to an underestimation of capacity."

Gap acceptance is measurable in the field. There are variations based on age, gender, time of day, physical agility, intersection volume (perceived 'energy'), vehicle type, driver type -- in these examples.

By and large the HCM 1994 default for critical gap is low or underestimated or inaccurate f or field-measurable conditions. And thus it yields erroneous capacity calculations, such as intersection delay times.

***Comment** 073-181*

AASHTO Green Book and HCM. "The [AASHTO Green Book] has been the source of most of the design values and criteria used in geometric highway design. Although most States and agencies have developed their own standards, the design approach and design values shown in the AASHTO policies are accepted by consensus and form the basis for individual State design practices."

In the transportation engineering field, the AASHTO Green Book is the basic compendium reference for roadway design, and the HCM is the basic compendium reference for operational analysis. They address similar problems and issues from the perspectives of two different disciplines. Roadway design incorporates the use of operational analysis to validate designs. Operational analysis is used to shed light on new or improvements to roadway designs. They have common interests -- one of these is transportation safety.

One can visit the AASHTO or HCM web-sites and, starting from publications, articles, membership lists, recommended links, etc., follow the trail of transportation engineering research, papers, symposium results, e-mail, etc. in various public and private electronic libraries. By examining the content and the references of such documents it is clear that the AASHTO perspective and the HCM perspective are two ways of expressing the same concepts and addressing the same problems. They use one another.

"[A recent study states] that the Highway Capacity Manual and AASHTO guidelines are based on gap acceptance logic that is incorrect."

Let's see how the AASHTO and HCM perspectives use one another for mutual benefit in the matter of critical gap and gap acceptance behavior.

AASHTO Cases III-B and V. The issue being examined, accurate critical gap values, finds expression in AASHTO's roadway design policies in intersection movement Cases.

Cases defined include:

ISD or Intersection Sight Distance in the descriptions of these Cases is: that length of roadway along an intersecting road that a driver needs to see to be able to decide if a turning or crossing movement will fit in the flow of traffic. ISD casts the issue being examined in a distance dimension. Critical gap/gap acceptance casts the issue being examined in a time dimension.

Case III-B: Stop-Control, Left-Turn: ISD for a vehicle [a project truck] on a STOP-controlled approach on the minor road [146th Street] to accelerate from a stopped position and turn left [across two lanes of opposing 468th Avenue traffic oncoming in both the NB and SB directions] onto the major road [468th Avenue, and head south].

Case V: Stop-Control, Vehicle Turning Left from Major Highway: ISD for a vehicle [a heavy truck] stopped on a major road [468th Avenue], waiting to turn left [across one lane of 468th Avenue traffic] onto a minor road [Seattle East Driveway], where it must yield to opposing traffic on the major road[468th Avenue traffic oncoming in the SB direction].

The AASHTO Green Book casts these intersection movement Cases in terms of ISD and analyzes them in terms of perception-reaction time (PRT) values. HFR1 1997 provides a long discussion of the adequacy of the PRT values used by the AASHTO Green Book in intersection movement Cases, as it effects AASHTO standards for ISD. The PRT values are found to be of questionable and sometimes very questionable adequacy, yielding questionable ISD values, for reasons related to driver judgment and behavior factors and other influencing factors (an implication is that HCM's version of the problem has similar inadequacies). This leads in HFR1 1997 to a discussion of better alternatives.

"Intersection sight distance models are presently [circa 1997 and post-HCM-1994] being reviewed and possibly revised as a part of a current NCHRP [National Cooperative Highway Research Program] study, No. 15-14(1), titled Intersection Sight Distance, which is being conducted by Midwest Research Institute. The objective of this study is to evaluate current AASHTO methodology for intersection sight distance for all cases and, where appropriate, recommend new or revised models."

***Comment** 073-182*

Case V Recommendations. "In developing the gap acceptance model for Case V, [a key study] relied on data from [previous studies recommending] a critical gap value of 4.2 seconds for left turns from the major road by passenger cars for inclusion in the unsignalized intersection analysis procedures [in HCM 1994]. A constant value was recommended regardless of the number of lanes to be crossed; however, a heavy-vehicle adjustment of 1.0 seconds for two-lane highways was recommended. [This key study] reported that [one of the previous recommending studies] of gap acceptance behavior for left turns from the major roadway at two Pennsylvania intersections resulted in critical gaps with 50 percent probability of acceptance of 4.6 seconds and 5.3 seconds. Using the rationale that design policies should be more conservative than operational criteria [but only when discounting the safety factor] [the key study] recommended a critical gap for left turns from the major roadway of 5.5 seconds [for passenger cars], and that the critical gap be increased to 6.5 seconds for left turns by single-unit trucks and to 7.5 seconds for left turns by combination trucks."

In other words, the recommended Case V critical gap is:

- Passenger Car: 5.5 seconds
- Single-Unit Truck: 6.5 seconds
- Combination Truck: 7.5 seconds

Comparable values in HCM 1997:

- Passenger Car: 4.1 seconds
- Single-Unit Truck: (not addressed by HCM 1997)
- Combination Truck: (not addressed by HCM 1997)

Comparable values in HCM 1994:

- Passenger Car: 5.0 seconds
- Single-Unit Truck: (not addressed by HCM 1994)
- Combination Truck: (not addressed by HCM 1994)

"[It should also be noted that] diverse findings argue that an appropriate value for [critical gap] in the gap acceptance model will lie toward the upper end of the 7-to-11-seconds range to accommodate older drivers, while also preserving a margin of safety."

***Comment** 073-183*

Case III-B Recommendations.

"For ISD [Case III-B]...field study results indicated that a model based on gap acceptance held great potential as a method for determining [and for replacing the AASHTO Green Book method for] ISD criteria at stop-controlled intersections. Table 5 [shows that the critical gap for a left-turn from a minor road is anywhere from 7.0 to 8.2 seconds]. [It is reported] that at least two State highway agencies use...criteria based on gap acceptance for ISD Case III-B. The California Department of Transportation uses criteria for Case III-B based on a 7.5 second gap in major-road traffic. Similarly, the Oklahoma Department of Transportation uses an 8.0 second gap for turning maneuvers by passenger cars and a 12.0 second gap for turning maneuvers by trucks in Case III-B [circa 170, 000 project truck trips per year in Alternative 2 would pass through the intersection at 468th Avenue/146th Street. [It is recommended] based on the data collected in the three field studies [that the AASHTO Green Book use [and by implication, HCM procedures adopt/adapt] the values for] critical gap presented in Table 6, for left-turns onto the major roadway at stop-controlled intersections.'

Table 6 shows the recommended Case III-B values for critical gap:

- Passenger Car: 7.5 seconds
- Single-Unit Truck: 9.5 seconds
- Combination Truck: 11.5 seconds

Comparable values in HCM 1997:

- Passenger Car: 7.1 seconds
- Single-Unit Truck." (not addressed by HCM 1997)
- Combination Truck: (not addressed by HCM 1997)

Comparable values in HCM 1994:

- Passenger Car: 6.5 seconds
- Single-Unit Truck: (not addressed by HCM 1994)
- Combination Truck: (not addressed by HCM 1994)

Comment *073-184*

There is at least professional disagreement about and there are clearly changing values for the value of critical gap based on actual gap acceptance behavior. It is an ongoing field of study but as of three years ago a major direction in the transportation engineering field was accounting more and more accurately for intersection dynamics in terms of gap acceptance behavior (i.e., accounting for those pesky driver judgment and behavior factors). A review of publicly-available information on HCM 2000 indicates HCM 1997 got on the bandwagon in 1997 and the trend will continue in HCM 2000 when it is available later this year. That doesn't help HCM 1994.

The practical value of HCM 1994 and even HCM 1997 in analyzing an intersection where there are volumes of mixed traffic (passenger cars, single-unit trucks and combination trucks as represented above -- passenger cars and heavy trucks today, project trucks, it is proposed, tomorrow, in the Exit 34 environs) is doubtful. Just as more and more driver judgment and behavior factors are being researched and accounted for, transportation engineering research and recommendations more-current-than-1994 account more and more explicitly for individual behaviors of vehicle types, going, for example, beyond fitting trucks into a calculation model by converting to PCEs.

The implication for DEIS Transportation is the questionable adequacy and accuracy of its operational LOS analyses (based as they are on the state-of-the-art of 1994). For

intersections in the Exit 34 environs that incorporate movements represented by AASHTO Cases III-B and V, particularly 468th Avenue/146th Street, the analyses are very questionable.

One is that AASHTO is 'roadway design' and HCM is 'operational analysis'. The premise of this objection goes something like 'never the twain shall meet'. This was addressed above in AASHTO Green Book And HCM.

A second objection is that roadway design requires 'more conservative' values than operational analysis. An analogy in this line of objection is the difference between the design speed of a roadway versus the posted speed limit. The design speed -- how fast roadway geometry allows you to go, without the constraints of other traffic -- is generally difference between higher ('roadway design') and lower ('operational analysis') values for critical gap as fortuitous and unnecessary, and to err on the higher side -- "to regard the difference as simply an additional margin of safety."

A third objection is that PCE conversions do account for any difference between vehicle types in HCM calculations, including critical gap values based on gap acceptance behavior. This is putting too much faith in a calculation model (HCM 1994 itself warns against this -- see various quotes above); and assumes the calculation model is reality instead of a representation of it under a number of bounding assumptions that are subject to question. It is intuitive that 70-80 foot trucks driven by human beings carrying full heavy loads negotiating for position at a busy intersection in the rain will behave very differently, given the foibles of the real world, than big trucks converted to PCEs carrying nothing, flowing through a parameterized intersection in average or ideal conditions, in a calculation model.

Response Gap time was collected in February 2001 and input into the VISSIM model. The study followed accepted HCM 2000 methodology. Gap was observed in the field on 468th Avenue SE. A summary of the gap analysis is included in the Appendix of VISSIM attached to the Transportation Technical Report.

Comment *073-185* [Question: Why are the operational LOS analyses in DEIS Transportation predicated on HCM 1994? Why weren't the operational LOS analyses predicated on HCM

Response HCS 2.1g was the most current version of the software at the start of the project. The LOS was recomputed using HCM 2000 methodology for the FEIS.

Comment *073-186* [Questions: What critical acceptance gap factors were used in the operational LOS analyses in DEIS Transportation for "left turn, major street' and "left turn, minor street" Were they the 1994 defaults? Were they the 1997 defaults? Were they other values obtained from empirical research and analysis focused on obtaining a factor representative of actual conditions at all intersections along 468th Avenue, and particularly at 146th Street? Were they other values obtained from some other analytical method? In reference to the last two questions, is there data and analysis available for inclusion in the FEIS?]

Response The default values were used in the DEIS. Actual gap valves were used in VISSIM model for the FEIS.

Comment *073-187*

[Question: Do the critical gap values or other appropriate HCM 1994 parameters used in the operational LOS analyses in DEIS Transportation take into account, and will such values and parameters used in the FEIS take into account:

(1) Acceleration differentials for project trucks carrying transported quantities on the mini-grade of the egress onto 468th Avenue from the stopped position at the intersection of 468th Avenue and 146th Street in a westbound left-turn movement?

(2) Project trucks or similar trucks off tracking out-of-lane some percentage of the time in such left-turn movements?

(3) The probability that two project trucks will interfere with one another in the intersection of 468th Avenue/146th Street because of off tracking out-of-lane? Differentials in judgment and behavior by various segments and sub-segments of the driver population, and by drivers of various vehicle types, including drivers of various configurations of project trucks?]

Response

The analysis has been revised to follow HCM 2000 standards and includes a VISSIM analysis that more clearly represents actual vehicle movements.

Comment *073-193*

Present Applicability Of "Operational LOS Analyses." "Due to recent circulation improvements implemented by Seattle East Auto Truck Plaza.

"This is the only mention of these "circulation improvements" in Section 3.12, in the context of congestion in the Exit 34 environs during I-90 closures (Snoqualmie Pass closures due to snow). One aspect of the "circulation improvements", implemented prior to the issuance of the DEIS, is a DO NOT ENTER sign at the (now former) eastbound from Seattle East at 468th Avenue/146th Street. This means that the "EB Left, Through, & Right" movements in all 11 LOS report cards do not exist.

Isn't it standard analytical practice to check facts and circumstances critical to an analysis?

Comment *073-194*

[Question: Shouldn't the authors of, or contributors to, or pre-issuance reviewers of DEIS Transportation have inferred the existence of an issue affecting the integrity and validity of the LOS analyses, based on the stated existence of "recent circulation improvements implemented"?]

Comment *073-196*

[Question: Why isn't it a reasonable conclusion that all 11 LOS report cards demonstrate questionable integrity and validity, since the "EB Left, Through, & Right" movements in all 11 LOS report do not exist?]

Comment *073-197*

Knowing about the DO NOT ENTER sign, one wonders why the LOS analyses are even in DEIS Transportation in their present form.

Response

At the time the analysis was run, traffic was entering the intersection from the west-leg. The traffic pattern at SE 146th Street could change many times in the next 25 years. It is assumed that the I-90 traffic pattern is the worst case scenario for 468th Avenue SE at SE 146th Street SE.

Comment *073-198*

Precision Of Results. "The results of capacity computations are no more precise or accurate than the information or data used as inputs to the analysis. Thus where traffic counts are only accurate to within 5 percent, or where projections are subject to even

larger errors [see Traffic Volume Forecast Assumptions above] computations cannot be expected to be accurate to the nearest vehicle per hour or mile per hour."

"Because each of the factors used in capacity and level of service analysis is subject to a 'plus or minus' accuracy, the results of such calculations should not be presented in a way that portrays them as absolute and precise values. For example, if a delay estimate at an...intersection is calculated at 25.4 seconds, presentation of the results should be rounded to the nearest second, and in fact, the true delay might be in the range of 25 seconds plus or minus 10%."

All 11 LOS report cards in DEIS Transportation contravene this directive from HCM 1994. Didn't someone read the manual?

Response Comments noted. Numbers are for comparison of alternatives to each other.

Comment *073-195* [Question: Shouldn't the authors of/contributors to DEIS Transportation have made the field trip to the Exit 34 environs to review the facts and circumstances, based on the stated existence of "recent circulation improvements implemented"?]

Response The traffic analysis is for the DEIS alternatives.

Comment *073-134* For now, what was Done on Capacity by DEIS Transportation is based on performing the LOS analyses and reporting their results. Their quality and their validity are issues (see AM And PM Peak Hours above) -- more discussion on their quality and validity is in Section 2. 3.3 OTD.

Response The analysis follows HCM 2000 Standards and includes a VISSIM analysis of various options.

Comment *073-168* Know Your HCM

HCM 1994 says:

"There is no substitute for correctly collected and adequately presented field data. A capacity analysis based on inaccurate roadway, traffic, and control information will produce erroneous results."

See Summary: Pavement Conditions, AM And PM Peak Hours and Traffic Volume Forecast Assumptions above.

"Although some local authorities have made the use of the techniques included in this manual mandatory for traffic analyses [see HCM 1994, HCM 1997, HCM 2000 above], no computation based on these procedures should be construed as mandating or requiring the implementation of a particular improvement or design alternative."

"The results of capacity analysis do not replace the need to consider local legal, societal, environmental, behavioral, and other specific requirements, constraints, and conditions."

Comment *073-169* The Ideal; The Average And The Calculated

"...assumptions in operations-related calculations..."

HCM 1994 says:

"Many of the procedures in this manual provide a formula of simple tabular or graphic presentations for a set of specified standard conditions, which must be adjusted to account for any prevailing conditions not matching those specified. The conditions so defined are often ideal conditions. Ideal conditions assume good weather, good pavement conditions, users familiar with the facility, and no incidents impeding traffic flow."

And do not account for judgment and behavior variability in the driver population (among many other factors, there is much recreational and transient truck traffic in the Exit 34 environs, and it is reasonable to assume that not all the vehicle operators are "familiar with the facility"). And do not account for weather patterns, e.g., rain and fog in the Exit 34 environs. And do not account for combination trucks off tracking and delaying traffic while negotiating a left-turn from a minor street across two lanes of opposing oncoming traffic. Etc.

Comment *073-171* "In most capacity analyses, prevailing conditions are not ideal, and computations...must include predictive adjustments to reflect this absence of ideal conditions."

"Where local data are available in sufficient sample quantities and in an acceptable form they may be used to fine-tune the [calculation] procedures [in HCM 1994]... Procedures specify certain average relationships and values, determined for average U.S., and in some instances Canadian, conditions. The procedures can often be made more accurate by substituting local calibrations for these average values."

Adjustments can be made to HCM 1994 input parameters. Using PCE=4 for project trucks is such an adjustment. In general, however, adjustments cannot be applied to driver judgment and behavior factors or to geo-physical factors in HCM 1994 without an extraordinary data-gathering ("in sufficient sample quantities") and analysis/adaptation ("in an acceptable form") effort. The opportunities HCM 1994 provides to modify its input parameters in a straightforward way for such factors is virtually nil.

Response While following the HCM 2000 methodology for the EIS we have taken into account heavy traffic, future school use, converting trucks into PCE's and engineering judgment. The physical factors of the existing roadways was also included in both the HCM and VISSIM traffic analysis.

Comment *073-214* LOS analyses contravene HCM 1994 directives about the precision of reported results.

Comment *073-215* LOS analyses report limited results in not reporting certain results for two critical movements for the most critical intersection in the Exit 34 environs for the presence of project trucks of the proposed NBGO, 468th Avenue/146th Street.

Comment *073-216* Traffic impacts at the intersection of 468t" Avenue/146th Street do not clearly satisfy King County C 14.80.030 (A) criteria for significant adverse impacts per King County Intersection Standards, but this is not based on the results of the operational LOS analyses, which may be considered indeterminate. Traffic impacts arguably satisfy

King County C 14.80.030 (B) criteria for significant adverse impacts. Traffic impacts are subject to King County C 14.80.060 (B).

Response With the use of HCM 2000, there is a revision of the existing (base) year 2005 traffic data to include two schools and a new industrial/truck building. The creation of a VISSIM traffic model for year 2005 (existing) plus year 2025 for all alternatives shows a need for mitigation of significant adverse traffic impacts on 468th Avenue and at intersections with 146th Street and/or North Bend Way, and with I-90.

Comment *073-204* HCM 1994 is out-of-date and its use is not consistent with the preference and mandate of King County law.

Comment *073-210* In more-current-than-1994 thinking in the transportation engineering field, critical gap values for two critical intersection movements have been re-evaluated and recommended values are quite different and more robust across vehicle types than values in either HCM 1994 or HCM 1997. These two critical intersection movements apply to the most critical intersection in the Exit 34 environs for the presence of project trucks of the proposed NBGO, 468th Avenue/146th Street. The implication is the results of the operational LOS analysis for this intersection in particular are very questionable.

Response HCM 2000 is used in FEIS.

Comment *073-205* Capacity analysis is only part of the traffic and safety equation. Capacity analysis as practiced by the HCM 1994 calculation model accounts little for variations in driver judgment and behavior factors, which are broad and deep, and determine much of the answer to the traffic and safety equation.

Response Noted. HCM 2000 is used in FEIS and additional judgments were made to fine tune its use.

Comment *073-207* HCM 1994 is a calculation model that assumes the average or the ideal, and makes bounding assumptions about conditions that may not reflect real conditions. It is up to the users of HCM 1994 as a tool to parameterize it to correspond to the actual and the factual, where local conditions do not match the average or the ideal.

Response Noted. Adjustments like PCE = 4 for trucks were made in the analysis text.

Comment *073-208* Critical gap is determined by human gap acceptance behavior and defines a key influence on the calculations of intersection delay times.

Comment *073-209* There is much variability in human gap acceptance behavior, qualitatively and quantitatively. HCM 1994's assumption of a constant critical gap does not account for such variability and is a questionable premise. Measured human gap acceptance behavior shows HCM 1994's critical gap to be low or underestimated in a number of circumstances, yielding erroneous calculation model results.

Response Vehicle (especially truck) gap was field measured in February, 2001.

Comment *073-211* LOS analysis for 468th Avenue as a continuous two-lane roadway was not performed and should have been.

Response The corridor is too short with too many intersection for corridor LOS analysis.

Comment *073-212* LOS analysis for school transportation could have been performed, given community concern.

Response School traffic volumes have been added to year 2005 traffic volumes and projected to 2015 and 2025. These volumes were used in the LOS analysis.

Comment *073-213* LOS analyses for the intersection of 468th Avenue/146th Street are presently invalid because of changes to the configuration of the intersection that occurred prior to issuance of the DEIS.

Response LOS analysis for this intersection was performed based on the current configuration.

3.12.4.1 Methodology

Comment *073-100* AM and PM Peak Hours.

"The AM and PM peak commuter hours were selected for operational LOS analyses. The AM peak hour is from 7 a.m. to 8 a.m., and the PM peak hour is from 4:30 p.m. to 5:30 PM."

Why?

Response These peak hours offer the worst combination of LOS at intersections, traffic conditions, and turning movements over a 20-year timeframe, as discussed in the FEIS.

Comment *073-106* Or is the selection of the PM peak hour of 4:30 PM to 5:30 PM pursuant to RC W 43. 21 C. 031 (1) ?

Comment *073-107* "The PM peak hour selected for operational LOS analyses" is not germane to the problem of determining impacts caused by project traffic (although it is germane to the problem of determining impacts not caused by project traffic, if that is relevant). 4:30 p.m. to 5:30 p.m. is an incorrect selection. The implication is the LOS analyses that incorporate this PM peak hour per Tables 3.12-3 (Existing), 3.12-5 (Alternative 1), 3.12-10 (Alliterative 2), 3.12-12 (Alternative 2 compared to Alternative 1), 3.12-16 (Alternative 3) and 3.12-18 (Alternative 3 compared to Alternative 1) worked with irrelevant timeframes and thus the wrong data. While the LOS analyses may be correct for the 4:30 p.m. to 5:30 p.m. timeframe, they are of little interest for a PM peak hour.

Discarding any 60-minute period between 4 p.m. to 7 p.m. as a candidate timeframe for a PM peak hour, it is straightforward to find a relevant one between 12 p.m. and 4 p.m.

It can be shown that in Alternative 2 or Alternative 3 for all forecasted years the order, highest-to-lowest, of traffic volume for the 4 afternoon hours between 12 p.m. and 4 p.m. is:

(1) 3 p.m. to 4 p.m.

(2) 12 p.m. to 1 p.m. or 2 p.m. to 3 p.m. (depending on alternative)

(3) 12 p.m. to 1 p.m. or 2 p.m. to 3 p.m. (depending on alternative)

(4) 1 p.m. to 2 p.m.

The correct and relevant choice for a PM peak hour -- the hour at the top of the list -- is 3 p.m. to 4 p.m.

Comment *073-108*

Answer.

"The AM and PM peak commuter hours were selected for operational LOS analyses. The AM peak hour is from 7 AM to 8 AM, and the PM peak hour is from 4:30 PM to 5:30 PM."

The key word is 'commuter'. The objective import of the two sentences is the same without the word 'commuter'. It was selected for inclusion. It serves as a justification of the erroneous selection of an AM peak hour and the irrelevant selection of a PM peak hour.

'Commuter' creates a concern that 'the drive to work is in play' and an interest that 'a potential problem involving the drive to work is being addressed'. This is an attention-focusing technique. The consequence -- and, it is maintained, the motivation -- is to focus concern on the "rush hour", pandering to the common notion that the worst (whatever that may mean to a 'commuter's' perception of the daily trek) occurs during the "rush hour", in the morning circa 8 or 9, in the evening circa 5 or 6. (Remember, the preponderance of project truck traffic occurs outside the AM and PM peak hours selected, and not quantified for general examination, by DEIS Transportation.)

Once attention is focused, the results roll in. The irrelevant PM peak hour, once factored into "operational LOS analyses", yields the identification of an out-year potential improvement to traffic flow in the Exit 34 environs (a signal at I-90 EB Ramps/468th Avenue sometime after 2015). Is this germane to the impacts and existence of the proposed NBGO? No -- but it appears in the text of Section 3.12 that it is an important good fortune to stumble upon the potential improvement. Here are all the places in the text of Section 3.12 that analyze and discuss the potential improvement:

"468th Avenue SE (Exit 34) operates, and would continue to operate, within acceptable standards with one exception. At the I-90 eastbound ramps during the PM peak hour, horizon year 2025, vehicles on the off-ramp would experience long delays due to heavy usage of 468th Avenue SE. A traffic signal may be warranted at this location in the long-term future. If a traffic signal is installed by the year 2025, it would operate at LOS C (average delay of 21.1 seconds per vehicle)."

"Under Alternative 2, 468th Avenue SE (Exit 34) would continue to operate within acceptable standards with one exception. At the I-90 eastbound ramps during the PM peak hour, horizon year 2025, vehicles on the off-ramp would experience long delays due to heavy usage of 468th Avenue SE. The eastbound left turn movement from the I-90 off-ramp to 468th Avenue SE would operate at LOS F with or without the proposed project in the year 2025. The additional traffic generated by the Proposal would exacerbate this poor level of service. However, with use of a traffic signal with the same timing plan that was evaluated for the No Action Alliterative at this location, the overall intersection delay would only increase by 0.7 second per vehicle in the horizon year (2025) and operate at LOS C."

"Besides the 468th Avenue SE/SE 146th Street intersection, there are concerns about additional vehicular traffic at the I-90 eastbound ramps and 468th Avenue SE intersection. This intersection would reach capacity by the year 2025."

"Intersections at 468th Avenue SE would continue to operate within acceptable standards with one exception. At the I-90 eastbound ramps (Exit 34) during the PM peak hour, horizon year 2025, vehicles on the off-ramp would experience long delays due to heavy usage of 468th Avenue SE. At this intersection, the addition of a few project vehicles at the critical over-capacity movements under Alternative 3 would cause the intersection delay to increase substantially. However, with use of a traffic signal with the same timing plan that was evaluated for the No Action Alternative at this location, the overall intersection delay would only increase by 0.3 second per vehicle in the horizon year (2025) and operate at LOS C."

"Besides the 468th Avenue SE/SE 146th Street intersection, there are concerns about additional vehicular traffic at the I-90 eastbound ramps and 468th Avenue SE intersection. This I-90 eastbound ramp intersection would reach capacity by the year 2025, as noted in Section 3.3.2 of the Technical Report."

"Installing a traffic signal at the intersection of 468th Avenue SE and the I-90 eastbound off-ramp would improve the level of service from LOS F to LOS C by year 2025."

Based on the volume of discussion and analysis afforded this out-year potential improvement, it must be crucial -- it is not, except in a capacity analysis mind-set. This out-year potential improvement is given more play -- more column-inches in the daily rag -- than more immediate and tangible issues of impact like pavement wear or conditions (see Pavement Conditions above) or project truck off tracking behavior (see Off tracking below) and others.

***Comment** 073-109*

If the relevant PM peak hour of 3 PM to 4 PM had informed the LOS analyses, would this potential out-year improvement have been discovered?

***Comment** 073-110*

The discovery and re-discovery (see quotes above) of the potential improvement bolsters mitigation ideas in Section 3.12.13.2, even though the analytical foundation is an irrelevant PM peak hour. The underlying drumbeat of the quotes above is that identifying the potential improvement is a boon to the 'commuter'-community and (incidentally) a good thing for gravel pit traffic in likely congestion situations.

Is this why "cumulative transportation impacts under Alternatives 2, 3, and 4 should be viewed in terms of localized and regional growth in traffic."

It is arguably a benefit to traffic-flow planning looking 15 to 20 years ahead to be aware there is a potential issue with the intersection at I-90 EB Ramps/468th Avenue. In the present day it is a lesser concern, when many other issues of environmental impact related to the transportation expectations of the proposed NBGO go unanalyzed and undiscussed.

***Comment** 073-111*

The discovery of the potential improvement means taking credit for it (see quotes above). The community (all 'commuters' whose concerns were selected via erroneous or irrelevant peak hour analyses) owns the :potential improvement and parties to the proposed NBGO share and support all improvements to traffic flow (especially when they benefit the proposed NBGO). The good deeds of the proposed NBGO -- the 'commuter' is served.

The zeal of the proponents of the proposed NBGO knows many forms. The authors of/contributors to DEIS Transportation selected its words. Where else did the word 'commuter' come from?

Comment *073-112*

Where in RCW 43.21C or WAC 197-11 or King County C 20.44 is it a requirement or a suggested good practice in an environmental impact statement to attempt to persuade in this fashion, persistently, especially when there are environmental impacts that are glossed over elsewhere in DEIS Transportation?

Response

The selection of both the AM and PM peak hours of 7:00 a.m. to 8:00 a.m. plus 4:30 p.m. to 5:30 p.m., respectively, is pursuant to RCW 43, 21C.031(1). In the AM peak hour the project traffic is at maximum levels. During PM peak hour, overall traffic is at maximum level, and project is a small portion of that maximum level.. The peak hours were based on traffic counts of the existing traffic. Looking at 20 to 25-year span, project traffic is not expected to grow. The two peak hours reflect where the greatest traffic growth is expected. The necessary capacity of the roadway system over this 25 year time span to handle all traffic is relevant to the community and King County. Assuming the school traffic is part of existing traffic in the year 2005, the a.m. peak hour of 7:00 a.m. to 8:00 a.m. has very similar traffic to the 3:00 p.m. to 4:00 p.m. traffic on local streets. The 4:30 p.m. to 5:30 p.m. peak traffic includes more of the I-90 ramp traffic coming home from work from the western employment centers in Seattle.

Comment *073-135*

Cases.

The worst case or the special case or the limited case analysis made on point data or point circumstances is not all that matters, and it is not even a medium to large part of what does matter. The worst case or the special case is not representative, only indicative of a selected part of a condition. A selection is made with intent.

The continuous case is the typical and representative case, the live-it-and-breathe-it case, and that is what matters at the end of the day, at the end of the month, at the end of the year, at the end of 25 years, and over all dimensions of time in between.

The difference between the two types of cases is: in the worst or special or limited case you pay attention only to what is perceptible from the outside, where in the continuous case you acquire and internalize the content and you know the dynamics of what is on the inside.

You see an anthill. From the outside you know there are ants in it, probably a lot of them, but you approach no closer and look no closer. You limit your vision.

Or you could get a shovel and take a shovel-full of the anthill and spread it on the ground -- and you would see, clearly, how many ants there are, their appearance, their density, their directional movement, what they are carrying -- their actual and frequent presence.

Response

To determine LOS and capacity analysis following HCM 2000 Standards the Transportation chapter continues to use the AM and PM peak hours and worst case condition. Review of continuous (case) traffic and proposed project traffic justifies this as noted in the EIS.

Comment *073-202* Based on discussion in the present Section OTD on LOS analysis issues in DEIS Transportation, and discussion elsewhere in this document with LOS analysis implications, it may be indeterminate what the LOS of various intersections in the Exit 34 environs really are. Note that the King County standard of LOS 'E' means there is no significant adverse impact even where congestion is very high and approaches or brushes up against gridlock conditions (LOS 'F'). Where LOS values are an indicator of driver discomfort and frustration, fuel consumption, and lost travel time, the King County standard may be construed as lax where applied to non-urban or rural areas.

Response The definition of LOS levels is stated in the EIS.

Comment *012-168* [DEIS §3.12.4.1; p. 3.12-8] In the Level of Service analysis, the 1997 update to the Highway Capacity Manual should have been used. Given that its release is imminent, the FEIS should use the 2000 edition of the HCM.

Response The LOS has been recomputed using HCM 2000 methodology for the FEIS.

3.12.4.2 Peak Hour Analysis

Comment *073-018* 95% Queue Length is a parameter that occurs only in Table 3.12-3. Then it disappears from the delay conditions analysis, with no explicit explanation. In this case, the disappearing parameter seems to have value for all variations of the delay conditions analysis, at least in the TTR. Why was it introduced once and then permanently un-introduced? In the audience's perception, there is an issue of unnecessary omission and the unanswered question of the lack of value of the information in the perception of the authors of/contributors to the DEIS.

Response Queuing is summarized in the FEIS and discussed in detail in the VISSIM analysis in the Transportation Technical Report.

Comment *073-101* Definitions. King County's Integrated Transportation Program defines 'peak period and 'peak hour':

"5.27 "Peak Period" means a composite one hour afternoon period during which each roadway section carries its maximum volume of traffic. For the purposes of intersection analysis, the peak period may be morning or afternoon, depending on which time experiences the worst traffic conditions. In determining which period to analyze, both traffic volumes and turning movement volumes for specific intersections will be considered."

1 hour, morning or afternoon, maximum traffic volume, worst traffic conditions, turning movement volumes a consideration.

"5.28 "Peak hour" means, for purposes of IS standards [King County C 14.80], the one hour period during which an intersection experiences its worst level of service. For the purposes of IS, the peak hour may be morning or afternoon, depending on which time experiences the worst traffic conditions. In determining which period to analyze, both traffic volumes and turning movement volumes for specific intersections will be considered."

1 hour, morning or afternoon, worst level of service at an intersection, worst traffic conditions, turning movement volumes a consideration. An integrated definition is: 1 hour, morning (7 AM to 12 PM, for the proposed project) or afternoon (12 PM to, generously, 7 PM, for the proposed project) or one hour from both morning and afternoon; worst everything, which boils down, from the standpoint of selecting an hour or hours for analysis (level of service is an after-the-fact determination), to highest traffic volumes (it is assumed that any turning movement considerations would occur during highest traffic volumes).

If this assumption about turning movement considerations is incorrect, it needs to be clearly shown how.

Response Peak hours were based upon maximum traffic volume, which in this case represents the worst traffic conditions and turning movements.

Comment *073-102* The Numbers/AM Peak-Hour. The highest traffic volume of non-project traffic for all forecasted years occurs from 11 AM to 12 PM.

The highest volume of project traffic in Alternative 2 or Alternative 3 for all forecasted years occurs from 10 AM to 11 AM.

It can be shown that in Alternative 2 or Alternative 3 for all forecasted years the order, highest-to-lowest, of traffic volume for the 5 morning hours between 7 AM and 12 PM is:

1) 11 a.m. to 12 p.m.
2) 10 a.m. to 11 a.m.
3) 7 a.m. to 8 a.m.
4) 9 a.m. to l0 a.m.
5) 8 a.m. to 9 a.m.

"The AM...peak...hour...selected for operational LOS analyses" is not first, not even second, but third on the list. 7 a.m. to 8 a.m. is an incorrect selection. The implication is the LOS analyses that incorporate this AM peak hour per Tables 3.12-3 (Existing), 3.12-4 (Alternative 1), 3.12-9 (Alternative 2), 3.12-11 (Alternative 2 compared to Alternative 1), 3.12-15 (Alternative 3) and 3.12-17 (Alternative 3 compared to Alternative 1) worked with the wrong timeframes and thus the wrong data. While the LOS analyses may be correct for the 7 a.m. to 8 a.m. timeframe, they are incorrect for the AM peak hour.

Is this an oversight or -- something else?

Comment *073-103* Why does the AM-peak-hour-half of the "operational LOS analyses" examine impacts during a timeframe, 7 a.m. to 8 a.m., during which project traffic is third-highest among the 5 morning hours?

Response The peak periods were selected based on existing 24-hour counts. Peak period counts were performed to select the peak hours. They clearly show the peak hours for all traffic on 468th Avenue SE to be from 7-8 a.m. and 4:30-5:30 p.m.

Comment *073-104* Peak-Hour. Between the hours of 4 PM and 7 PM project traffic is a small to very small percentage of total traffic volume in any of the study years -- as established in Duration Of Concentration Of Project Truck Traffic On 468th Avenue above, 94% of

Alternative 2 or Alternative 3 project truck traffic (about 1% less if project passenger car traffic is taken into account) in all Peak-Month days would occur in the continuous 9-hour segment between 7 a.m. and 4 p.m.

Why does the PM-peak-hour-half of the "operational LOS analyses" examine impacts during a timeframe, 4:30 p.m., to 5:30 p.m., during which project traffic is a very limited presence?

Response The 4:30 to 5:30 p.m. hour has the highest existing PM peak hour volume.

Comment *073-105* Considering that the volume of traffic between 4 PM and 7 PM, including between 4:30 PM and 5:30 PM, is mostly passenger cars and heavy trucks, is the intention of analyzing the timeframe between 4:30 PM and 5:30 PM to show the environmental impact these vehicles have in the Exit 34 environs? Isn't this off the subject DEIS Transportation should be treating-- impacts caused by project traffic?

Response There is project traffic during this PM peak hour.

Comment *084-003* Reference subsection 3.12.4.2 Peak Hour Analysis, page 3.12-12. The DEIS states, "The AM and PM peak commuter hours were selected for operational LOS analyses. The AM peak hour is from 7 a.m. to 8 a.m., and the PM peak hour is from 4:30 p.m. to 5:30 p.m. How were these hours selected? What traffic count measurements were taken? What dates and days of week were used for the traffic counts? If these peak hours were selected without the benefit of reliable measurements, then all the peak hour traffic flow calculations in the DEIS must be redone.

Response Please refer to the Transportation chapter of the FEIS for traffic count dates and times.

3.12.4.3 Congestion

Comment *019-435* The DEIS states, "The capacity of a two-lane roadway is estimated to be between 1400 and 1800 vehicles per hour in both directions…the future peak-hour volume on 468th Avenue SE would be equivalent to approximately 800 passenger vehicles…This is far below the estimated 1400 vehicle capacity of the roadway." [DEIS Vol. I, page 3.12-16, Section 3.12.4.3]. The FEIS should address that the convergence of Ken's Truck Town, the 76 and Texaco stations, Edgewick Inn, local commuter traffic combined with approximately 1000 gravel trucks through this corridor creates a baseline model that needs to be studied as a separate critical capacity issue. This corridor cannot be simply plugged into convenient county or national statistics for conventional roadways. Does the projected future Peak hour traffic volume of 800 VPH take into account the conversion of 6-8 axle trucks to the equivalent of 4 passenger cars? How is a traffic study in this critical convergence of intersections able to compare 4 passenger cars to the challenge of turning 50' to 75' project trucks through these critical intersections? The FEIS should reconcile this 800 VPH number with Figure 3.12-9 in Volume I.

Comment *020-552* The DEIS states, "The capacity of a two-lane roadway is estimated to be between 1400 and 1800 vehicles per hour in both directions ... the future peak-hour volume on 468th Avenue SE would be equivalent to approximately 800 passenger vehicles… This is far below the estimated 1400 vehicle capacity of the roadway." [DEIS Vol. 1, page 3.12-16, Section 3.12.4. 3]. The FEIS should address that the convergence of Ken's Truck Town, the 76 and Texaco stations, Edgewick Inn, local commuter traffic combined with approximately 1000 gravel trucks through this corridor creates a

baseline model that needs to be studied as a separate critical capacity issue. This corridor cannot be simply plugged into convenient county or national statistics for conventional roadways. Does the projected future Peak hour traffic volume of 800 VPH take into account the conversion of 6-8 axle trucks to the equivalent of 4 passenger cars? The FEIS should reconcile this 800 VPH number with Figure 3.12-9 in Volume I.

Comment *020-553*

How is a traffic study in this critical convergence of intersections able to compare 4 passenger cars to the challenge of turning 50' to 75' project trucks through these critical intersections? See below for understanding this challenge. (Refer to hardcopy for photographs, pg. 98)

Response

Additional VISSIM model traffic analysis has been completed for the FEIS and reviews truck impact on traffic movement. The model further defines truck movement during turns and its impact on traffic.

Comment *022B-007*

Inaccurate estimate of roadway capacity on 468th Avenue SE. Section 3.12.4.3 of the DEIS states that the estimated capacity of 468th Avenue SE is 1,400 vehicles per hour, and cites references from King County Public Works and the Florida Department of Transportation. The values cited refer only to typical road sections without significant numbers of turning vehicles present in the through lane and without the high level of side friction from the driveways and intersections which currently exist on the subject section of 468th Avenue SE. As noted above, the intersection LOS analysis used an out-of-date methodology which significantly understates the degree of congestion which can be expected on 468th with the project volumes added in 2005 through 2025. Furthermore, it is my opinion that since the term "capacity" relates to the vehicle carrying ability of a roadway under actual traffic operating conditions, the second sentence in Section 3.12.4.3 is both untrue and misleading. Please either delete this discussion entirely or revise it to reflect correct values of the capacity of 468th Avenue SE and to use the term "capacity" in accordance with standard engineering practice.

Response

The capacity of 468th Avenue SE was checked using the VISSIM model and is discussed in the FEIS transportation chapter. Intersection level of service is a function of delay, not lane capacity.

Comment *024A-111*

School Transportation Page 3.12-43 under the discussion of Alternative 4 states that "Additional truck traffic from gravel mining and the concrete and asphalt batch plants would conflict with the minimal school traffic generated from the future schools off 468th Avenue SE and existing district schools in the City of North Bend. School traffic would travel on SE Homestead Valley Road and onto I-90 on/off ramps." This is an odd assessment for Alternative 4 given that there is no Lower Site project and therefore no impact on 468th Avenue SE. On the other hand in the discussion under Alternative 3 (page 3.12-39) there is no mention of the conflict of truck trips with school traffic on SE Homestead Valley Road. Discussion of school transportation in Alternative 2 (page 3.12-31) under which the impact on schools would be the greatest is cursory. These assessments need to be corrected, clarified and for Alternative 2 need to be in greater depth.

Response

Statements under Alternative 4 are corrected in the FEIS.

Comment *041-006*

No where does this report talk about the average time to get through the Exit 34 intersection today vs. 5 years from now behind a full gravel truck (much less 25 years into the future). On page, 3.12-16 D&M claims that traffic at 468th and 146th

currently operates at LOS A, which they define as “unimpeded”. By statistical standards, this road may be considered “unimpeded” but not in the real world. When I drive it, I almost always have to stop and/or slow down to accommodate the already large trucks moving slowly in front of me. So let's talk in real world descriptions in tile FEIS.

Response The “real world” is discussed in DEIS Section 3.12.4.3, 3rd paragraph. The DEIS analysis could not account for trucks unable to turn into Seattle East Auto Truck Plaza. A VISSIM traffic analysis discussed in the FEIS does include all truck movements.

Comment *041-007* The LOS A through LOS F used doesn't mean anything in the real world. LOS F is defined as more than a 60 second average delay per vehicle - and this is the severest condition described. But how does this translate to time to get through an intersection? Compare it to the exit ramps into Issaquah, for example. If I leave Bellevue to pick up my son in Issaquah, with “no traffic” it takes me about 15 minutes to make the drive. But if there is traffic at Exit 17 in Issaquah, the drive can take more than 30 minutes. How do we get from LOS F being a “60 second delay” to my real world 15 minute wait at the exit ramp? This EIS should be written in real world terms and the mitigations proposed should anticipate what is going to happen to traffic flows created by the proposed project and eliminate the problems before they occur. That is the whole point of this exercise, isn't it?

Response The average delay per vehicle should give you a good indication of how long it will take you to get through an intersection. LOS F delay is more than 80 seconds. Actual delays for intersections impacted by the proposal are shown in the FEIS.

Comment *012-173* [DEIS {}3.12.4.3 passim] notes issues with respect to semi trucks turning onto/off Exit 34. The wide turning radius, taking two or more lanes, required for these vehicles will cause greater congestion and safety problems than is suggested here. No mitigations are proposed.

Response Mitigation to improve truck turning radius is listed in the FEIS.

3.12.5 Accident History

Comment *068-002* Just look at the affect the unplanned accident on 520 will have on traffic for at least a month. Think what 900 extra trucks a day could do. What danger could they cause for children at the school being built near the “pit”?

Comment *056-004* Predicted Death: With nearly 1,000 proposed trips a day over the course of 25 years, it is reasonable to predict deaths will occur due to work related injuries, but more likely due to motor-vehicular-accidents. This community has suffered enough with several local motor vehicle deaths in the area. I would like to remind you of the Dean Rempfer bill. This area is taking on enough risk servicing the current truck activity.
Mr. Thomson, I realize that progress happens. But I invite you to come visit North Bend. We are small town that has been transformed into a town with a major Interstate. North Bend is not just a truck town and it shouldn't be a gravel mining town. It saddens me to see what was a town that we felt safe in as being another resource to be consumed. Others take our water, our wildlife, our trees and now want to take our rock. North Bend has pride, beauty and charm. I ask you to allow us to hang on to the little original character we still have so that my son and his community

can appreciate the natural beauty of his home town before its completely paved. Thank you for your time in hearing my statement.

Response Comments acknowledged.

Comment *055-002* What sort of assurances or mitigating actions does Cadman offer that any action other than no action will not contribute directly to an I-90 fatality'? How do the parties to be plan to prevent such a lethal side effects? When and if one occurs (and I sincerely hope one does not), this email will serve as "forewarning" that highway deaths will occur and will be directly caused by mine operation. This email will be offered as evidence of the warning and may be used in the suit and may prove Cadman's negligence.

Response WSDOT is responsible for the safe design of freeway on and off-ramps and the I-90 mainline itself. Accidents caused by the drivers rather than roadway design cannot be predicted and hopefully will be prevented by proper training of all drivers.

3.12.6 Pedestrian and Bicycle Facilities

Comment *019-553* Determine accommodations on 468th Avenue SE for pedestrians and cyclists.

Response Currently, pedestrians and cyclists use sidewalks and road shoulders on 468th Avenue.

Comment *019-354* The DEIS did not and the FEIS should provide current data for pedestrian and/or bicycle traffic (actual counts).

Comment *020-728* The FEIS should measure current pedestrian and/or bicycle traffic (actual counts), and assess the impacts of the proposed project on facilities serving this traffic.

Comment *020-741* The DEIS does not provide current statistics (including pedestrian/bicycle incidences) and future impacts for each phase of each alternative

Response Impacts to pedestrian and bicycle traffic are discussed in the Transportation section of the DEIS. No pedestrian or bicycle traffic south of 146th Avenue has occurred during previous counts and observations.

Comment *073-319* "Pedestrian and bicycle travel along I-90 exit service streets is potentially hazardous due to the minimal unpaved shoulders and minimal 'shy distance' available within the 11-foot traffic lanes. Background traffic growth, combined with the addition of project trucks, would make pedestrian and bicycle travel potentially more hazardous since gaps between opposing traffic volumes would diminish, thereby reducing the flexibility of same-side-vehicles to cross the centerline to bypass bikes and pedestrians. There is no standard or criteria that dictates when paved pedestrian and bicycle shoulders or walkways are required along rural roadways."

The DEIS is an Environmental Impact Statement for the proposed NBGO. The DEIS is not an Environmental Impact Statement for Interstate 90 or service streets. In DEIS Transportation, 3.1.6, Pedestrian and Bicycle Facilities, the commentary should have been directed to the proposed project. The question to be answered is not will Interstate 90 service bicycle and pedestrian usage, but will the gravel pit sites service bicycle and pedestrian usage.

Please point out in the DEIS, where it is the planned intent of the proposed project to develop construction for pedestrians, bicyclists, rest area, turnout, highway shoulder improvement, passing lane, overlook and an interpretive facilities.

Response Mitigation measures in the FEIS include shoulder or curb, gutter and sidewalk along 468th Avenue SE for bicycle and pedestrian use and emergency parking. No improvements for I-90 are proposed.

Comment *002-001I* Access route safety and aesthetic enhancements to maintain both easy access to area community services around Exit 34 and the rural character of the area.

Comment *002-014* As one of the forest landowners in the local area and a participant in the Middle Fork of the "Snoqualmie River Concept Study, DNR is committed to efforts to preserve the rural character of the local area. A fundamental promise of the proposed operation should be to maintain initiatives that will preserve and enhance the rural nature of the valley. Improvements to increase safety for pedestrian and bicycle use should be considered along 468th Avenue and around Exit 34. Traffic will increase as a result of this project and minimizing traffic congestion will assist traffic flow in the area. This will reduce conflicts with presently permitted and future industrial and residential developments.

Comment *020-729* The FEIS should include potential impacts on future projected growth of pedestrian and/or bicycle traffic for the entire scope, each phase and each alternative (utilizing BMPs), if available.

Comment *020-730* The FEIS should address the future requirements for sidewalks adhering to the ADA guidelines required by the proposed project

Response Current standards, including ADA compliance issues would be included in any developments associated with the project or its required mitigations.

3.12.6.1 Existing Conditions

Comment *012-170* DEIS §3.12.6; p. 3.12-17] mentions the "potentially hazardous" nature of pedestrian and bicycle travel but provides no data regarding the current volume of such activity nor projected growth. Potential impacts are not described; mitigations are not proposed.

Response Currently, pedestrian and bicycle traffic in the area is minimal, based on previous counts and observations. No data is available for analysis.

3.12.7 School Transportation

Comment *020-711* The DEIS cites (vol. II, app. L, pg. 3-20, sec. 3.3.5 Pedestrian & Bicycle Travel) "There would likely be additional pedestrian and bicycle travel along 468th Ave. S.E. during the first 5 years as the proposed middle school opens just North of the project area at the intersection with S.E. Middle Fork Road. Mitigations and projected volumes are not provided. The DEIS does not clarify why it is just during the first five years and not for the life expectancy of the school. This is not included in the analysis for Appendix K.

Response Impacts related to additional auto, bicycle, and pedestrian traffic in and around the project site are addressed in the Transportation chapter of the FEIS. The revised analysis includes projections of school-related traffic.

Comment *073-023* More Irrelevant Information.

Irrelevant information is underlined:

"The total full-truck weight could be up to 54 tons (almost the legal highway load limit for full trucks) leaving the gravel operation facility at SE 146th Street. Most large buses (including school buses) meet or exceed the legal load limit for roadways. This means all roadways carrying the project truck and/or school bus operations must be capable of carrying the state highway capacity legal weight load."

What is the legal weight load limit for "most large buses" or "school buses"? Is it 54 tons? How many children would you have to put in a school bus for it to "meet or exceed the legal [weight] load limit"?

Is this a DEIS for the proposed NBGO or is this a DEIS for school bus operations that are expected to occur in the future?

Comment *073-024* Is this DEIS for the proposed NBGO or is this a DEIS for school bus operations that are expected to occur in the future?

Response The EIS is for the proposed gravel operation.

3.12.7.1 Existing Conditions

Comment *020-566* School bus transiting 468th Avenue SE (Refer to hardcopy for photograph, pg 101)

Comment *020-569* Local school children catching bus on 468th Avenue SE(Refer to hardcopy for photograph, pg 102).

Response DEIS Section 3.12.7.1 notes the school bus trips and routes now using 468th Avenue.

3.12.7.2 Planned Improvements

Comment *012-171* [DEIS §3.12.7.2] describes the future development of middle and elementary schools that would add over 1,000 students. Some percentage of these students will be using the nearby roads either on foot or on bicycle.

Response Comment noted. Details of the future development of the schools will be described in their project proposals and environmental reviews.

Comment *012-172* This portion of the DEIS transportation study is incomplete until such baseline figures are accurately gathered and the school construction factored in.

Response School traffic volumes are included in the FEIS year 2005, 2015, and 2025 existing traffic analysis.

3.12.8 Snoqualmie River Bridge

No comments were received on this section of the DEIS.

3.12.9 I-90 Closures

Comment *020-613* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 32.

Comment *020-614* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 38.

Comment *020-615* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 34.

Comment *020-616* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on North Bend Way.

Comment *020-617* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on 468th Avenue SE.

Comment *020-618* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on Ken's Truck Town.

Comment *020-619* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on SE 140th Street.

Response Pass closures are discussed in the FEIS. Analyzing pass closure conditions is outside the scope of this EIS.

Comment *020-620* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impact traffic in and around Exit 32.

Comment *020-621* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic in and around Exit 34.

Comment *020-622* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic in and around Exit 38,

Comment *020-623* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on 468th Avenue SE.

Comment *020-624* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on Ken's Truck Town.

Comment *020-625* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on North Bend Way.

Comment *020-626* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on SE 140th Street.

Response Analyzing I-90 chaining requirement impacts is outside the scope of this EIS. The proposal would not impact chain requirements.

Comment *024A-109* The posting of No Parking signs to eliminate truck parking when I-90 is closed begs the question of where the trucks will go.

Response When I-90 is closed, parking along 468th Avenue SE may be necessary like it is now.

3.12.10 Traffic Operation

Comment *020-700* Determine procedures for large trucks that find themselves in situations where it is necessary to turn around or back up within the Exit 34 corridor.

Comment *020-702* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning at Exit 25/Hwy 18, Exit 31, Exit 32, and Exit 34.

Comment *020-704* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning on 468th Avenue SE.

Comment *020-706* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for compensating the area residents and/or businesses for any adverse impacts resulting from poor traffic planning on North Bend Way.

Comment *020-707* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on SE 140th Street.

Response King County and WSDOT are responsible for maintaining the roadways under their jurisdiction. Vehicle operators are responsible for securing their loads, and operating their vehicles safely.

Comment *006-002* We have concerns that Cadman Gravel is planning on transporting a significant amount of material for processing at Lakeside Gravel in Issaquah which takes access off of 229th Avenue SE at E. Lake Sammamish Parkway. The existing segments along E. Lake Sammamish Parkway SE and its intersections at the ramp termini of I-90, 229th Avenue SE, and Issaquah-Fall City Road, operate under heavy congestion. Any trips generated in this area by the North Bend Gravel Operation will exacerbate the traffic operations and traffic safety at these intersections and segments to unacceptable levels.

Comment *006-003* In addition, the intersection at 229th Avenue SE and E. Lake Sammamish Parkway SE is under the control of WSDOT since it is located within the I-90 Controlled Access area. Any further deterioration in the operation and safety of the intersection is likely to cause WSDOT to prohibit the left-turn movement forcing all exiting traffic to turn right-only.

Comment *006-004* Any locations for offsite processing should be clearly identified in the EIS. This offsite work, associated impacts and mitigation should be included and addressed in the EIS. If offsite processing is to occur at the Issaquah facility used by Cadman or Lakeside,

the resulting traffic impacts must be mitigated. In the case of these mitigations being inadequate to the City of Issaquah, the City requests that this project be denied.

***Comment** 007-001*

The City of Issaquah Planning Department has reviewed the Draft Environmental Impact Statement (EIS) for the proposed North Bend Gravel Operation and we have the following comments for your consideration in the FEIS. Under several of the alternatives the Lower Site would be excavated and gravel material trucked offsite for processing. An operations/processing facility would be constructed at a later phase on the excavated floor of the Lower Site. The DEIS does not identify where the gravel material will be transported for processing, the quantity of material that would be transported offsite during this phase, the number of resultant traffic trips, nor does the DEIS discuss any impacts related to offsite processing of materials.

***Comment** 007-003*

Any locations for offsite processing should be clearly identified in the EIS. Impacts associated with transport of materials to offsite facilities and the potential need to expand existing processing operations should be fully analyzed and the mitigation of impacts should be included in the FEIS.

***Comment** 009-001*

It has come to our attention that an alternative being considered in regard to Cadman mining operation in North Bend would call for routing trucks through the City of Sammamish on East Lake Sammamish Parkway from I-90 in Issaquah to Redmond.

We believe that this proposal would have significant potential impacts within the City, including noise, safety, and structural damage to the East Lake Sammamish.

***Comment** 009-002*

We are surprised that we have not been able to find any reference to this proposal in the EIS for the mining operation and that the City of Sammamish has not been contacted directly to review and discuss such a proposal, its impacts, and proposed mitigation.

***Comment** 009-003*

The City would like to go on record at this time requesting that any proposals or plans for routing trucks from the North Bend mining operations through the City of Sammamish be thoroughly reviewed in regard to impacts and discussed with the City of Sammamish prior to any proposal being considered further.

Response

Some sand and gravel would be processed onsite and at other locations including Cadman, Inc.'s facilities in Seattle, Redmond and Black Diamond, Washington. The sand and gravel transported to these facilities would replace material transported by other suppliers (i.e., there should be no increase in the number of truck trips to these facilities). The proposal does not include processing a significant amount of sand and gravel at any one of the company's facilities in particular.

***Comment** 008-007*

The DEIS does not address hours of operation as a potential mitigation measure. The FEIS should examine limiting truck operations to the hours between 7 a.m. and 10 p.m. Monday through Friday to reduce freeway noise during sleeping hours and traffic congestion on the peak weekend travel periods. Further, approved haul routes should be established to prohibit truck traffic on North Bend Way and Cedar Falls Way to reduce road damage, traffic congestion and noise in downtown North Bend.

Response

Decreasing or limiting work hours would increase truck volumes during working hours which would worsen traffic congestion. Only local deliveries are likely to travel along SE North Bend Way and Cedar Falls Way, which are legal truck routes.

3.12.10.1 Traffic Operation Impact

No comments were received on this section of the DEIS.

3.12.10.2 Truck Impacts on Road Maintenance

Comment *073-069*

Pavement Conditions.

DEIS On Pavement Conditions.

The methodological promise of the Transportation portions of the DEIS is a "general evaluation of the proposed mining operation's impact on pavement conditions.."

"The wheel loads of heavy trucks contribute to various forms of pavement distress. Of the various types of damage, fatigue (which leads cracking) and permanent deformation (rutting) are of great importance and are the primary focus of this study."

There are zero occurrences of these emphasized words in the context of pavement in Section 3.12. The word 'pavement' occurs only in the context of "...conditions", "...type", "wet...", "...marking" and "...overlay".

What appears to be the fulfillment of the methodological promise on pavement conditions is Section 3.12.10.2, now a "general evaluation" of road maintenance:

"Heavy trucks have a significant impact on the design and maintenance of road surface and subsurface structures.

`

"There is an impact, even one that is not ordinary. But it is not cast in terms of project trucks -- which is the impact that needs to be examined, right? And the impact goes unquantified.

Comment *073-071*

"The additional truck weight fees that are paid annually as part of truck licensing support road maintenance for these roads.

"Don't worry -- somebody will pay for the effects of whatever impacts there are -- there's a program -- and it won't be your tax dollars.

It won't?

Comment *073-073*

"The haul trucks shown in Figures 3.12-3 and 3.12-4 would fit well within allowable axle-load allowances; they average 13,000 to 14,000 pounds per axle.

"They are legal, period that they are legal does not close the case on whether they represent an acceptable impact on pavement conditions.

Response

The roadway would be maintained by King County.

Comment *073-070*

"The major streets serving I-90 interchanges, including I-90, the I-90 ramps, 468th Avenue SE, and SE Homestead Valley Road, are truck routes. These streets are believed to have a road structure that would support the heavy vehicles generated by the log and quarry operations that use those routes for hauling.

"Some people believe in the most unreasonable things -- séances, the physics of Star Trek, life imitates art -- the word 'believe' has no business in an objective analysis. Or are we not in the midst of an objective analysis? In any event the belief goes unquantified.

Would the road structure support the heavy vehicles through today and not tomorrow and thereafter? Would the road structure support the heavy vehicles this week but not next week and thereafter? Would the road structure support project trucks through the life of the proposed project but not thereafter?

Response This section has been revised to include additional truck traffic information and an evaluation of the existing pavement sections.

Comment *073-074* Additional permit requirements may also apply to the project haul route operations and loading on existing bridges. "It is clear that the permitting requirements are a tactic in traffic routing; it is somewhat clear that the permitting requirements are a tactic in road maintenance, but it is not clear what specifically permitting requirements have to do with pavement conditions? And again, it all goes unquantified.

Overall it is a general evaluation. No meat. Limited content. Impact is stipulated and ignored -- is it small, medium or large, at least? Quantities and portrayal of quantities are ignored. The methodological promise of treatment of pavement conditions on Page 3.12-1 has transmogrified in the space of 2O pages into a change of subject and a limited grab-bag of road maintenance tactics'. Why didn't the methodological promise simply state: "general evaluation of the proposed mining operation's impact on road maintenance"? The Transportation portions of the DEIS fail to treat pavement conditions -- see the NBGO-FEIS Final Scope Of Work (D)(7).

Response The analysis is a general evaluation of truck use on truck route roads.

Comment *073-082* Relative Impact Of Pavement Wear On 468th Avenue.

Using factors developed in Relative Impact Of Tonnage On 468th Avenue above -- 27,000 vehicles per day using I-90 near Exit 34 in 1998, 52,600 in 2025 -- there are 9,855,000 vehicles per year in 1998 and 19,199,000 per year in 2025. Suppose all vehicles are passenger cars. Suppose these passenger cars could be routed up and down 468th Avenue.

In an Alternative 2 context, it would take the project truck traffic on 468th Avenue 1 year to cause the pavement wear it would take the 1998 level of vehicle traffic on I-90 near Exit 34 as passenger cars on 468th Avenue 34 years to cause. It would take the 2025 level of vehicle-traffic-on-I-90-near-Exit 34 as passenger cars on 468th Avenue 17 years to cause the 1-year-project-truck-traffic amount of pavement wear.

Response Comment noted.

Comment *073-088* Summary: Pavement Conditions.

Pavement wear has other costs besides road maintenance costs. Maintenance of a pavement structure tends to occur some time after the pavement is damaged and is becoming less and less useful. Vehicles that must drive on damaged pavement incur

lost travel time (delay in the level-of-service sense -- not factored into the LOS intersection analysis, by the way) and increased vehicle maintenance costs.

Per Section 3.12.10.2: would "additional truck weight fees that are paid annually as part of truck licensing support" the necessity to pay a mechanic to fix the suspension of a passenger car that hit ruts on 468th Avenue caused in large measure by the impacts of project truck traffic?

Response Roadway would be maintained by King County. Damage claims to passenger car due to roadway conditions should be addressed to King County.

Comment *073-089* Per Section 3.12.10.2: would "additional permit requirements [that] may also apply to the project haul route operations" also authorize a long-haul trucker to be late with his load at the other end of the state, because he was hung up on 468th Avenue while a road maintenance crew re-routed traffic so it could fix cracks and potholes caused in large measure by the impacts of project truck traffic?

Response Routine roadway improvements and maintenance would allow traffic to continue to pass by with very minor delays.

Comment *073-090* Most importantly, vehicles that must drive on damaged pavement incur a higher safety risk.

Response Roadway would maintained by King County. King County Department of Transportation should be contacted if a safety issue arises.

Comment *073-127* In the Transportation portions of the DEIS, there are 4 unique textual references and little in the way of analysis and discussion on project truck tonnage, or tons.

DEIS Transportation on transported quantities, empty-weight project trucks, or project trucks carrying transported quantities -- Not Done.

Response The traffic analysis on trips are based on volumes, not weight of vehicles.

Comment *073-128* Pavement Wear. There is pavement wear by project trucks making trips moving tonnage.

In the Transportation portions of the DEIS, there is a promise of addressing pavement conditions that materializes as a few general items on road maintenance.

DEIS Transportation on pavement wear or conditions -- Not Done.

Response Pavement conditions were addressed only as to the ability of the existing roads to take the project truck loads (weights). That the road will wear out over time is a given.

Comment *020-493* The proposed Grouse Ridge operation will result in a substantial increase in traffic in and around the Exit 34 corridor as well as on Interstate 90. The increased number of vehicles and the prohibitive size of those vehicles are of substantial concern to residents and businesses that live and/or work in the Upper Snoqualmie Valley. Not only is Exit 34 the principal entry and exit to Interstate 90, but any traffic precluded

from using the Exit 34 interchange (because traffic there is too congested, dangerous, or otherwise impassable) will end up utilizing other Exits and local access streets such as North Bend Way and/or SE 140th Street.

Response The increase in traffic and its effects on the local street system from the proposed project is discussed in the DEIS and FEIS.

3.12.11 Environmental Impacts

Comment *019-421* The DEIS states, "this report provides a current traffic baseline for the transportation study area. In addition, it forecasts future traffic conditions in the study area under each of the project's four alternatives." [DEIS Vol. II, Appendix L, page 1.3, section 1.2]. The FEIS should address the reliability of the method of analysis that was used.

Comment *019-444b* The DEIS states, "Additional truck traffic from the gravel mining, concrete and asphalt batch plants would conflict with minimal school traffic generated from the future schools ..." [DEIS Vol. II, Appendix L, page 3-24, section 3.4.6]. The FEIS should exclude the word "minimal" since these schools will have a significant impact on the Exit 34 corridor. The FEIS should describe the percentage differences each Alternative will have on impacting future school traffic.

Response Comments acknowledged.

Comment *004-001* State Parks strongly opposes the use of Exit 38 as a truck haul route as proposed in Alternatives 3 and 4. The estimated 450 haul trucks/per day following this route would access Exit 38/West via Old US Highway 10, which bisects Olallie State Park. Ollalie State Park is a 540 acre park located just off Exit 38, south of I-90, and is popular for hiking, fishing, bicycling, picnicking, and rock climbing.

Response Comment acknowledged.

Comment *020-397* The EIS should describe, identify, and address who will be liable for payment of highway improvements should the Federal Government turn down a request for funding due to non-compliance with Federal Highway Administration regulations for noise and land use surrounding freeways as a result of environmental noise that is attributable to the Grouse Ridge project.

Response Discussion of economic impacts and costs is not required for an EIS.

Comment *020-690* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the SE 140th Street road surface.

Comment *020-691* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the North Bend Way road surface.

Comment *020-692* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the Exit 34 road surface.

Comment *020-693* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for repairing and maintaining the quality of the Exit 25 road surface.

Comment *020-695* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists on North Bend Way.

Comment *020-697* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists in the Exit 25/Hwy 18 corridor.

Comment *020-703* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on 468th Avenue SE.

Comment *020-705* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for maintaining a safe and efficient roadway on North Bend Way.

Response King County and WSDOT are responsible for maintenance of the roadways under their jurisdiction. Vehicle operators are responsible for securing their loads, and operating their vehicles safely.

Comment *005-005* Storm water, sewer systems and domestic water systems will be upgraded. Fiber-optic cable routes, telephone and electrical systems are all planned to be relocated or newly installed. Construction equipment, personnel and material transport will disrupt some training activities and will also obstruct road traffic through the Academy complex. The State Patrol Property Management Division estimates this program will continue for the next ten years.

Response Comment noted.

Comment *014-005* Finally, the Greenway Trust wishes to comment on the evaluation of Exit 38 as a possible route for gravel hauling operations. Exit 34, the preferred alternative, is a compact 4 way interchange, while Exit 38 consists of two partial interchanges 4 miles apart and a connecting access road to accomplish the transfer of traffic from I-90 to the Fire Training Center Road. The attached map shows the Exit 34 and 38 routes. The Trust believes the DEIS has not adequately considered the potential negative impacts if Exit 38 and the Fire Training Center road were to be utilized.

Comment *014-011* The Greenway Trust recognizes that people will be affected no matter which I-90 exit is used. However, the current and future zoning at Truck Town/Exit 34 as a heavy industrial or commercial site makes increased truck usage at Exit 34 an inevitable fact. We believe that use of Exit 34 offers the best opportunity for meaningful traffic mitigation that could improve the existing situation. In summary, the Greenway Trust believes Exit 34 offers the best option for a gravel haul route, with less negative impacts than would occur if Exit 38 were utilized.

Response Comments noted.

Comment *014-006* The use of Exit 38 will add gravel truck traffic on a 4 mile access road through the heart of Ollalie State Park. This alternative route cannot realistically avoid negative impacts to recreational users, public park lands and facilities, and the tranquil natural setting that currently exists. Significant truck noise, increased traffic, and safety

conflicts with recreational users will have a major detrimental impact on the value of a recreational area for visitors and the residents of this region.

Response Comment noted. Safety improvements, including shoulders, would be required on this road.

Comment *020-064A* There is no discussion of the potential impacts of a spill of fuel from the trucks entering or leaving the site.

Response Potential fuel spills are discussed in the Environmental Health chapter.

Comment *019-496* Determine whether or not the increased truck traffic at Exit 34 will comply with the North Bend Transportation Plan.

Response The project does not impact the transportation element of the North Bend Comprehensive Plan.

Comment *019-497* Determine how the increased truck traffic at Exit 34 will correlate with WSDOT transportation issues at Exit 34.

Comment *019-498* Investigate the impressions and concerns of the WSDOT Incidence Report teams and maintenance crews regarding this proposed operation.

Comment *019-499* Determine how the increased truck traffic at Exit 34 will affect WSDOT maintenance procedures and budgets.

Comment *019-500* Determine whether or not WSDOT believes Exit 34 can be made to efficiently and safely handle a thousand trucks per day.

Comment *020-628* Determine how the increased truck traffic at Exit 34 will correlate with WSDOT transportation issues at Exit 34.

Comment *020-629* Investigate the impressions and concerns of the WSDOT Incidence Report teams and maintenance crews regarding this proposed operation.

Comment *020-630* Determine how the increased truck traffic at Exit 34 will affect WSDOT maintenance procedures and budgets.

Comment *020-631* Determine whether or not WSDOT believes Exit 34 can be made to efficiently and safely handle a thousand trucks per day.

Response WSDOT commented on DEIS; the agency's letter is included in the FEIS.

Comment *019-501* Investigate the impressions and concerns of the King County road maintenance department/crews regarding this proposed operation.

Comment *019-502* Determine how the increased truck traffic at Exit 34 will affect King County road maintenance procedures and budgets.

Comment *019-503* Determine whether or not King County road maintenance believes Exit 34 can be made to efficiently and safely handle a thousand trucks per day.

Response King County is publishing this EIS; its traffic engineers have contributed to this document.

Comment *019-505* Determine what the traffic impact will be on North Bend Way from roadway construction in the Exit 34 corridor.

Comment *019-506* Determine what the traffic impact will be on SE 140th Street from roadway construction in the Exit 34 corridor.

Response Traffic from these two streets likely would be delayed at some times during construction in the Exit 34 corridor.

Comment *026-010* The recommendation to widen SE Grouse Ridge Road may not be feasible given the environmental issues associated with this magnitude of widening. Please specify how much wider Grouse Ridge Road must be made. Would 24 or 28 foot width be required? This should be quantified, as it has significant clearing, grading storm drainage and wetlands impacts that are not explored in the DEIS. Our review shows that the Fire Training Academy Road has 13 stream crossings (see attached map). The FEIS should describe potential for direct and indirect impacts to streams adjacent to SE Grouse Ridge Road.

Response Impacts to the stream are discussed in the FEIS Plants and Animals chapter. The road would need to be wide enough for two gravel trucks, but King County has not yet defined the width requirement.

Comment *073-022* Irrelevant Information. Alternative 4 does not include concrete or asphalt processing. The description of Alternative 4 operation impacts is not so sure (information irrelevant to Alternative 4 is underlined):

Trip Generation: "...does not include asphalt or concrete batch plants."

"...it would not have the asphalt or concrete batch plants.

"Trip Rates: "...trucks that would serve the site (gravel, concrete and asphalt)...""The trip generation rate for concrete trucks assumes that each loaded concrete truck..."

"For the asphalt plant, it is assumed that the average asphalt truckload..."

"It was assumed that all of the concrete and asphalt trucks..." Average Day vs. Peak Day: "...and the average daily production of gravel and concrete...

"Table 3.12-19: [a row entry for concrete trucks] [a row entry for asphalt trucks] [a footnote for concrete trucks] [a footnote for asphalt trucks]

Trip Distribution Pattern And Assignment: "...concrete and asphalt batch plants are not included in this alternative.

"School Transportation: "...truck traffic from...the concrete and asphalt batch plants would conflict with .... "

Response Description will be modified in the FEIS for Alternative 4 which does not include concrete and asphalt production.

Comment *019-407* For example can a truck be loaded every 4 minutes:

a. 2 million ton gravel per year / 312 days (based on 6 day week) = 6410 tons/day
b. 6410 tons/day / 17 hrs/day = 377 tons/hr
c. 377 tons/hr / 25 ton/loads = 15 trucks/hr
d. 15 trucks/hr / 60 min = 1 truck every 4 minutes

Comment *020-528* For example can a truck be loaded every 4 minutes: 2 million tons gravel per year + 312 days (based on 6 day week) = 6,410 tons/day6,410 tons/day + 17 hrs/day = 377 tons/hr 377 tons/hr + 25 ton/loads = 15 trucks/hr o 15 trucks/hr + 60 min = 1 truck every 4 minutes

Response Truck traffic data was provided by the applicant based on previous similar sites.

3.12.11.1 Construction Impacts

Comment *016-008* While the current proposal is unacceptable, we do not find the exit 38 access option a better choice, as it would involve major road reconstruction on the Fire Academy road. Expansion and realignment would be required, which would severely impact the Snoqualmie River, and the forests and streams of the area.

Response Comment noted.

Comment *016-007* The impact of hundreds of new track trips per day in the I-90 interchange and nearby streets will be substantial. The EIS failed to adequately consider new designs for traffic at the interchange and the access to the processing site. Additional ramps and/or bridges at the interchange should be considered.

Response Intersections at the interchange and processing site were analyzed. Additional ramps and/or bridges at the interchanges would not significantly improve traffic flow, operations or safety.

Comment *026-011* It would be useful to compare the amount of widening required (in square footage?) for the three Action Alternatives. The widening for Alternative 2 would be relatively small compared to the widening required for Alternatives 3 and 4. Also, if the widening were determined to be infeasible because of environmental concerns, would this alternative have “unavoidable adverse impacts” because of traffic safety.

Response According to the FEIS, the widening of any road in any proposed alternative would not have an “unavoidable adverse impact” because of safety reasons.

Comment *026-012* What is the basis for requiring the 400 + 1,800 feet of additional roadway to bypass the Fire Training Academy? In our review, this bypass could not occur on property owned by Weyerhaeuser or Cadman - if the traffic consultant has other options for creating this bypass we suggest that those be included in the FEIS.

Response This recommended mitigation measure has been eliminated in the FEIS. The 1,800 feet of additional roadway would not be required to gain access to the Upper Site.

Comment *145-012* In Volume I, Section 3.12.11.1 - Construction Impacts under Alternative 2 -Proposal, the applicant indicates that construction may involve a number of oversized equipment hauls. The applicant must obtain the appropriate permit from WSDOT for any oversized or overweight hauls on WSDOT-maintained rights-of-way. All loads transported on WSDOT rights-of-way must be within the legal load limits, or have a valid overweight permit.

Response Comment acknowledged.

3.12.11.2 Operation Impacts

Comment *020-717* In discussing the impacts of the alternatives on police, fire and emergency medical services, the DEIS does not discuss the impacts of congestion at Exit 34 on response times, even though 936 truck trips per day (DEIS, pg. 3.12 - 26) will pass through this area!

Response A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street. Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders.

Comment *065-006* I have made several site safety inspections of the North Bend Project and I must say that the safest route of travel is by using Exit 34. Using Exit 38 would be a serious injustice to Cadman and the local public. The road to access Exit 38 is steep and windy with a lot of blind corners that will cause numerous unnecessary accidents. It will be a huge benefit to all of us to access I-90 from Exit 34. With Ken's Truck Town right there, the site is already able to handle additional truck traffic.

Response Comment noted. Road safety improvements would be required for all alternatives.

Comment *019-377* The DEIS did not and the FEIS should address the impact or mitigations for school related traffic for both schools (pedestrians, bicyclists, school employees in cars, school visitors, and parents dropping off and picking up as submitted by WoodRiver Homeowners Scoping Issues, book #2 of 3, section 2, item #57.

Response The impacts due to traffic from the schools are addressed in the Transportation chapter of the FEIS.

Comment *115-055* p. 3.7-2 I'm sure our children would love going to an elementary school next to a gravel mine. What happens when one of them gets run over by a gravel truck?

Response Comment acknowledged. Please refer to the Transportation chapter of this FEIS for a discussion on pedestrian safety conditions at the planned school site.

Comment *007-002* We are concerned that Cadman Gravel may transport a significant amount of gravel material offsite for processing at Lakeside Gravel in Issaquah. The City of Issaquah

Public Works Department sent you a comment letter dated July 7, which focuses on the potential traffic impacts to City streets with the transport of materials to Lakeside Gravel. The EIS, as a disclosure document, should also identify how the import of additional material would effect the current operations at Lakeside Gravel. Will the import of additional materials require expansion of existing facilities and/or additional equipment? An expansion of operations at Lakeside Gravel could result in noise, dust, and light impacts beyond the current operations. Would the existing facility have to extend hours of operation?

Response Some sand and gravel would be processed onsite and at other locations including Cadman, Inc.'s facilities in Seattle, Redmond and Black Diamond, Washington. The sand and gravel transported to these facilities would replace material transported by other suppliers (i.e., there should be no increase in the number of truck trips to these facilities). The proposal does not include processing a significant amount of sand and gravel at any one of the company's facilities in particular.

Comment *016-009* Transporting excavated material to other locations, such as Redmond would aggravate transportation routes already near gridlock, with attendant noise and air quality impacts. The precise routes to Redmond and other destinations have not been defined and need to be. The immediate and cumulative impacts of additional traffic that might be engendered over the life of the project must be defined and documented.

Response Analyzing the air quality and other impacts in the Redmond area due to truck traffic from this project is beyond the scope of work for this EIS.

Comment *020-205* The DEIS states that under Alternative 3 that "Relocation of the aggregate processing facility would transfer a generator of dust, noise, and truck traffic to the Upper Site, further from residential uses in the vicinity of the Lower Site. However, the additional truck traffic on Homestead Valley Road would increase levels of noise and dust that would impact land uses in proximity to the roadway, particularly Olallie State Park." [DEIS 3.7-12]. The FEIS should specify the level of dust, noise, and truck traffic from Alternative 4 as compared to Alternative 2 or 3.

Response The FEIS will pinpoint any sensitive uses along the Homestead Valley Road and examine any potential air quality impacts. Mining under Alternative 4 would increase the amount of traffic and result in higher noise and air pollution levels in the vicinity of Olallie State park. As indicated in the DEIS, air quality conditions at the park would not be significantly impacted under Alternative 4. However, the noise level increase associated with increased truck traffic could result in a serious impact. Truck traffic is compared for all alternatives.

Comment *019-406* The FEIS should address how many cubic feet per hour can be loaded into the gravel trucks to mitigate the AM Peak queues? If these loading levels cannot be achieved what plan is in place to prohibit trucks "grid locking" the traffic flow while being queues on 468th Avenue? Who will monitor this congestion and how will they assure access for emergency vehicles? Will this queue block access to local business on 468th Avenue, especially the Edgewick Inn whose only entrance is on 146th Street?

Comment *020-527* The FEIS should address how many cubic feet per hour can be loaded into the gravel trucks to mitigate the AM Peak queues? If these loading levels cannot be achieved what plan is in place to prohibit trucks "grid locking" the traffic flow while being queued on 468th Avenue? Who will monitor this congestion and how will they assure

access for emergency vehicles? Will this queue block access to local business on 468th Avenue, especially the Edgewick Inn whose only entrance is on 146th Street?

Response Truck volumes are based on the gravel facilities production levels and the amount each truck can haul. A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street. Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders.

Comment *020-546* The PEAK MONTH of production is to be 15% of the Total Production, which translates into:

- 15% of 1.5 million tons of gravel = 225,000 tons
- 15% of 75k cu yard of concrete = 11,250 tons
- 15% of 150 k tons of asphalt = 22,500 tons

[DEIS Vol. II, Appendix L, page 2-5, Section 2.0].

The FEIS should address what is the Peak Month for operations; will it overlap with the busiest month for Exit 34 traffic? What is the Peak Month for construction, will it overlap with busiest month for Exit 34 traffic? How do the above estimates translate into the actual numbers of trucks and/or truck trips that will be utilizing the facility on a daily basis during the Peak Month?

Response Peak production month would vary depending on market demand. The peak month was analyzed as was the peak hour and is reported in the FEIS.

Comment *020-747* The DEIS did not address the impact on the future school bus traffic for both schools as submitted by WoodRiver Homeowners Scoping Issues.

Comment *020-748* The DEIS did not address the impact or mitigations for school related traffic for both schools (pedestrians, bicyclists, school employees in cars, school visitors, and parents droppings off and picking up as submitted by WoodRiver Homeowners Scoping Issues.

Response School volumes were added in the FEIS analysis. Impacts related to additional auto, bicycle and pedestrian traffic in and around the project site are addressed in the Transportation chapter.

Comment *005-011* The access road traverses several stream crossings. Water drainage pipes currently installed will not hold up to the volume of truck traffic anticipated.

Response State Patrol Academy maintenance of SE Grouse Ridge Rd as well as other road improvement needs and plans, including drainage improvements, are discussed in the Transportation chapter of the FEIS.

Comment *020-775* The FEIS should determine the quantitative number of semi-trucks leaving the Lower Site at nighttime, including their potential light pollution.

Response Peak hours and daily truck volumes are discussed. For truck traffic see Figure 3, 12-9 in DEIS. The Proposal would result in an increase in the number of trucks in the area, particularly along SE 146th Street and the portion of 468th Avenue SE between SE

146th Street and I-90. Although the increased truck traffic would be noticeable, this areas proximity to the I-90 interchange and Seattle Truck Town East currently results in high levels of truck traffic and the general aesthetic character along 468th Avenue SE would not change significantly. Please refer to Appendix K for an expanded discussion on potential lighting impacts, including impacts from truck traffic.

Comment *024A-033* Please discuss the truck traffic use on the conveyor service road. Will this be used for pit-run and backhaul material. What will be the hours of operation on this road?

Response The conveyor service road would be used for maintenance purposes only during operation and maintenance activities, between 5 a.m. and 10 p.m. Monday through Saturday.

Comment *024A-088* The DEIS goes on to state that increased traffic on Homestead Valley Road would affect access at Olallie State Park. First, it would seem that this impact is more than equaled by the 30-year delay mentioned above. Second, conversations with individuals who attended a field trip with the applicant's representative at this area indicate that the applicants noted that a pedestrian overpass could be constructed over Homestead Valley Road to eliminate impacts to visitors needing to cross that road. Third, the impacts to Olallie State Park users should be compared to the impacts to the much greater number of recreationists who use the Edgewick Road entrance to back country recreational areas.

Response Refer to FEIS Transportation chapter for discussion of potential impacts to pedestrians on Edgewick Road (at Exit 34) and at Olallie State Park. A pedestrian overpass would not be a preferred pedestrian crossing. Due to the low traffic volumes, many pedestrians would not use it even if it were built.

Comment *073-072* [Question: What percentage of the incremental maintenance cost attributable to project truck impacts to 468th Avenue and applicable intersections in Alternative 2 or Alternative 3 will such fees levied on project trucks cover?]

Response Percentage of cost is unknown. Roadway is to be maintained by King County. SEPA requires an EIS to analyze the environmental impacts of a proposal. (WAC 197-11-448).

Comment *019-355* The DEIS did not and the FEIS should provide the potential impacts on the future increases of pedestrian and bicycle travel on 468th Ave. S.E. 146th, and North Bend Way for the entire life span of the project. To include cumulative impacts and their mitigations for each phase within each Alternative. Comparisons between each should be provided.

Response Impacts to pedestrian and bicycle traffic are discussed in the FEIS Transportation chapter.

Comment *019-408* What happens in the event of a break down of either trucks or machinery? What happens to the truck queues?

Response Trucks would queue onsite.

Comment *019-429* The FEIS should address what is the Peak Month for operations; will it overlap with the busiest month for Exit 34 traffic? What is the Peak Month for construction, will it overlap with busiest month for Exit 34 traffic? How do the above estimates translate into the actual numbers of trucks and/or truck trips that will be utilizing the facility on a daily basis during the Peak Month?

Response The peak month was analyzed as was the peak hour, and is discussed in the FEIS. The peak month will depend on market demand.

Comment *020-810* The FEIS needs to clearly identify the "exact number of trucks and vehicles" that would be used in each alternative. The DEIS leaves the reader with the impression that there would be 720 trucks, plus 936 heavy trucks and vehicles or a total of 1656 trucks and vehicles coming to and from the operation each day. Which is it? A total of 936, or 936 plus 720?

Response The FEIS more clearly identifies the number of vehicles to be used under each alternative. Of the 936 heavy truck trips, half would be empty and half would be full.

Comment *019-512* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Westbound. Will passenger vehicles be able to get on I-90 Westbound safely?

Comment *019-513* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Eastbound. Will passenger vehicles be able to get on I-90 safely?

Comment *019-514* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Eastbound. Will passenger vehicles be able to get off I-90 safely?

Comment *019-515* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Westbound. Will passenger vehicles be able to get off I-90 safely?

Comment *019-516* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Westbound. Will passenger vehicles be able to get on I-90 Westbound safely?

Comment *019-517* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Eastbound. Will passenger vehicles be able to get on I-90 safely?

Comment *019-518* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Eastbound. Will passenger vehicles be able to get off I-90 safely?

Comment *019-519* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Westbound. Will passenger vehicles be able to get off I-90 safely?

Comment *020-643* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Westbound. Will passenger vehicles be able to get on I-90 Westbound safely?

***Comment** 020-644* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Eastbound. Will passenger vehicles be able to get on I-90 safely?

***Comment** 020-645* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Eastbound. Will passenger vehicles be able to get off I-90 safely?

***Comment** 020-646* In the event that the proposed operation is located at Exit 34, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Westbound. Will passenger vehicles be able to get off I-90 safely?

***Comment** 020-647* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Westbound. Will passenger vehicles be able to get on I-90 westbound safely?

***Comment** 020-648* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 onto I-90 Eastbound. Will passenger vehicles be able to get on I-90 safely?

***Comment** 020-649* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Eastbound. Will passenger vehicles be able to get off I-90 safely?

***Comment** 020-650* In the event that the proposed operation is located at Exit 38, provide merging and weaving analysis for traffic at Exit 34 off of I-90 Westbound. Will passenger vehicles be able to get off I-90 safely?

Response Analysis of I-90 Mainline Traffic Operations is not required for this project by WSDOT.

***Comment** 019-520* Analyze the traffic light queuing on 468th for traffic exiting I-90 Eastbound at Exit 34.

***Comment** 019-521* How many vehicles can Exit 34 safely and efficiently accommodate in the event that a traffic signal is installed at this off-ramp?

Response The addition of traffic signals for mitigation and queue storage are analyzed in the FEIS under the VISSIM analysis.

***Comment** 019-522* Analyze the traffic light queuing on 468th for traffic exiting I-90 Westbound at Exit 34.

***Comment** 019-523* How many vehicles can Exit 34 safely and efficiently accommodate in the event that a traffic signal is installed at this off-ramp?

***Comment** 019-524* Analyze the traffic light queuing on 468th for traffic entering I-90 Westbound at Exit 34.

***Comment** 019-525* How many vehicles can Exit 34 safely and efficiently accommodate in the event a traffic signal is installed at this on-ramp?

Response A traffic signal is not required at this location per LOS analysis in the DEIS.

Comment *019-534* Analyze the cumulative effect of snow and other materials dripping/falling off of trucks idling on 468th Avenue SE while waiting to make turns, entrances, exits, etc.

Response Trucks would be cleaned prior to exiting the project site. Analysis of trucks not related to the proposal is outside the scope of this EIS.

Comment *019-535* Study the likely impact on accidents and traffic citations from a large increase in traffic at Exit 34. How would these projections change compared to the proposed operation being located at Exit 38?

Comment *019-536* Determine the likelihood of accidents as a result of large truck traffic mixing with passenger vehicles on 468th Avenue SE.

Comment *019-537* Determine the likelihood of accidents as a result of large truck traffic mixing with passenger vehicles getting on and off I-90 at Exit 34?

Response Increases in accidents are anticipated to be in proportion to traffic increases.

Comment *019-538* Estimate the number of people that will be seriously injured or killed on 468th Street, or turning on or off of 468th, over the course of 25 years of operation.

Comment *019-539* Estimate the number of people that will be seriously injured or killed on 140th, or turning on or off of 140th, over the course of 25 years of operation.

Comment *019-540* Estimate the number of people that will be seriously injured or killed on North Bend Way, or turning on or off of North Bend Way, over the course of 25 years of operation.

Comment *019-541* Estimate the number of people that will be seriously injured or killed getting on I-90 Westbound at Exit 34 over the course of 25 years of operation.

Comment *019-542* Estimate the number of people that will be seriously injured or killed getting off of I-90 Westbound at Exit 34 over the course of 25 years of operation.

Comment *019-543* Estimate the number of people that will be seriously injured or killed getting on I-90 Eastbound at Exit 34 over the course of 25 years of operation.

Comment *019-544* Estimate the number of people that will be seriously injured or killed getting off of I-90 Eastbound at Exit 34 over the course of 25 years of operation.

Response An estimate of this type is not standard procedure for a traffic analysis nor required in an EIS.

Comment *019-545* Determine the additional cost to pay for police/highway patrol personnel to monitor traffic on I-90 because of the Grouse Ridge Project.

Comment *019-546* Determine the cost of police/highway patrol personnel to monitor county roads on 468th Avenue SE, North Bend Way and SE 140th SE.

Response Cost estimates are not required under SEPA for an EIS.

Comment *019-549* Determine impact of the Lower Site on school bus routes as compared to Exit 38.

Comment *019-550* Determine Lower Site impact on school bus traffic when proposed middle and elementary schools are in operation.

Comment *019-551* Determine whether or not 468th Avenue SE and SE 140th Street can safely be included in school bus routes during Lower Site operating hours.

Comment *019-552* Determine whether or not 468th and SE 140th Street can safely accommodate other school traffic during Lower Site operating hours.

Response School traffic volumes have been added in the FEIS analysis.

Comment *019-556* Determine whether SE 140th Street would need to be further developed to accommodate increased traffic. (double lanes for increased traffic). If so, determine where the land would come from to accommodate such improvements.

Response Traffic projections on SE 140th Street don't show a need for further roadway improvements.

Comment *019-554* Determine whether SE 140th Street would need to be further developed to accommodate increased traffic. (curbed sidewalks for pedestrians, bicycle paths)

Comment *019-557* Determine whether or not the SE 140th Street roadway surface and substrate can handle heavy gravel, concrete, and asphalt trucks.

Comment *019-558* Determine whether or not an 18-wheel gravel truck can make the hairpin turn on SE 146th Street as it approaches North Bend Way.

Response The proposal does not plan to use SE 140th Street.

Comment *019-564* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists in the Exit 34 corridor.

Comment *019-565* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists on North Bend Way.

Comment *019-566* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists on SE 140t Street.

Comment *019-567* Describe the liabilities and responsibilities of the applicant(s), and/or King County, and/or WSDOT for keeping gravel and other debris from falling off of trucks and damaging vehicles, including pedestrians and cyclists in the Exit 25/Hwy 18 corridor.

Response Trucks are required to maintain their loads safely.

Comment *020-061* The DEIS minimally discusses the queuing of truck traffic in the area and its effect on the transportation system

Response A VISSIM model developed for FEIS analyzed queuing and is discussed in the FEIS.

Comment *020-062* There is no analysis of the project's impact on the structural integrity of the transportation system in the area.

Response Heavy trucks are currently using all existing roads which would be used under the alternatives. A pavement structural analysis for SE Homestead Valley Road is discussed in the FEIS.

Comment *019-419* The FEIS should reconcile the difference of the LOS F of No Action versus the LOS F of the proposed action in the year 2025.

Comment *020-063* The specific technical data regarding LOS at 2025 is inconsistent in that it would reach LOS F either with or without the project

Comment *020-541* The FEIS should reconcile the difference of the LOS F of No Action versus the LOS F of the proposed action in the year 2025.

Response This is true that the LOS will be F, with or without the project. The report notes levels of (time) delay for LOS F which increases slightly with the project.

Comment *020-198* The FEIS should explain who will bear the cost of additional anticipated and unanticipated capital requirements to streets, lightings, sidewalks, utilities, drainage systems, signals, road erosion, road expansion, road re-surfacing, and police and emergency services, and the costs of the same

Response Cost of mitigation would be paid for by the responsible party.

Comment *020-441* The EIS should assess the potential for children being hit by flying debris while in the course of walking or bicycling to school.

Comment *020-442* The EIS should assess and identify any, and all probability for child fatalities as a result of truck related accidents in their normal course of walking and bicycling to school.

Response An estimate of this type is not standard procedure nor required.

Comment *019-379* The DEIS clearly state that project generated traffic will not use local streets and will use 468th Avenue SE to and from Exit 34, except for "local deliveries." As any resident of WoodRiver can tell you, this is not the case with existing truck traffic, and as truck traffic has increase at Exit 34 over the past few years, so have the number of trucks using 140th and North Bend Way. How will the project restrict, monitor, and penalize drivers, particularly independent contractors (80% of total) from using local streets such as SE 140 Street and North Bend Way? The roads where our children walk, bike, and wait for school buses?

Comment *020-494* The DEIS clearly states that project generated traffic will not use local streets and will use 468th Avenue SE to and from Exit 34, except for "local deliveries." It is reasonable to conclude that "local deliveries" would be those required in the immediate vicinity of North Bend. It would be unreasonable to stretch the meaning of "local deliveries" to

include trips to Fall City, Redmond, Carnation, Duvall, or even Everett, etc. The question arises as to specifically how Cadman intends to restrict, monitor, and penalize drivers, particularly independent contractors (80% of total) from using local streets such as SE 140 Street and North Bend Way?

Response Given the close proximity of the Lower Site, I-90 is expected to be used instead of local streets, with the exception of local deliveries. The FEIS recommends restricting truck traffic from the Lower Site to use only SE 146th Street and 468th Avenue SE between SE 146th Street and the I-90 Exit 34 ramps, with the exception of trucks making local deliveries.

Comment *020-495* The DEIS identifies 468th Avenue SE as a common two lane roadway when considering adverse impacts from project trucks. When in fact, this short stretch of road between SE 144th Street and Exit 34 includes: constant heavy trucks entering and exiting Ken's Trucks Town; regular I-90 vehicular traffic utilizing the BP station, the Texaco station, Ken's Restaurant, and the Edgewick Inn; 574 projected school buses and cars leaving the planned Middle and Elementary schools; recreationalists accessing the numerous parks and rivers adjacent to Exit 34; local school children on foot and bicycle transiting the Exit 34 corridor to reach Subway Restaurant, Taco Bell, or Pizza Hut; the local commuters; and finally the proposed 936 -1152 truck trips per day accessing the Lower Site.

Comment *020-498* Although the DEIS has identified the planned Middle and Elementary schools to be constructed beginning in 2004, it has declined to accurately account for their impact on traffic volume and safety. The school's exclusion from consideration may be legal, but by ignoring its ethical and moral obligations, the DEIS has done the community an injustice. The Snoqualmie Superintendent of Schools, Dr. Richard McCullough, expressed this disappointment, at the King County public meeting, June 11, 2000, at Mt. Si High School. It was clear that his understanding from all parties concerned was that the new schools would be fully addressed in the DEIS. If the DEIS cannot adequately address the safety of our children then can we trust its concern for the water, traffic, wildlife, air quality, noise, and any other issue pertinent to this project.

Response School traffic is included in the FEIS traffic analysis.

Comment *020-496* Additionally, the queuing on 468th Avenue SE and 146th will dramatically conflict with the routine traffic patterns, pedestrians, bicyclists, recreationalists, and commercial traffic. The potential for gridlock on 468th Avenue SE and SE 146th Street has not been accurately or reasonably evaluated nor have significant mitigation measures been articulated.

Response A VISSIM traffic model which incorporates mitigations reviews (truck) queuing for the FEIS.

Comment *020-497* If accidents or emergency incidents should occur in the proposed project area then the availability of fire and emergency services to area residents, schools, and local businesses will be negatively impacted. Concurrently, if area residents, schools or local businesses required emergency services access could be restricted because of the traffic congestion and truck queuing on 468th Avenue SE. The DEIS has not adequately discussed the impacts of the proposal on emergency vehicle response

Response A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street.

Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders.

Comment *020-499* The road structure is believed to be adequate to support the proposed load limits, but is not substantiated with quantitative data. If the Exit 34 corridor proves to be inadequate to handle the increased load limits then the area would become impassable with chronic maintenance and/or major renewal construction.

Response By classification, the roadways are designed for truck traffic.

Comment *019-385* The FEIS should use a new model to measure identified accident risks especially when entering and exiting Interstate 90. A model that incorporates the current heavy truck traffic at Exit 34, to include the projected number of gravel trucks and their actual speeds when entering and exiting Interstate 90.

Comment *020-507* The FEIS should use a new model to measure identified accident risks especially when entering and exiting Interstate 90. A model that incorporates the current heavy truck traffic at Exit 34, to include the projected number of gravel trucks and their actual speeds when entering and exiting Interstate 90.

Response A VISSIM model of traffic (including trucks) for FEIS takes into account operational speeds on the ramps.

Comment *019-391* The FEIS should address specific impacts and mitigation methods on pavement conditions in the Exit 34 corridor, rather than general evaluations.

Comment *019-392* The FEIS should address what plan has been developed for routine maintenance of affected roadways? Who will be responsible both financially and operationally for maintenance implementation? How will maintenance impact the LOS? How will maintenance impact the local businesses in the Exit 34 corridor?

Comment *019-393* The FEIS should address what plan has been developed for major roadway repairs. When will major roadway repairs be necessary within the 25-year cycle, and how will it be implemented? When will major roadway construction begin if road surface conditions deteriorate? How will major road repairs impact the LOS? How will major roadway construction impact the local businesses in the Exit 34 corridor?

Comment *020-513* The FEIS should address specific impacts and mitigation methods on pavement conditions in the Exit 34 corridor, rather than general evaluations.

Comment *020-514* The FEIS should address what plan has been developed for routine maintenance of affected roadways? Who will be responsible both financially and operationally for maintenance implementation? How will maintenance impact the LOS? How will maintenance impact the local businesses in the Exit 34 corridor?

Comment *020-515* The FEIS should address what plan has been developed for major roadway repairs. When will major roadway repairs be necessary within the 25 - year cycle, and how will it be implemented? When will major roadway construction begin if road surface conditions deteriorate? How will major road repairs impact the LOS? How will major roadway construction impact the local businesses in the Exit 34 corridor?

Response King County would maintain roads in the Exit 34 corridor.

Comment *020-529* What happens in the event of a break down of either trucks or machinery? What happens to the truck queues?

Response Trucks would queue onsite.

Comment *019-409* The FEIS should address if trucks cannot be loaded at the projected rate does this automatically allow the project to operate 24 hours to catch up with projected levels of gravel, concrete or asphalt? If more equipment were needed to load the projected amount of gravel, concrete, or asphalt how would this affect noise levels?

Comment *020-530* The FEIS should address if trucks cannot be loaded at the projected rate does this automatically allow the project to operate 24-hours to catch up with projected levels of gravel, concrete or asphalt? If more equipment were needed to load the projected amount of gravel, concrete, or asphalt how would this affect noise levels?

Response Traffic analysis is based on peak hour. Hours of operation would be set by King County. Noise impacts related to truck traffic and the equipment Cadman, Inc. proposed to use is described in the Noise Chapter of the FEIS.

Comment *020-533* Is this "formal" or "informal" parking on SE 146th Street? (Comment refers to a photo in the comment letter.)

Response The pictured parking is formal.

Comment *020-562* Truck damage to existing sidewalks on 468th Avenue SE (Refer to hardcopy for photograph, pg 100).

Comment *020-563* Truck damage to existing sidewalks on 468th Avenue SE (Refer to hardcopy for photograph, pg. 101).

Response Mitigation calls for increasing curb turning radius to minimize truck turning damage.

Comment *020-593* Determine if Exit 34's construction specifications indicate whether the road surface can handle the type and volume of traffic proposed by Grouse Ridge operation.

Response Maintenance of roadway is handled by King County. Roadway surface is designed to handle truck loads.

Comment *020-594* Determine the maximum size limit, maximum weight limit, and maximum volume of trucks that can safely operate in the Exit 34 corridor.

Response The corridor, through mitigation, would be improved to safely operate.

Comment *020-632* Investigate the impressions and concerns of the King County road maintenance department/crews regarding this proposed operation.

Comment *020-633* Determine how the increased truck traffic at Exit 34 will affect King County road maintenance procedures and budgets.

Comment *020-634* Determine whether or not King County road maintenance believes Exit 34 can be made to efficiently and safely handle a thousand trucks per day.

Response King County reviewed the DEIS and is aware of the traffic volumes and maintenance requirements for the proposal.

Comment *019-548* Determine impact of the Lower Site on emergency vehicles as compared to Exit 38.

Comment *020-679* Determine impact of the Lower Site on emergency vehicles as compared to Exit 38.

Response A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street. Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders.

Comment *020-681* Determine Lower Site impact on school bus traffic when proposed middle and elementary schools are in operation.

Comment *020-682* Determine whether or not 468th Avenue SE and SE 140th Street can safely be included in school bus routes during Lower Site operating hours.

Comment *020-683* Determine whether or not 468th and SE 140th Street can safely accommodate other school traffic during Lower Site operating hours.

Response School volumes have been added to the FEIS analysis.

Comment *020-685* Determine whether SE 140th Street would need to be further developed to accommodate increased traffic. (curbed sidewalks for pedestrians, bicycle paths)

Comment *020-687* Determine whether or not the SE 140th Street roadway surface and substrate can handle heavy gravel, concrete, and asphalt trucks.

Comment *020-688* Determine whether or not an 18-wheel gravel truck can make the hairpin turn on SE 140th Street as it approaches North Bend Way.

Response Project truck traffic is not planning to use SE 140th Street.

Comment *020-686* Determine whether SE 140th Street would needs to be further developed to accommodate increased traffic. (double lanes for increased traffic). If so, determine where the land would come from to accommodate such improvements.

Response Traffic projections on SE 140th don't show need for further roadway development.

Comment *022A-005* With gravel trucks frequently entering and leaving SE 146th Street from and onto 468th Avenue SE, I found it very dangerous to use the front entrance of the Edgewick Inn.

Comment *022B-006*

Significant adverse impacts to vehicles exiting the Edgewick Inn parking lot. The DEIS does not identify nor discuss the significant adverse safety and delay impacts that would accrue to drivers attempting to exit the Edgewick Inn parking lot via the main driveway on SE 146th Street. The driveway for the Inn is located such that even a single westbound combination truck waiting at the stop sign on SE 146th blocks exiting maneuvers from the motel's parking lot, In addition, the significant increase in northbound right turning vehicles into SE 146th creates a significant potential for head-on or near head-on collisions between trucks swinging wide into the westbound lane of SE 146th and drivers exiting the motel parking lot. Please address the potential increase in collisions at this location and estimate the likely number of annual collisions and severity using a statistical estimate of the increase in the number of conflicts at the motel driveway as a result of the project. Please compute the expected increase in delay to drivers waiting to turn left out of the motel driveway.

Comment *127-001*

And to my understanding, there appears to be 600-plus trucks a day operating 24 hours a day on 146th Street, and they will be entering 468th Avenue Southeast in servicing the facility that will be built at the lower site. We are concerned primarily with how that is going to impact our business. We only have two entrances to our business. Both are located along 146th Street. They are on the south side of the street. Our main concern is that currently, even when a single large truck is stopped at the stop sign and trying to enter on to 468th Avenue, a single truck blocks our primary entrance/exit driveway. And our customers really are not able to get into or out of -- primarily out of our property.

Response

The proximity of the driveway to the existing intersection is not an ideal traffic situation in any scenario including the existing condition. To improve operations, the property owner may choose using the alternative access east of the intersection for egress from the site.

Comment *022B-002*

HCS software understates effects of a very high proportion of heavy trucks on LOS. In reviewing the details of the December 1997 Highway Capacity Manual and Release 3 of the HCS, it is my opinion that the calculation methods in both the HCM procedures and the HCS software do not adequately reflect the adverse impacts on capacity and LOS of the very high proportion of heavy truck in the traffic stream along 468th Avenue SE, and on SE 146 Street with the proposed project. Unlike the methodology for signalized intersections, the unsignalized method does not adjust actual flow rates for heavy vehicles. Given the high volumes of multiple combination vehicles (i.e., tractor, semi-trailer and trailer) and very long tractor-semi-trailer combinations which use the Seattle East Auto Truck Plaza, the minor adjustments to the values for critical gaps and follow-up times in the HCS software do not adequately reflect the slow speeds at which these vehicles make their turning movements in the intersection. The HCM recognizes that its values are listed for “most typical intersections” but that special conditions, such as those encountered at the subject intersections, require additional field data. As the HCM states on page 10-10, “Empirical observations of maximum capacity as well as measurements of critical gaps and follow-up times should be used in such cases to calibrate the methodology to local conditions.” Please conduct the requisite flow rate, gap and follow-up time studies to calibrate the HCM methodology for the high volume truck situation at the intersection of 468th and 146th.

Response

Additional field observations have been used to calibrate the analysis and a VISSIM model was developed for the FEIS to test mitigation alternatives.

Comment *022B-008*

Alternate access. It appears from the DEIS that the “Lower Site” is adjacent to SE 144th Street which serves largely undevelopment parcels on the north and west sides of

the project site. Using SE 144th Street to access the site would completely avoid impacts on the Edgewick Inn, and the capacity mad safety impacts associated with heavy truck turning movements at the intersection of 468th SE and SE 146th. Please analyze the potential benefits and impacts of providing access to the Lower Site via SE 144th Street instead of the proposed access on SE 146 Street.

Response The use of SE 144th Street could reduce impacts to the Edgewick Inn, but would cause new impacts that are not evaluated in the EIS. For example, noise would increase for the residents that live on SE 144th Street and traffic would increase at the intersection of SE 144th Street and 468th Avenue SE. In addition, because SE 144th Street provides access to residential property, a Conditional Use Permit would be required for this alternative. The FEIS does not evaluate this alternative because the applicant did not propose it and it is not clear that it would result in an overall decrease in traffic or noise impacts.

Comment *024A-104* There is in the traffic section as in other sections the use of inaccurate data upon which the analyses are based. A substantial amount of the analysis is based on the trip generation rate. The DEIS on page 3.12-23 states "The trip generation rates assume that two trips are generated for each load of material moved (one trip entering, and one trip exiting)." The DEIS goes on to say "Truck traffic is calculated at approximately 360 loads per day of aggregate, 156 loads of concrete, and 60 loads of asphalt with Alternative 2."

Comment *024A-105* Given these two assumptions Alternative 2 would generate:

- 720 trips per day of aggregate
- 312 trips per day of concrete and
- 120 trips per day of asphalt

However, the Table 3.12-8 and Table 3.12-14 although showing accurate one way trips for aggregate show only

- 156 trips per day of concrete
- 60 trips per day of asphalt.

Comment *024A-106* In addition, Table 3.12-14 includes 118 trips per day for 'aggregate for batch plants'. It is unclear given the lack of data whether those 118 trips (which would in fact be 118 truck loads which would be the equivalent of 236 trips per day) use a road connecting the Upper Site and the Lower Site, possibly the 'maintenance road' mentioned under Alternative 2. The Transportation section does not address this possibility except in a subscript to the table, however the DEIS states on page 3.6-8 in the Energy section "Alternative 3's energy use includes onsite transportation of aggregate to the Lower Site's batch plants and offsite traffic to transport aggregate and products to other facilities. Alternative 3 would increase the volume of truck traffic along the existing road linking the sites, as aggregate must be hauled approximately 8 miles from the Upper Site to the asphalt and concrete batch plants at the Lower Site. Based on estimates prepared by Heffron Transportation (1999), 118 trucks per day would travel between the sites to provide aggregate to the batch plants."

Comment *024A-107* Given the above discussion Alternative 2 would generate 1152 truck trips per day at the Lower Site not 936 truck trips per day. And Alternative 3 would generate at the Upper Site, if all trucks use I-90, 956 truck trips per day, or 720 truck trips per day if the aggregate for the batch plants is trucked from the Upper Site to the Lower Site using the non-public road. Alternative 3 would generate either 432 daily trips at the

Lower Site or 668 daily trips if the aggregate is hauled to the Lower Site from the Upper Site using I-90 rather than the 'onsite' road.

Response Traffic base numbers have been revised as necessary. The conveyor maintenance road is too steep to be used for travel between the sites.

Comment *024A-110* Other Safety Issues The conflict between the proposed school and the proposed project is not adequately addressed in the DEIS. If the school draws from residences in the Edgewick area the crossing from the south side of I-90 to the north side will have to be 468th Avenue S.E. This conflict needs to be addressed more fully. The possibility of conflicts with bicycle and pedestrian use is a more significant impact at the Lower Site than at the Upper Site due to the greater population, the school and that given the certain increase in congestion at Exit 34 there will be substantially higher use of S.E. 140th Street which will impact bicycle and pedestrian use on that street and possibly on other access roads. This appears to be of far greater concern than the impact of increased truck trips in the vicinity of Olallie State Park with substantively lower use.

Response Comment noted. The two schools are included as part of the baseline year 2005 traffic data.

Comment *024A-112* It is evident from this brief analysis that the assessment of traffic impacts in the DEIS is of necessity inaccurate and inadequate. And the conclusion that there are no significant unavoidable adverse impacts can not be determined from the information provided. Please provide a more detailed comprehensive and accurate analysis of the traffic impacts from this project.

Comment *041-002* While I expected Dames & Moore to try to muddy the water with very technical jargon and scientific arguments, I did not expect them to just ignore our questions. The traffic section of this document is so poorly written, so poorly researched and so full of gaps that it is shocking. It doesn't really answer a single question I raised last year. It doesn't paint a coherent picture of the what is going to happen as a result of any of the alternatives (even Number 1, which is that the project not happen!). And the sum total of the recommendations for Alternative 2, which will put an 8-axle gravel truck on the roads in my residential community every minute of every hour for 17 hours a day is to install a left-hand turn lane on 468th between the project site and I-90!

Comment *041-003* So where do we go from here? Am I supposed to resubmit all of my original questions again, hoping that someone, somewhere in the system will actually answer them? Am I supposed to become a traffic engineer overnight so I can do Dames & Moore's and King County's job for them which is to make sure this document describes what the likely impacts of this project are and how to mitigate the problems the project will create - and do it in a fraction of the time you've had to do the same job? THIS DEIS IS COMPLETELY UNACCEPTABLE with regard to traffic and I HOLD KING COUNTY RESPONSIBLE! Whoever is calling the shots on this DEIS should be ashamed of themselves. The citizens of King County were promised a “an exhaustive” EIS. What we have is a sham.

Response Additional traffic modeling (VISSIM) and analysis are included in the FEIS.

Comment *039-006* 480 trucks per day on exit 34 or 38 and then traveling on I-90. No Impact?

Response Impacts are discussed in the traffic analysis for the alternatives in the FEIS.

Comment *041-008* How long (in minutes and seconds) will it take a single loaded gravel truck to enter and clear each intersection? How long will it take to get the truck up the on ramp? What speed will those trucks be going when they reach the top of the ramp? Is there adequate visual clearance for vehicles already on the freeway, travelling 70 MPH to avoid colliding with a loaded gravel truck entering I-90 lanes? (I bet not.) And what about the normal traffic behind those trucks trying to get on the freeway?

Response The I-90 ramps are designed with adequate acceleration and merging lengths for heavy vehicles. Vehicles on the outside lanes traveling 70 mph should be adequately warned and prepared from posted speed limits signs that the speed limit for trucks is 60 mph. They may need to weave to another lane for a safe merge to take place with the trucks, as they do now on I-90.

Comment *041-009* The numbers in the report on page 3.12-26 indicate 998 truck trips through this intersection per day. Operating from 5:30 am to 10:30 pm is a 17 hour day. That translates to 58 trucks per hour or approximately 1 every minute. How can Dames & Moore or Cadman think that a gravel truck every minute isn't going to completely clog the roadways around Exit 34. Nor have they projected the impact that Alternative 2 would have on traffic around Exit 32, because no one can get through on the roads at Exit 34. And yet they propose not a single significant mitigation to the roads beyond adding a turn lane in the middle of the road! I at least expected additional lanes to the roads, especially the exit and on-ramps to I-90, so smaller, faster traffic can pass on the roads!

Response Ramps are not a safe place to pass other vehicles. The 3 or 4 lane interstate is preferable for this maneuver to take place. The trucks travel along 468th Avenue SE for less than a quarter of a mile. After that, the smaller faster traffic will not be following any large trucks. The DEIS traffic analysis of the alternatives included impacts to I-90 Exit 32.

Comment *045-056* Page 3.6-7, 2nd paragraph: Since the transport of aggregate to Issaquah and Redmond sites owned by the Applicant is part of the operations of the Project, rather than an "after-the-fact" transport of gravel sold to customers, the Applicant should be responsible (with a posted bond) for a portion of road repair and maintenance on the routes (both on I-90, and on arterial roads to each processing site). Again, one reason the Applicant's pit near Carnation was denied an operating permit was their inability and unwillingness to keep in usable and safe condition the County road used by their (and other) trucks as well as all citizens living nearby. The Appeal Determination stated that "bonding for road maintenance is generally required as part of the conditions of a grading permit."

Response Bonding for road maintenance on I-90 and King County roads is not generally required. Bonds can be required for unusual damage caused by construction.

Comment *073-006* Table D is a collection of factors that provides a model of transported quantities and project truck trips month-by-month, over a year, in the Exit 34 environs. The model is carried out in Tables E and F. Monthly activity over a year is demarcated by Peak-, Average- and Valley-Months. The Peak- and Valley-Months are at opposite ends of the yearly time continuum. Two Average-Months are equidistant from the Peak- and Valley-Months and are separated from each of them by two months. Labels in

columns B through M in rows 5 through 8 illustrate. A new Month A would be the next year's Valley-Month. In this framework factors are arrayed for months A through L. The 11 months in columns B through M, excluding column H, are treated as average months (10-footnote in hardcopy) and they share most factors. The month in column H, the Peak-Month (used extensively for analysis in the Transportation portions of the DEIS) is treated as a special case, and it has mostly unique factors. The factors in row 10 for the 11 average months were generated from modeling Parameters 1, 2 and 3 in N 1, N2 and N3, respectively:

- Parameter 1: the production rate for the lowest production month

Month A: B10=N1

- Parameter 2: the % increase in the production rate over the previous month for months E and F; the % decrease for months I and J;
  - Month E: F10=E10+N2
  - Month F: G10=F 10+N2
  - Month H: I10=J10+N2
  - Month I: J 10=K10+N2

- Parameter 3: the % increase in the production rate over the previous month for months B, C and D; the % decrease for months K, L and A;

- Month B: C10=B10+N3
- Month C: D10=C10+N3
- Month D: E10=D10+N3
- Month J: K10=L10+N3
- Month K: L10=M10+N3
- Month L: M10=B10+N3

The modeling Parameters chosen for this document are:

- Parameter 1: 4.00%
- Parameter 2: 2.50%
- Parameter 3: 1.71%

They reflect:

- The rule of thumb that the production rate of the low production month of a seasonal business with one major, extended season differs from the production rate of the high production month by a factor of about 1/3 (Parameter 1)
- The seasonal nature of the construction business and its suppliers in an area with four seasons and weather patterns that are not conducive to above average or high activity for up to half of the year (Parameters 2 and 3)
- Lower rates of increasing or decreasing activity during below average and low activity months (Parameter 3)
- Higher rates of increasing or decreasing activity during above average and high activity months (Parameter 2).

A test of whether a model reflects its object well is whether the model generates known data in the object:

- See Table E, H56 through H59 and compare to values in Table 3.12-8 on Page 3.12-26;
- See Table E, H64 through H66 and compare to values in Table 3.12-14 on Page 3.12-35

- See Table E, E59, K59 and N60 and compare to "Daily truck trips, at full build-out, are estimated to average 550 per day... "(11- DEIS Proposal And Alternatives, Section 2.2.5, Page 2-19 Table E)
- See Table F, N104 through N107 and N111 through N114 and compare to values in Table C;
- See Table F, compute H107/N 107 and H114/N114 and compare to "... 15% of annual production occurs during the peak month..."

In the absence of similar, comprehensive data from Dames & Moore or Cadman, the model is a good first-order approximation. Data generated from the model in Tables E and F is sufficiently accurate for the purposes to which the data is put in this document, to show quantities and qualities that occur outside of the Peak-Month.

In fact, in the absence of anything comparable in the Transportation portions of the DEIS, the model is the best one that exists as far as the audience of the DEIS is concerned.

Question: Will the FEIS provide a full-range of factors for transported quantities and project truck trips on a month-by-month, year-by-year operations basis, especially but not limited to what are called Parameters 1, 2 and 3? Or a full, documented model? Values in row 10 total 100%, exclusive of the 15% value in row 11 (H11 and N11). The model does not incorporate 115% of transported quantities. It incorporates 100% of 85% of transported quantities for the 11 average months. It incorporates 100% of 15% of transported quantities for the Peak-Month.

This is reflected in factors in rows 12 through 20, which draw on Table C. Factors for the Peak-Month in column H in these rows are 100% of appropriate values in Table C.

Factors for the 11 average months in these rows, in columns B through M, exclusive of column H, are 85% of appropriate values in Table C. Factors in row 30 reflect the number of production days in each of 11 average months, once the number of production days in the Peak-Month (24 -- the factor in row 31) is removed from the number of production days in a year (306-24)/11=25.6.

Factors in rows 32 through 37 are trip rates. Trip rates for the 11 average months in rows 32, 35 and 37 and for the Peak-Month in H37 were drawn from Table 3.12-7, with appropriate conversion from cubic yards to tons for concrete. Trip rates for the Peak-Month in H33, H34 and H36 were derived from the North Bend Trip Generation Worksheet in Chapter 6, which generates the number of trips in Tables 3.12-8 and Table 3.12-14.

Response No. The focus is on the peak-month and peak-hour to determine worst-case scenario.

Comment *073-013* Ambiguity "Truck traffic is calculated at approximately 360 loads per day of aggregate, 156 loads of concrete, and 60 loads of asphalt." This statement is false. The correct statement is "...360 loads per day of aggregate, 78 loads of concrete, and 30 loads of asphalt. "In its untrue form one can run a merry chase trying to figure out what is correct and what is incorrect: If it's really 156 and 60 loads, then maybe the project trip generation Tables are incorrect and understated, and that would mean the North Bend Project Trip Worksheet in Chapter 6 is incorrect from a good while ago.

- Maybe it's really trips that are meant for concrete and asphalt, but why mix units of loads and trips in the same statement.

- Maybe #'s 360 and 156 and 60 trips, but then aggregate trips would not match the trip generation table.
- Maybe the trip generation rates are incorrect for concrete and asphalt.
- And on and on.
- The problem is content ambiguity based on a statement of factual error.
- It suggests that whoever wrote the sentence had difficulty distinguishing a load (two trips, one in, one out) and a trip (either in; or out).

What this suggests is somewhere behind the Transportation portions of the DEIS is someone who does not have a clear, working grasp of the basic concepts and issues, yet is analyzing and articulating the transportation impacts.

Response This issue did not carry over into the analysis and the truck traffic has been corrected in the FEIS.

Comment *073-015* A Limited Portrayal. Consider Table 3.12-8, Table 3.12-14 and Table 3.12-20, project trip generation tables for Alternative 2, Alternative 3 and Alternative 4, respectively. Each Table has identical row and column labels. The column labels denote Daily Trips (One-way), AM Peak Hour Trips and PM Peak Hour Trips. 18 DEIS Transportation, Section 3.12.11.2, Page 3.12-2319 DEIS Air Quality Technical Report, Appendix B, Section 3.1.1, Page 3-3. Beneath each Table is a brief paragraph summarizing the data in the Table. The first sentence of each paragraph describes the total number of Daily Trips (One-way). The second sentence of each paragraph describes the total number of PM Peak Hour Trips and in the Table 3.12-8 instance describes the rate per unit time of such trips. There is no summary sentence describing AM Peak Hour Trips beneath each Table. There should be one there, for thoroughness, at least, and certainly for balanced portrayal of information in different categories. Is this a big deal? Yes -- it raises the question whether the AM Peak Hour Trips summary sentence was omitted beneath each Table because it was a less favorable-sounding bit of information in comparison to the PM Peak Hour Trips bit. Here are the minimally appropriate AM Peak Hour Trips summary sentences:

• Table 3.12-8: During the AM peak hour, the site would generate 103 trips per day or approximately one trip every 35 seconds.

• Table 3.12-14: During the AM peak hour, the site would generate 115 trips per day during the peak month.

• Table 3.12-20: During the AM peak hour, the site would generate 97 trips per day during the peak month.

Response The AM peak hour trip totals have been added to the table summary paragraphs in the FEIS.

Comment *073-016* Another Limited Portrayal Figure 4 in the TTR does not provide the volumes for some directional flows (nor can they be calculated from directional flows provided):

- WB on the Seattle East Driveway
- EB on the Seattle East Driveway
- WB on 146th Street
- EB on 146th Street
- SB on 468th Avenue between the Seattle East Driveway and North Bend Way

Five factors of the most critical intersection for project truck traffic.

WB on North Bend Way. Were these directional flows measured? If yes, will Figure 4 in the TTR be updated in the FEIS?

Response Daily directional counts were taken at some of these locations for the FEIS. Peak hour counts are given for each of the above intersections in the FEIS Transportation Technical Report.

Comment *073-017* Realized or Partially-Realized Data. 439th Street and SE Middle Fork Road are aspects of Tables 3.12-1, -2, -3, -4 and -5. Some discussion is afforded both as elements of the overall traffic study area. Some discussion is afforded the analysis of delay conditions on 436th Street intersections, more so in the TTR. SE Middle Fork Road seems to be an unnecessary appendage to the delay conditions analysis based on the discussion it is afforded. Then these elements of the traffic study area disappear from the analysis, with no explicit explanation. Draw your own conclusions seems to be the implicit message. One conclusion is 436th Street and SE Middle Fork Road help fill the introductory pages of Section 3.12 with irrelevant data. Another conclusion is 436th Street and SE Middle Fork Road aren't considered important, but, because they are a defined part of the traffic study area, some pro forma treatment is in order. There is an issue of inconsistent follow-through and the unanswered question of the value of the information in the audience's perception.

Response Data in the DEIS showed that traffic on 436th Avenue SE and SE Middle Fork Road where not a project issue.

Comment *073-019* Misdirection "Figure 3.12-8 shows the volumes by hour and by type of vehicle. Future-with-project volumes for Alternative 2 can be derived for all 3 study years by adding the project-generated volumes (see Figure 3.12-7) to the Alternative 1 (No Action) forecasted volumes (see Figures 6 and 8 in the Transportation Technical Report." If the incorrect information is taken at face value, you would be (1) wondering how 8 numbers and a few arrows annotating a roadway diagram represents hourly volumes and vehicle types; (2) figuring out how to add a diagram of the layout of the Seattle East Auto Truck Plaza to Figures in the TTR; (3) figuring out how to add one diagram to two Figures to get three separate years of data.

Response Comment acknowledged. The tables and figures are more clearly labeled in the FEIS and Transportation Technical Report.

Comment *073-025* Scattered Data.

See commentary in Table C above.

A key piece of data found nowhere in the Transportation portions of the DEIS is: "Daily truck trips, at full build-out, are estimated to average 550 per day."

[Question: Why isn't this key piece of data found in the Transportation portions of the DEIS?]

Response This data is included in the FEIS.

***Comment** 073-034*

Duration Of Concentration Of Project Truck Traffic On 468th Avenue From Table B, compute L75/P75 and L79/P79.94% of Alternative 2 or Alternative 3 project truck traffic in all Peak-Month days would occur in the continuous 9-hour segment between 7 AM and 4 PM.

***Comment** 073-035*

From Table A, see L27 and P27.

Between 7 AM and 4 PM during Peak-Month days, Alternative 2 would generate 878 of 936 total daily one-way trips of project truck traffic in or out of the Lower Site.

***Comment** 073-036*

From Table A, see L31 and P31. Between 7 AM and 4 PM during Peak-Month days, Alternative 3 would generate 313 of 334 total daily one-way trips of project truck traffic in or out of the Lower Site. Almost all of the project truck traffic would occur between 7 AM and 4 PM during Peak-Month days. All project truck traffic would pass through the intersection of 468th Avenue/146th Street.

***Comment** 073-037*

From Table E, compare N76 with N75, and see N77. See Chart 15.

From Table E, compare N83 with N82, and see N84. See Chart 17.

74% of Alternative 2 or Alternative 3 project truck traffic in all years over the life of the proposed project would occur in the continuous 7-month segment of the year between Month D and Month J.

The substantive portion of project truck traffic on 468th Avenue would occur from April through October. All this traffic would pass through the intersection of 468th Avenue and 146th Street.

Response

Percent of project traffic on local roads between 7 a.m. and 6 p.m. are noted in the FEIS Figure 14-8.

***Comment** 073-039*

From Table E, see N60 and N62. See Chart 14. In Alternative 2 over the course of a year over the life of the proposed project there would be on average 570 daily project truck trips in or out of the Lower Site. Over Months D through J in all years over the life of the proposed project there would be on average 772 daily project truck trips in or out of the Lower Site.

Response

Comment noted. N62 on Table E says 722 trip average for months D through J. The FEIS makes a summary comment about Figure 3.12-9 in text on hours impacted.

***Comment** 073-136*

Frequency Of Project Truck Traffic On 468th Avenue.

Peak-Month Days.

In Alternative 2, during Peak-Month days, in the time-frame, there would be 1 project truck on 468th Avenue every:

- 7 a.m. to 8 a.m.: 34 seconds
- 9 a.m. to 11 a.m.: 33 seconds
- 10 a.m. to 11 a.m.: 32 seconds
- 9 a.m. to 2 p.m.: 36 seconds
- 7 a.m. to 4 p.m.: 37 seconds

1 project truck every 35 seconds.

What does it take about half a minute to do, commonly?

Response The 35 seconds is for both directions. Trucks would arrive approximately every 70 seconds and leave every 70 seconds.

Comment *073-137* In Alternative 2, during Peak-Month days, in the time-frame, there would be 1 project truck PCE on 468th Avenue every:

- 7 am to 8 a.m.: 10 seconds
- 9 am to 11 a.m.: 10 seconds
- 10 am to 11 a.m.: 9 seconds
- 9 a.m. to 2 p.m.: 10 seconds
- 7 a.m. to 4 p.m: 11 seconds

1 project truck PCE every 10 seconds

What does it take about 10 seconds to do, commonly?

Response The PCE (passenger car equivalency) intended use is for intersection analysis, not for truck frequency.

Comment *073-138* In Alternative 3, during Peak-Month days, in the time-frame, there would be 1 project truck PCE on 468th Avenue every:

- 7 a.m. to 8 a.m.: 97 seconds
- 9 a.m. to 11 a.m.: 94 seconds
- 10 a.m. to 11 a.m.: 90 seconds
- 9 a.m. to 2 p.m.: 100 seconds
- 7 a.m. to 4 p.m.: 104 seconds

1 project truck PCE every 1 minute.

What does it take about a minute to do, commonly?

Response The PCE intended use is for intersection analysis, not for truck frequency.

Comment *073-139* In Alternative 3, during Peak-Month days, in the time-frame, there would be 1 project truck PCE on 468th Avenue every:

- 7 a.m. to 8 a.m.: 32 seconds
- 9 a.m. to 11 a.m.: 31 seconds
- 10 a.m. to 11 a.m.: 29 seconds
- 9 a.m. to 2 p.m.: 33 second
- 7 a.m. to 4 p.m.: 34 second

1 project truck PCE every 32 seconds.

What does it take about half a minute to do, commonly?

Response The PCE intended use is for intersection analysis, not for truck frequency.

Comment *073-140* Compared to Alternative 2, Alternative 3 would more benign, by circa a factor of 3.

Response The LOS for each alternative was based on HCM 2000 Standards and compared to each other.

Comment *073-141* Between 7 a.m. and 4 p.m. In Days In All Months. Continuing only for Alternative 2 (Alternative 3 would be more benign, by circa a factor of 3), and assuming the 94% factor developed in Duration Of Concentration Of Project Truck Traffic On 468th Avenue above applies across the year:

In Alternative 2, during days in the time-frame, during a continuous 9-hour segment of every production day, there would be 1 project truck on 468th Avenue every:

- Valley-Month:
  - Month A: 146 seconds
  - Month B: 102 seconds
  - Month C: 79 seconds
- Average: Month:
  - Month D: 64 seconds
  - Month E: 50 seconds
  - Month F: 41 seconds
- Peak-Month:
  - Month G: 37 seconds
  - Month H: 41 seconds
  - Month I: 50 seconds
- Average: Month:
  - Month J: 64 seconds
  - Month K: 79 seconds
  - Month L: 102 seconds
- Valley-Month:
  - Month A: 146 seconds

Per Peak-Month Days results above for Alternative 2, the ratio between the rate at which project trucks appear on 468th Avenue and the rate at which project truck PCEs appear is 3.5-to- 1:

In Alternative 2, during days in the time-frame, during a continuous 9-hour segment of every production day, there would be 1 project truck PCE on 468th Avenue every:

- Valley-Month:
  - Month A: 42 seconds
  - Month B: 29 seconds
  - Month C: 23 seconds
- Average Month:
  - Month D: 18 seconds
  - Month E: 14 seconds
  - Month F: 12 seconds

- Peak-Month:
  - Month G: 11 seconds
  - Month H: 12 seconds
  - Month I: 14 seconds
- Average: Month:
  - Month J: 18 seconds
  - Month K: 23 seconds
  - Month L: 29 seconds
- Valley-Month:
  - Month A: 42 seconds

The question that has to be asked, say, of this PCE version of the results, is: is 18 seconds in Month J a whole lot different than 14 seconds in Month E or 11 seconds in Month G, or even 23 seconds in Month K, or even 29 seconds in month B, from the standpoint of human perception and tolerance?

Don't the ants just keep marching two-by-two, one trip in, one trip out?

Response The PCE intended use is for intersection analysis, not for truck frequency.

Comment *073-144* Perhaps a partial answer is because the primary goal of the Transportation portions of the DEIS is to address King County Intersection Standards and specifically King County C 14.80.030. The range of actual impacts? -- they are secondary to channeling the process into a known, administrative mechanism.

Response This report has to follow acceptable analytical standards. The goal is to realistically present project traffic impacts.

Comment *073-146* The evenhandedness of the derivation and the use of DEIS Transportation data -- open, explicit, sufficiently detailed derivation and treatment of the relevant data from a sufficient number of points of view, without resorting to omission or understatement or agendas -- is very, very questionable.

Response Comment noted.

Comment *073-148* It is probable that the following project truck configurations would be used in the Exit 34 environs:

- SUDT
- SUDT w/trailer
- Tractor w/single short belly dump trailer
- Tractor w/two short belly dump trailers
- Tractor w/single long belly dump trailer
- SUT (concrete)
- Tractor w/trailer (concrete).

It would have been clearer and more useful if DEIS Transportation had provided, in a Table, for these project truck configurations and their constituent components, and for any significant variations of them, the following information:

- Hauling use (aggregate, asphalt or concrete)
- Tare weight (by individual component in a configuration)
- Loaded weight (by configuration; typical and maximum)
- Length (by individual component in a configuration)
- GVW-to-horsepower ratio (by configuration)

[Question: Will the FEIS provide this data in full tabular form?]

Response The most commonly used trucks were included in the simulation analysis. Other trucks that could use the facility are noted in the technical report but would have negligible affect on varying the operations.

Comment *073-149* Off tracking/Low-Speed Off tracking." [Low-speed] off tracking measures how well the back of a vehicle follows the front when making a turn."

All vehicles off-track to some extent, some more than others. Getting out-of-lane (and into someone else's) can be a consequence of off tracking. The length and width of the vehicle, the number of independent, moving segments it has, its speed, the lane width, the curb radius on turns at intersections are some factors that determine the extent of low-speed off tracking.

"When a combination vehicle makes a low-speed turn -- for example, a 90-degree turn at an intersection -- the wheels of the rearmost trailer axle follows a path several feet inside the path of the tractor steering axle. This is called low-speed off tracking. Excessive low-speed off tracking may make it necessary for the driver to swing wide into adjacent lanes in order to execute the turn (that is, to avoid climbing inside curbs or striking curbside fixed objects or other vehicles). When negotiating exit ramps, excessive off tracking can result in the truck tracking inboard onto the shoulder or up over inside curbs. This performance attribute is affected primarily by the distance (kingpin setting) from the tractor kingpin (the pivot point between the tractor and semi-trailer) to the center of the trailer rear-axle or axle-group. In the case of multi-trailer combinations, the effective wheel-base(s) of all the trailers in the combination, along with the tracking characteristics of the converter dollies, dictate this property. In general, longer wheel-bases worsen low-speed off tracking."

DIAGRAM 1

Low-SPEED OFFTRACKING

"Off tracking is defined as the distance between the path of the front inside wheel and the path of the rear inside wheel as a vehicle traverses a...turn. Off tracking is a function of the wheel-bases of the tractor and trailers and the number of articulation points. The maximum swept path, another way of expressing the amount of off tracking, is equal to the width of the vehicle plus the off tracking distance. If this maximum swept path is greater than the width of the travel lane, the vehicle will encroach into adjacent lanes, onto the shoulder, or run off the road during the turning maneuver."

DIAGRAM 2 SWEPT PATH

The 'maximum swept path' or 'swept path width' is the width of the lane required for a potentially off tracking vehicle to stay within-lane.

Response A turning template analysis would be required during permitting.

Comment *073-155* Low-Speed Off trackers: Safety.

"Off tracking contributes to several types of crashes. Often a truck driver will swing wide to the left in preparation for a turn to the right. The driver of a following car may see the truck move to the left and assume it is safe to pass on the right, only to have the truck cut back once the car is alongside with no escape route. Even when a truck driver signals right, the leftward movement can confuse following drivers."

"One method for evaluating a vehicle's potential for damage is to look at its kinetic energy, a measure of the energy residing within a particular-sized vehicle traveling at a given speed. A simple mathematical calculation shows that a [97,250 pound] truck need travel at only [10.5 MPH] to have the kinetic energy of a [3750 pound] passenger car traveling at [55 MPH]."

"LCVs are tractor-trailer configurations that result in greater combined lengths. The greater lengths and weights of these vehicles cause them to perform and handle differently than tractor semi-trailers [the heavy truck typical to Exit 34]..., and these factors may affect traffic safety.'

"...Rocky Mountain doubles can't turn as sharply as standard tractor-trailers which can result in greatly increased pavement-edge damage, roadside equipment damage, and a hazard to adjacent traffic…"

"Properly adjusted brakes are a requirement for the safe stopping of all air-braked vehicles. They are even more crucial for LCVs, since LCVs carry heavy loads dispersed among two or three trailers. With properly adjusted brakes, LCVs have more potential braking capacity than conventional tractor semi-trailers. However, they also have more brakes that need adjusting, and this has presented a problem for all air-braked vehicles. In Maryland and California, surveys revealed that half of all air-braked vehicles inspected had at least one brake out of adjustment."

"Under field observation, tests of emergency braking for LCVs revealed mixed and even conflicting results. One area that suggested safety concerns was an LCV's ability to handle a sudden, unexpected, or emergency stop, particularly in high-traffic areas."

"Heavy trucks also take much longer to stop than cars, in part because they use air brakes rather than hydraulic brakes. The air pressure used to activate the brakes must travel from tanks on the truck to the brake chambers near the wheels. Since air is compressible --unlike the brake fluid used in passenger cars -- it takes somewhat longer for the brakes on a truck to begin slowing the vehicle. U.S. and Canadian federal regulations specify that the air pressure at the brake chambers of trucks must reach 60 pounds per square inch (p.s.i.) within 0.45 seconds, a period known as the brake lag time. As a result, during an emergency stop, trucks will travel for close to one-half second more at their pre-braking speed than passenger cars. A truck traveling at [55 MPH or 80 feet] per second will travel [40 feet] during the one-half second of brake lag time, increasing its stopping distance accordingly. In addition, most truck tires generate 10% to 15% less friction than passenger car tires, further increasing their

stopping distance. Some experts believe the reduced friction is due to the long-wear rubber compound used to make truck tires, whereas others say it results from higher tire pressure. Whatever the case, a passenger car traveling [55 MPH] on a roadway with a coefficient of friction of 0.75 will stop in [134.5 feet] if all of its wheels lock. A truck traveling at the same speed would take [157.5 feet], or [23 feet longer, to stop -- if it was capable of locking all its wheels. Most cars can lock their steering-axle wheels; in fact, 55% or more of a car's braking is usually performed by the steering axle. Most trucks, however, cannot lock the wheels on their steering axles. Only 2 of 10 service brakes on a typical tractor and trailer are on the steering axle, and these do provide a significant amount of braking; but the inability of these wheels to lock further increases the stopping distance for trucks. Combining the brake lag time, the reduced friction, and the inability of the steering-axle wheels to lock, a typical truck traveling [55 MPH] will need [216.5 feet] to stop, compared with [134.5 feet] for a passenger car (on a roadway with a coefficient of friction of 0.75). In other words, the physical properties of trucks cause their stopping-distance requirement to be 61% greater than that of passenger cars. Therefore, truck drivers must allow more distance between their vehicles and the vehicles ahead than drivers of passenger cars need to leave".

Comment *073-156*

[Question: Do the operational LOS analyses in DEIS Transportation reflect parameterizing the traffic stream to account for, as just described, safe stopping-distance behavior for project trucks and heavy trucks?]

Response

Comments noted. Stopping distance is taken into account in both HCM and VISSIM analysis.

Comment *073-166*

2.3.3 Level Of Service (LOS) Analysis Issues.

The most visible and lengthy portrayal in the Transportation portions of the DEIS is the LOS intersection analysis. It generates 11 Tables of results, the LOS report cards. These "were prepared using Highway Capacity Software (HCS), Release 2.1g", which is based on "the 1994 edition of the Highway Capacity Manual."

HCM 1994 is the governing specification for the software package that generated the output presented as LOS report cards.

HCM 1994 is traffic engineering concepts and practice in the framework of capacity analysis, implemented via step-by-step worksheets and mostly requiring knowledge of second-level high-school algebra and the use of a scientific calculator. HCS 2.1g is a computer-automated version of the worksheets, their data and their calculations.

HCM 1994, HCM 1997. HCM 2000.

HCM 1994 is not the most recent version of HCM. HCM 1997 is.

"This 1997 update of the HCM has been published to make the most current procedures available to the user community in a timely fashion. It is recognized that the relatively short time between updates of the manual causes some difficulty in users' ability to incorporate the new procedures into their practice [this was written 3 years ago]; however, the committee has chosen to publish this update to make the results of a significant amount of new research available in a timely manner."

HCM 1997 incorporates advances over HCM 1994 for unsignaled intersections, including two-way stop-controlled intersections like 468th Avenue/146th Street.

"Chapter 10, Unsignaled Intersections, has been completely revised to incorporate the results of a nationwide research project in the United States at two-way and four-way stop-controlled intersections. Modified delay formulas and new level-of-service thresholds are provided for both two-way and four-way stop-controlled intersections, In addition... [it goes on]"

HCM 2000, a more significant update to HCM 1997 than HCM 1997 was to HCM 1994, is imminent HCS Release 2.1 g implements HCM 1994 only.

King County C 14.65.020 (C) (2):

IS Calculations. Intersection level of service shall be calculated according to the most recent Highway Capacity Manual or an alternative method approved by the department of transportation.

King County C 14.65.020 (d) (3):

The intersection standard for all intersections shall be "E" as required by the IS chapter and calculated according to the most recent Highway Capacity Manual, or approved alternative method.

King County C 14.80.020 (A):

Highway Capacity Manual. Highway' Capacity Manual means Special Report 209 of the Transportation Research Board of the National Research Council, as currently amended.

The HCM 1994 procedures used in DEIS Transportation for LOS analyses of two-way stop-controlled intersections like 468th Avenue 146th Street and others in the Exit 34 environs are at least 3 years out-of-date in the rapidly changing field of transportation engineering. They will be 6 years out-of-date shortly. King County transportation law is clear in its preference and mandate for the procedures of the most recent HCM.

[Question: Will HCM 1997 procedures, or, depending on timeframes, HCM 2000 procedures be used in the operational LOS analyses in the FEIS?]

The remainder of commentary in this Section OTD takes as context the HCM procedures employed by the Transportation portions of the DEIS -- those from 1994 -- for two-way stop-controlled intersections, e.g., 468th Avenue/146th Street.

Comment *073-167*

Capacity Analysis In Perspective.

"The capacity of a transportation facility [a roadway like 468th Avenue, an intersection like 468th Avenue and 146th Street] reflects its ability to accommodate a moving stream of people or vehicles." "Capacity analysis is...a set of procedures for estimating the traffic-carrying ability of facilities over a range of defined [a key limitation of HCM 1994 -- see below] operational conditions." The definition of operational criteria is accomplished by the concepts of levels of service."

DIAGRAM 4: TRAFFIC EFFICACY & SAFETY DETERMINANTS

Diagram 4, per arrows showing direction of influence:

Vehicle-flow factors:
influence 1 other set of factors;
are influenced by 2 other sets of factors.

Roadway-element factors:
influence 2 other sets of factors;
are influenced by 1 other set of factors.

Geo-physical factors:
influence 2 other set of factors;
are influenced by no other sets of factors.

Driver judgment and behavior factors:
influence 1 other set of factors;
influence themselves;
are influenced by 3 other sets of factors;
are influenced by themselves.

"Decades of research on driving and traffic safety have shown that the driver is the weak link in the system."

Vehicle-flow factors are a second-order effect of driver judgment and behavior factors, roadway-element factors and geo-physical factors.

Virtually all the parameters that enter into HCM 1994 calculations are related to vehicle-flow factors …

… the three basics are flow (volume per unit time), speed and density;

others include spacing, headway, saturation flow rate, start-up lost time, critical gap, follow-up time, delay, directional distribution, peak-hour factor, vehicle-type mix, etc. …

… and roadway element factors …

… design speed, percent no-passing, lane width, shoulder width, grade, number of lanes, type of lanes, curb radius, sight distance, stop control, etc. …

… all to compute various factors of movement and arrive at one number that translates into a level of service …

Geo-physical factors …

… rain, fog, snow, wind, obtrusive noise, the sun in your eyes, illuminated roadways, oncoming-headlight glare, the operating condition of a vehicle, etc. …

… and driver judgment and behavior factors …

…the ability to switch between multiple sensory inputs, perception-reaction time, information processing capabilities, decision-making skills, Type A versus Type B personality traits, acceleration and deceleration behavior, familiarity with the driving

area, legibility distance, stress, age, gender, risk-perception, risk-taking profile, fatigue, brake reaction time, depth perception, angular movement perception, neck agility, contrast sensitivity, static and dynamic visual acuity, eye-scanning behavior, emotional state, the influence of alcohol and drugs, behavioral compensation, reaction times to vehicle gauge changes, the distraction of talking on a cell-phone, etc. …

This list can be made the most exhaustive of all and covers the gamut of human factors, physical, physiological, psychological, emotional. Variations in the driver population are broad and deep.

… are generally outside the bounds of what HCM 1994 strives to take into account in arriving at one number that translates into a level of service.

Comment *073-174*

Here are the HCM 1994 calculation parameters for a two-way stop-controlled intersection:

- Cm: movement capacity in passenger cars per hour (pcph)
- Cp,x: potential capacity of minor movement x (pcph)
- CSH: capacity of a shared lane (pcph)
- D: average total delay (sec/veh)
- fx: capacity adjustment factor for movement x that accounts for impeding effects of higher-ranked movements
- P0,x: probability that conflicting movement x will operate in a queue-free state
- p': adjustment to major street left turn, minor street through movement impedance factor
- p": probability of a queue-free state for conflicting major street left-turning traffic and, at the same time, a queue-free state for conflicting minor street crossing traffic, where subject movement is minor street left turn at a for-leg intersection
- p*0,x: factor indicating probability that there will be no queue in the shared lane for major street movement 1 and/or 4, where x is a particular movement being considered; this factor is used in lieu of P0,x where shared lanes for left-turn and through movements exist on the major street
- tg: critical acceptance gap (see)
- tf: follow-up time, or time span between departure of one vehicle from minor street and departure of next vehicle under a continuous queue condition (sec)
- to: tg-(tf/2)
- Vx: volume for movement x (pcph)
- Vo,x: conflicting volume for movement x; that is, total volume that conflicts with movement x in vehicles per hour (vph)
- i: movements of Rank 1
- j: movements of Rank 2
- k: movements of Rank 3
- 1: movements of Rank 4

[Question: Will the FEIS provide a complete sample calculation in the form of HCM 1994 worksheets, supported but not provided solely by appropriate HCS 2.1g computer printouts, for the operational LOS analysis of 468th Avenue/146th Street?]

Comment *073-175*

[Question: What empirical data was gathered that translated into these HCM 1994 parameters, and which of these parameters were not based on empirical data and relied on HCM 1994 defaults, or other taken defaults?]

Response The LOS has been recomputed using HCM 2000 methodology and HCS 2000 software for the FEIS.

Comment *073-160* More, and more complex, safety implications because of the additional magnitude of the particular type of truck traffic, and traffic operations (congestion) implications arising from more than passenger car equivalents being added to the traffic stream.

Every project truck that goes into the Lower Site would have to make a 90-degree turn at the intersection of 468th Avenue/146th Street. To get to I-90 WB Ramps, every project truck that comes out of the proposed Lower Site would have to cross two lanes of opposing oncoming traffic on 468th Avenue, starting from a stopped position at WB 146th Street, to make a left-turn onto 468th Avenue and head south. There would be about 170,000 turning maneuvers per year in Alternative 2, half going in, half coming out of the proposed Lower Site. What percentage of these turning maneuvers would off-track and get out-of-lane? If 10% of these get out-of-lane, that is 17,000 opportunities for a collision with an out-of-lane cause.

[Question: What is the off tracking rate per 100 trips or the right-turn maneuver of project trucks going into the Lower Site, from NB 468th Avenue onto 146th Street EB? For the left-turn maneuver of project trucks coming out of the Lower Site, from WB 146th Street onto 468th Avenue SB?]

Comment *073-162* [Question: Why didn't the DEIS Transportation analyze and document off tracking of project trucks and its implications for roadway geometry, traffic operations and safety in the Exit 34 environs?]Of particular concern are the safety implications surrounding off tracking, and the virtual absence of any acknowledgement in the DEIS that this is a substantive issue.

Response For the FEIS a VISSIM traffic model was developed for the 468th Avenue SE corridor that analyzes truck movement, including left and right turns at SE 146th Street. Mitigation measures to minimize off-tracking are discussed in the FEIS.

Comment *073-163* The DEIS does not: establish off tracking profiles (including 'off tracking', 'maximum swept path' and 'encroachment to inside of track' values) for all configurations (see Calling All Project Trucks above) of project trucks that would pass through the intersection of 468th Avenue/146th Street.

See TS&W 1998, Volume III, Chapter 7, Page 7-7, Exhibit 7-4 for example profiles.

[Question: Will such off tracking profiles be generated and documented substantively in the FEIS?].

Response No. These profiles are part of the base truck data incorporated in the VISSIM analysis.

Comment *073-199* Partial Results. The generic four-leg intersection has four traffic approaches (which comprise the intersection) and twelve traffic movements:

- 4 left-turn movements, one for each approach
- 4 right-turn movements, one for each approach
- 4 through or across-intersection movements, one for each approach
- Or, each approach has three movements each -- a left-turn, a right-turn, a through or across-intersection

"Often it is useful for the analyst to be aware of the average totals delays per vehicle for an entire approach and for the entire intersection."

The weighted average of all movements of an approach is the "average approach total delay". This is what DEIS Transportation reports in all 11 LOS report cards. As HCM 1994 notes, it is also possible to compute the weighted average of all approaches, the "average intersection total delay."

Weighted averaging that encompasses larger and larger collections (approach encompassing movements; intersection encompassing approaches encompassing movements) diminishes perspective on contributions of individual factors to the weighted average. Some individual movements contribute more to delay-time results than others on an intersection approach.

"Average total delay for each movement can be estimated from Figure 1 0-7 or Equation 10-1 1."

What DEIS Transportation does not provide, and could and should have, for clearer portrayal and better understanding of delay impacts, particularly for the 468th Avenue and 146th Street intersection.

(1) Average total delay and corresponding LOS for the "SE 146th Street/468th Avenue WB Left" movement [traffic westbound on 146th Street, turning left onto 468th Avenue, across two lanes of opposing oncoming traffic, and heading south --for the most part this' traffic westbound on 146th Street would consist of project trucks];

(2) average total delay and corresponding LOS for the "SE 146th Street/468th Avenue NB Left" movement [traffic northbound on 468th Avenue turning left at 146th Street across one lane of oncoming traffic, and heading west, into Seattle East];

(3) 95% queue length for the movements in (1) and (2).

[Question: Will the FEIS provide average total delay, corresponding LOS and 95% queue length for the two critical movements at the intersection of 468th Avenue/146th Street in all operational LOS analyses?]

Response Delays and queues have been added to the VISSIM model and are discussed in the FEIS.

Comment *085-003* At the same site tour on June 19, 2000, the same Cadman representative told the Sierra Club that if gravel must be trucked to Cadman's Redmond site for processing, the traffic will equal about 400 one-way truck trips daily. This information is not disclosed in the DEIS. A full discussion of this possibility, with full traffic impact analysis, should be required in the FEIS. See #4.

Comment *085-004* The Alternatives as outlined in #2 and #3 above should disclosed the impacts as follows:

a. The possible routes that will be taken: the logical choices are (1) SR202 from North Bend to the Redmond, WA, Cadman site; or (2) I-90 from Exit 34 to Exit 17 in Issaquah, then north on East Lake Sammamish Parkway to the Redmond site.

b. A full traffic impact analysis and intersection analysis for Level of Service conditions, most particularly LOS F, should be completed for the following intersections:

1. On the SR 202 alliterative:

   a. Appropriate intersections within North Bend

   b. The intersections through the City of Snoqualmie

   c. The intersections through the City of Fall City

   d. The intersection of 292nd and SR202

   e. The intersection of 244th and SR202

   f. The intersection of' Sahalee Way and SR202, an intersection which has LOS difficulties at present

   g. The intersection of 208th and SR202

   h. The intersection of East Lake Sammamish Parkway and SR202, an intersection already at LOS F.

2. On the I-90 Exit 34/Exit 17 Alternative

In addition to the I-90 intersections already analyzed in the DEIS:

   a. The intersection at I-90/Front St. (Exit 17)

   b. The following intersections along East Lake Sammamish Pkwy:

      - Vaughn Hill Road (Issaquah-Fall City Road)
      - 56th St.
      - 43rd Way
      - 212th Ave. SE
      - Thompson Hill Road
      - Inglewood Hill Road
      - SR202

Comment *085-005* Traffic mitigations and/or mitigation payments to Issaquah, Redmond, Sammamish, Fall City, Snoqualmie, King County and the State of Washington should be identified as impacts relate to the alternative routes identified in #4.

Response Some sand and gravel would be processed onsite and at other locations including Cadman, Inc.'s facilities in Seattle, Redmond and Black Diamond, Washington. The sand and gravel transported to these facilities would replace material transported by other suppliers (i.e., there should be no increase in the number of truck trips to these facilities). The proposal does not include processing a significant amount of sand and gravel at any one of the company's facilities in particular.

Comment *115-065* p. 3.12-6. My car is already covered with dings and stone chips from driving I-90 to Issaquah every day for work. I can't imagine what it will look like once the gravel

mine is in place! Will gravel trucks (not just Cadman's, but private contractors as well) be required to cover their load? I doubt it. Plus, those guys drive like maniacs anyway. What about traffic flow through North Bend? Not everyone is going to use I-90? Trucks will be clogging up the streets everywhere.

Response Mitigation measures call for trucks to cover loads and use I-90.

Comment *115-066* p. 3.12- 40. "Heavy truck traffic will shorten the life of all infrastructure." How will this be mitigated? Is King County planning on keeping these roads in good shape? I doubt it, they can't keep up with what they have now. I can't imagine the mess all of this additional traffic is going to cause.

Response King County is responsible for maintaining local roads.

Comment *125-001* I have read the DEIS, primarily concerning traffic impacts for the proposed Cadman gravel pit. I believe that the increase in traffic warrants signal devices at both east and west bound ramps off I-90. Currently, semi-trucks fail to completely stop at the offramps, preferring to simply slow and then accelerate while enroute to Kens truck stop. There have been recent accidents at these locations. I believe that pedestrian and bicycle traffic needs are not adequately addressed.

Response Comment noted. Rolling stops are not a warrant for traffic signals. Mitigation calls for a monitoring plan to determine when a signal would be needed at Exit 34 eastbound ramps.

Comment *125-002* The project is of a magnitude to warrant the following construction: street widening from 140th to the 150th, with curb, gutter, and six-foot sidewalk with signals at each intersection (complete with pedestrian signal devices). Center turn lane from SE 140th to southbound lanes of I-90. No parking signs along all of 468th from the south fork of the Snoqualmie river to SE 140th Street. Speed bumps, to discourage excessive speed currently being practiced by commercial drivers, should be placed at sufficient intervals to maintain safe driving speeds for pedestrians, bicyclist, as well as non-commercial traffic. These devices should be placed on 468th from SE 140th Street to SE 153rd.

Response The proposal would not use 486th Avenue north of SE 146th Street nor south of I-90 ramps and therefore cannot be responsible for improvements in those areas. The other mitigation measures are noted. Speed bumps are not normally installed on major roadways.

Comment *127-144* I didn't have anything planned up here, but one issue that I haven't heard yet, that I think is real critical, is the fact that there is a plan for almost 1,800 children to be within one-quarter mile of a plant that will have 600 to 900 trucks a day. When I was in middle school I rode my bike every day, and I think that is going to be the same thing that is going to happen here with all the other kids. I think at least in their mind it is.

Response Comment noted. School traffic volumes have been added to the FEIS year 2005 traffic analysis.

Comment *019-423* The accident study from 1993-1999 identifies the quantity of traffic but is not specific to the type of traffic or specifically to Exit 34. Exit 34 is different because of the heavy truck volume at Ken's Truck Town plus the additional 1000 trucks from the Proposal. These trucks up to 75' long will be entering Interstate 90 at slow speeds because of the incline and present significant risk to high-speed traffic on the Interstate as well as to following traffic that are attempting to merge onto the Interstate.

Comment *020-544* The accident study from 1993-1999 identifies the quantity of traffic but is not specific to the type of traffic or specifically to Exit 34. Exit 34 is different because of the heavy truck volume at Ken's Truck Town plus the additional 1000 trucks from the Proposal. These trucks up to 75' long will be entering Interstate 90 at slow speeds because of the incline and present significant risk to high-speed traffic on the Interstate as well as to following traffic that are attempting to merge onto the Interstate.

Response Truck traffic entering onto the highway system at low speed is typical. The total length of the ramp provided for merging takes the slow startup speed of trucks into account.

Comment *019-425* The peak month of production is to be 15% of the Total Production, which translates into:

Comment *019-426* 15% of 1.5 million tons of gravel = 225,000 tons.

Comment *019-427* The peak month of production is to be 15% of the Total Production, which translates to: 15% of 75k cu yard of concrete = 11,250 tons.

Comment *019-428* 15% of 150 k tons of asphalt = 22,500 tons

i. [DEIS Vol. II, Appendix L, page 2-5, Section 2.0].

Response The correct peak annual production numbers are 2.1 million tons of gravel, 100,000 cubic yards of concrete and 150,000 tons of asphalt.

Comment *019-665* Police, Fire and Emergency services were inadequately addressed in both the Transportation and Public Utilities/Services sections. They were not addressed for each Alternative and the specific differences between them.

Response A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street with mitigation as recommended in the FEIS. Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders and/or sidewalks.

Comment *019-666* The DEIS failed to and the FEIS should provide specific pedestrian and bicycle traffic impacts caused by the project for each Alternative. Additionally mitigations for these and the cumulative impacts should be provided.

Response *RT-99* The FEIS includes a discussion for each alternative of the bicycle and pedestrian impacts. Mitigation of these impacts by providing 8-foot shoulders or curb, gutter, and sidewalk is proposed.

Comment *022A-007*

The truck traffic and associated impacts documented on the videotape were a one-time and short-lived impact but would become virtually non-stop if the Gravel Operation were allowed as proposed. The Edgewick Inn wouldn't be able to continue as a successful business if it were subjected to approximately a thousand additional truck trips a day on SE 146th Street as is proposed in Alternative 2 for the North Bend Gravel Operation.

Response

Additional taping of the traffic on Friday and Saturday was completed for the FEIS. A traffic signal is recommended as mitigation at SE 146th Street and 468th Avenue SE to minimize queuing and mine traffic from SE 146th Street onto 468th Avenue SE.

Comment *024A-103*

As has been requested for other impact discussions, the DEIS should provide a clear comparison of the number of residents and parents whose children will attend the new school near the Lower Site that will be affected by 568 truck trips on a normal day as compared to how many people would be affected by increased traffic on Homestead Valley Road. The traffic report in the Appendices shows that the existing peak seasonal daily traffic volume at Exit 38 West is 340 eastbound onto SE Homestead Valley Road and 350 westbound. Of those 690 trips, 344 are trips into and out of Olallie State Park. This compares with a daily traffic volume of 4,060 northbound trips and 3,790 southbound trips on 468th Avenue, S.E. just south of the access road to the Lower Site. In other words, currently during the peak season, there are approximately 12 times as many vehicles using the street near the Lower Site as compared to the Upper Site. The DEIS should clearly quantify and explain the number of local residents that would be exposed to the congestion and safety hazards for each of these alternatives.

Response

The traffic associated with the two yet-to-be-built schools was added to the existing traffic base numbers for the year 2005. The traffic volumes are compared in the FEIS.

Comment *029-002*

This site is ideally located close to the markets. It is important to have close-in access to supplies. Transporting products long distances, as you know, results in higher costs for all users.

Comment *029-003*

Long-distance transportation also exacts a toll on the environment. The North Bend project design is an environmentally sensitive operation, carefully designed to ensure most people, even those living nearby, will never see or hear it.

Response

The distance on public local streets (i.e. SE 146th Street and 468th Avenue SE) to I-90 from the proposed (Alternative 2) Lower Site is less than 1/2 mile.

Comment *045-060*

Chapter 6: The Certificate of Transportation Concurrency has expired. I will not make detailed comments on the Transportation Section of the DEIS, as I know others with much more expertise and local experience will do so. But I hope the County will consider very carefully any comments received on traffic and transportation issues in the DEIS, and require the Applicant to adjust the proposal accordingly, before renewing the Certificate of Concurrency. Also, consider the additional, constant truck traffic from the North Bend pit to the Applicant's Issaquah and especially their Redmond facilities. This will significantly increase traffic and safety concerns with regard to all the new development planned by the County in the Sammamish area.

Response

Comment acknowledged. The grading permit submittal included a valid Certificate of Transportation Concurrency.

Comment *073-004*

Table B elaborates Table A in terms of Passenger Car Equivalents (PCEs).

Table B, rows 58 through 81 were obtained by applying the PCE factors in column B to corresponding data in Table A. PCE factors applied 7 were 1 for a passenger car; 2 for a heavy truck, and 4 for a project truck, with two exceptions:

The North Bend Trip Generation Worksheet in Chapter 6, which corresponds to project trip data in Table 3.12-8, shows 80 trips out of 152 by single-unit dump trucks (SUDTs) for 'Aggregate For Delivery'. The SUDTs are considered PCE=2. Row 75 reflects a reduction of 160 PCEs to account for the circumstances. The 160 PCEs were reduced across the 12 applicable hours by applying hourly proportions of volume data in Table A, row 27 relative to the corresponding volume total. Table B does not show this adjustment explicitly.

Other data is Table B was obtained by computations within the table.

Response

The PCE factors are discussed in the EIS.

Comment *073-007*

Table E carries out the model of Table D for daily and monthly project truck trips. Daily trips in rows 56, 57, 58, 64, 65 and 66 in columns B through M, excluding column H, were derived by taking transported quantities from the corresponding (production type and Alternative) data cell in Table F, rows 104, 105, 106, 111, 112 or 113, dividing by the number of production days in the month per Table D, row 30, dividing by 1000, and multiplying by the trip rate factor in the appropriate (production type) row (either 32, 35 or 37) in Table D. For example, the formula for B56 is: B104/B30/1000*B32.

In column H, H57, H58, H64, H65 and H66 were derived the same way, except appropriate trip rate factors came from H33, H36 or H37 in Table D, depending on production type and Alternative. H56 is a special case and it followed the computation used in the North Bend Trip Generation Worksheet in Chapter 6.

Monthly trips in rows 72, 73, 74, 79, 80 and 81 in columns B through M were derived by taking daily trips from the corresponding (production type and Alternative) data cell in Table E, rows 56, 57, 58, 64, 65 or 66 and multiplying by the number of production days in the month per Table D, row 30 or 31.

Other data in Table E was obtained by computations within the table.

Comment *073-008*

Table F carries out the model of Table D for tonnage of transported quantities, and for tonnage of project trucks with and without tonnage of transported quantities.

The following terminology is used in Table F and in commentary:

- Transported Quantities: tons of aggregate, asphalt or concrete
- Empty-Weight Project Trucks: tare or unloaded
- Project Trucks Carrying Transported Quantities: loaded, transported quantities

Transported quantities in rows 104, 105, 106, 111, 112 and 113 in columns B through M, excluding column H, were derived by taking the yearly quantity transported-in/out from the corresponding (production type and Alternative) data cells in Table D in rows 12, 15, 17 or 19 and multiplying by the % yearly quantity transported factor in Table D, row 10. For example, the formula for B104 is: B10*B12.

In column H, H105, H106, H111, H112 and H113 were derived similarly, except appropriate yearly quantity transported-in/out factors came from H16, H18 or H20 in Table D, depending on production type and Alternative. H56 is a special case and it used the following formula: H13*H1 I+H14*H11.

Typical Empty-Weights of aggregate, asphalt and concrete trucks in N94, N95 and N96 were estimated conservatively (low). For aggregate and asphalt trucks tare weights were calculated for the two truck configurations in Figure 3.12-3 and reduced by an average of 13%. For concrete trucks, the Internet was searched and a typical, but conservative figure was chosen. The effects of this are evident from the computations H121/N121, H128/N128, H135/N135 and H142/N142, which are 1% to 2% below the mark of "... 15% of annual production [that] occurs during the peak month..."

Empty-weight project trucks in rows 118, 119, 120, 125, 126 and 127 in columns B through M were derived by taking monthly trips from the corresponding (production type and Alternative) data cell in Table E, rows 72, 73, 74, 79, 80 or 81, and multiplying by the appropriate production type factor in N94, N95 or N96.

Project trucks carrying transported quantities in rows 132, 133, 134, 139, 140 and 141 were derived by adding rows 104, 105, 106, 111, 112 and 113 to rows-ll8, 119, 120, 125, 126 and 127.

Other data in Table F was obtained by computations within the table.

Response The truck trips for the project are stated in the EIS.

Comment *073-009* Charts 1 through 12 were generated from data in Table B.

Charts 1 through 3 use pairings of L77, L81 or a zero-value data cell with L6 l, L65, L69 and L73.

Charts 4 through 12 use pairings of rows 77, 81 or a zero-value row with rows 84, 85 or 86.

The threshold line labeled 'Capacity: 468th Avenue' in Charts 4 through 12 reflects "...the estimated 1,400 vehicle capacity of [468th Avenue]."

Response The VISSIM traffic analysis discussed in the FEIS accounts for truck impacts and the capacity of 468th Avenue NE.

Comment *073-010* Charts 13 through 17 were generated from data in Table E.

Chart 13 uses N72 through N75, N79 through N82 and zero-value data cells.

Charts 14 through 18 use rows 59, 75, 67 and 82, respectively.

The threshold line labeled 'Average: All Months' in Charts 14 and 16 reflects N60 and N68, respectively. The threshold line labeled 'Average: Months D Through J' in Charts 14 and 16 reflects N62 and N70, respectively.

The dotted-line rectangle in the center of Charts 15 and 17 indicates boundaries of the 74% 'area-under-the-graph', per N77 and N84, respectively.

Comment *073-011*

Charts 18 through 24 were generated from data in Table F.

Chart 18 uses N107, N121 and N135; N114, N128 and N142; and a triplet of zero-value data cells.

Charts 19 through 24 use rows 107, 121,135,. 114, 128 and 142, respectively.

The dotted-line rectangle in the center of Charts 19 through 24 indicates boundaries of the 74% 'area-under-the-graph', per N109, N123, N137, N116, N130 and N144, respectively.

Response

The methodology for developing the traffic numbers and base data for each alternative is discussed in the EIS.

Comment *073-028*

From Table E, see N72 through N75, and N79 through N82. See Chart 13.

In Alternative 2, over the course of one year, for the life of the proposed project, there would be, traveling on 468th Avenue, moving in or out of the Lower Site, empty and loaded, 138,899 trips of aggregate project trucks, 9,977 trips of asphalt project trucks, 24,945 trips of concrete project trucks, and 173,821 total project truck trips.

In Alternative 3, over the course of one year, for the life of the proposed project, there would be, traveling on 468th Avenue, moving in or out of the Lower Site, empty and loaded, 24,033 trips of aggregate project trucks, 9,977 trips of asphalt project trucks, 24,945 trips of concrete project trucks, and 58,955 total project truck trips.

The average working person who drives to and from work 5 days a week over the course of one year, and who has 25 days of combined of vacation-, sick- and holiday time, makes 470 trips per year.

In an Alternative 2 context, it would take the average working person 369 years to make the same number of trips driving to and from work that it would take all project trucks 1 year to make. Over a 21-year career it would take the average working person 9870 years (until circa the year 9,900 A.D.) to make the same number of trips all project trucks would make over the operation of the proposed project from 2005 through 2025.

Comment *073-040*

From Table E, see H59 -- in Alternative 2 there are 936 daily project truck trips in or out of the Lower Site during all Peak-Month days.

In Alternative 2 a level of project truck traffic equal to 61% (38-Footnote in hardcopy) of the level of project truck traffic during the Peak-Month would occur over the continuous 12-month segment of a year.

Comment *073-041*

A level of project truck traffic equal to 82% (39-Footnote in hardcopy) of the level of project truck traffic during the Peak-Month would occur in the continuous 7-month segment of the year between Month D and Month J.

Alternative 2 would generate a persistent and substantive amount of traffic on 468th Avenue between April through October -- 7 continuous months every year for the life of the proposed project. Alternative 2 would generate a persistent and non-trivial amount of traffic on 468th Avenue between January and December -- every month every year for the life of the proposed project.

The Peak-Month is not as major an aberration, or as clear a boundary condition, as it is made out to be in the Transportation portions of the DEIS. It is another month, and a little more hectic.

***Comment** 073-042*

From Table E, see G59 and I59 -- in Alternative 2 there are 834 daily project truck trips in or out of the Lower Site during all days during the two months preceding and following the Peak-Month. A level of project truck traffic equal to 89% of the level of project truck traffic during the Peak-Month would occur during these two months.

***Comment** 073-043*

From Table E, see N68 and N70. See Chart 16.

In Alternative 3 over the course of a year over the life of the proposed project there would be on average 193 daily project truck trips in or out of the Lower Site. Over Months D through J in all years over the life of the proposed project there would be on average 246 daily project truck trips in or out of the Lower Site.

***Comment** 073-044*

From Table E, see H67 -- in Alternative 3 there are 334 daily project truck trips in or out of the Lower Site during all Peak-Month days.

In Alternative 3 a level of project truck traffic equal to 57% of the level of project truck traffic during the Peak-Month would occur over the continuous 12-month segment of a year.

***Comment** 073-045*

A level of project truck traffic equal to 74% of the level of project truck traffic during the Peak-Month would occur in the continuous 7-month segment of the year between Month D and Month J.

Alternative 3 would generate a persistent amount of traffic on 468th Avenue between April through October -- 7 continuous months every year for the life of the proposed project -- and between January and December -- every month every year for the life of the proposed project.

Alternative 2 and Alternative 3 would operate on similar orders of persistence, independent of traffic volumes. When this is" factored in, Alternative 3 would be more benign, by circa a factor of 3.

Response

As stated in the DEIS and FEIS, roadway capacity was analyzed based on AM and PM peak hour traffic conditions.

***Comment** 073-029*

In an Alternative 3 context, it would take the average working person 125 years to make the same number of trips driving to and from work that it would take all project trucks 1 year to make. Over a 21-year career it would take the average working person 2625 years (until circa the year 4,600 A.D.) to make the same number of trips all project mucks would make over the operation of the proposed project from 2005 through 2025.

***Comment** 073-030*

Compared to Alternative 2, Alternative 3 would be more benign, by circa factor of 3.

***Comment** 073-038*

Persistence Of Concentration Of Project Truck Traffic On 468th Avenue.

Based on data from Duration Of Concentration Of Project Truck Traffic On 468th Avenue above:

Between 7 AM and 4 PM during Peak-Month days, Alternative 2 would generate 1 trip of project truck traffic in or out of the Lower Site every 37 seconds.

Between 7 AM and 4 PM during Peak-Month days, Alternative 3 would generate 1 trip of project truck traffic in or out of the Lower Site every 1 minute and 44 seconds.

Compared to Alternative 2, Alternative 3 would be more benign, by circa factor of 3.

74% of Alternative 2 or Alternative 3 project truck traffic in all years over the life of the proposed project would occur over about 60% of a year. 26% would occur over about 40% of a year.

Response The alternatives are compared to each other based on LOS per HCM 2000.

Comment *073-046* Persistence Of Concentration Of Project Traffic On 468th Avenue.

See Charts 4, 5 and 6.

In Alliterative 2, the contribution of project traffic to the overall level of traffic on 468th Avenue would be virtually persistent in the continuous 9-hour segment between 7 AM and 4 PM in all Peak-Month days, over the life of the proposed project.

The darker area is about as wide all the way across the three charts between 7 a.m. and 4 p.m.

Comment *073-047* See Charts 7, 8 and 9.

In Alternative 3, the contribution of project traffic to the overall level of traffic on 468th Avenue would be virtually persistent in the continuous 9-hour segment between 7 a.m. and 4 p.m. in all Peak-Month days, over the life of the proposed project.

The darker area is about as wide all the way across the three charts between 7 a.m. and 4 p.m.

Response The project traffic would decrease substantially after 4:00 p.m. as shown on DEIS Figure 3.12-9.

Comment *073-049* Relative Impact Of Project Truck Traffic On 468th Avenue.

'Truck-stop' as used here refers to the level of traffic implied by Table B, L60, L64, L68 and L72 -- the non-passenger-car component of non-project traffic on 468th Avenue. It means heavy truck/bus/recreational vehicle traffic using 468th Avenue between the I-90 Ramps and 140th Street/Middle Fork Road, and all destinations and services on that segment of roadway.

From Table B, compare L75 with L64 and L68, and compute L75/L60, L75/L64, L75/L68 and L75/L72.

During Peak-Month days, Alternative 2 would add more than the equivalent of a second truck-stop of traffic on 468th Avenue between 7 a.m. and 4 p.m. through circa 2010. Circa the present, Alternative 2 would represent 1.2 truck-stops of additional traffic; in 2005, 1.1 truck-stops of additional traffic. By 2015, Alternative 2 would add less than the equivalent of a second truck-stop of traffic on 468th Avenue between

7 a.m. and 4 p.m. --it would represent 0.9 truck-stops of additional traffic, and, in 2025, 0.8 truck-stops of additional traffic.

***Comment** 073-050*

From Table B, compare L79 with L60, L64, L68 and L72, and compute L79/L60, L79/L64, L79/L68 and L79/L72.

43 L75 is about 5 years between L64 and L68, based on based on linear yearly growth over 10 years from L64 to L68.

During Peak-Month days, Alternative 3 would add less than the equivalent of a second truck-stop of traffic on 468th Avenue between 7 AM and 4 PM through 2025. Circa the present, it would represent 0.4 truck-stops of additional traffic; in 2005, 0.35 truck-stops of additional traffic; in 2015, 0.3 truck-stops of additional traffic; in 2025, 0.25 truck-stops of additional traffic.

Alternative 2 would represent, plus or minus, a full truck-stop of traffic on 468th Avenue over the life of the proposed project during a continuous 9-hour segment in all Peak-Month days.

***Comment** 073-051*

Compared to Alternative 2, Alternative 3 would be more benign, by more than a factor of 3.

***Comment** 073-052*

Alternatives 1 and Alternative 4 would be absolutely benign (see Chart 3)--they would not impact 468th Avenue.

Response

The total number of project trucks estimated is given in the DEIS. According to the DEIS, the amount of existing truck traffic on 468th Avenue SE is more than the project truck traffic.

***Comment** 073-053*

Relative Impact Of Project Traffic On 468th Avenue.

In Table B, see L96, L97 and L98. See Chart 1.

From 7 AM to 4 PM during Peak-Month days through 2025, project traffic attributable to Alternative 2 would represent a 44% to 65% increase over Alternative 1 or Alternative 4 -- 65% by 2005, 54% by 2015, 44% by 2025. Decreases over time are explained by increases over time in non-project traffic.

The magnitudes of these percentage increases represent a significant change in baseline conditions, and where they represent an unwanted presence and carry unwanted consequences they are adverse. The phrase 'increase in baseline conditions' in the next paragraph may be translated as 'unwanted intrusion' or as 'the welcome mat is out'.

Suppose a neighbor who calls on you every day, Monday through Friday, at 10 a.m. in the middle of your morning to gossip about this, that, and the other for an hour, also begins visiting you on Mondays and Wednesdays at 2 p.m. in the middle of your afternoon for another hour and on Fridays at 2 p.m. for an hour and a quarter and does so for a number of years -- that is the kind of 65% increase over baseline conditions Alternative 2 would represent circa 2005. Suppose the neighbor cuts the Friday afternoon visit back half an hour at some point but otherwise keeps the schedule now established for a number more years -- that is the kind of 54% increase over baseline conditions Alternative 2 would represent circa 2015. And suppose the neighbor cuts the Friday afternoon visit back another half an hour at some point but otherwise keeps

the schedule now well-established for a number more years -- that is the kind of 44% increase over baseline conditions Alternative 2 would represent circa 2025

Response Base line conditions have been further increased for the year 2005 by adding the two schools and an industrial park to the total traffic.

Comment *073-054* Table B, see L100, L101 and L102. See Chart 2.

From 7 AM to 4 PM during Peak-Month days through 2025, project traffic attributable to Alternative 3 would represent an 14% to 20% increase over Alternative 1 or Alternative 4 -- 20% by 2005, 17% by 2015, 14% by 2025. Decreases over time are explained by increases over time in non-project traffic.

Compared to Alternative 2, Alternative 3 would be more benign, by more than a factor of 3.

Response The DEIS shows the total project traffic for each Alternative. The project traffic on 486th Avenue SE will be different and less for Alternatives 3 and 4 than for Alternative 2.

Comment *073-055* Roadway Capacity On 468th Avenue.

From Table B, compute G88/1400, H88/1400, G89/1400, H89/1400, F90/1400, H90/1400. See Charts 4, 5 and 6.

Between 10 AM and 4 PM during Peak-Month days Alternative 2 would push the capacity of 468th Avenue to within 63% to 69% by 2005; to within 71% to 78% by 2015; to within 82% to 89% by 2025.

From Table B, compute F92/1400, H92/1400, F93/1400, K93/1400, F94/1400, K94/1400. See Charts 7, 8 and 9.

Between 10 AM and 4 PM during Peak-Month days Alternative 3 would push the capacity of 468th Avenue to within 46% to 51% by 2005; to within 53% to 60% by 2015; to within 62% to 72% by 2025.

From Table B, compute F84/1400, K84/1400, F85/1400, K85/1400, F86/1400, K86/1400. See Charts 10, 11 and 12.

Between 10 AM and 4 PM during Peak-Month days Alternative 1 or Alternative 4 would push the capacity of 468th Avenue to within 37% to 44% by 2005; to within 44% to 53% by 2015; to within 53% to 65% by 2025.

On 468th Avenue, during a continuous 6-hour segment in all Peak-Month days, Alternative 2's impacts on the capacity of 468th Avenue by 2005 wouldn't be seen by Alternative 1 or Alternative 4 until after 2025. Relative to Alternative 1 or Alternative 4, Alternative 2 would accelerate the use of 468th Avenue's capacity by at least 20 years.

Comment *073-056* On 468th Avenue, during a continuous 6-hour segment in all Peak-Month days, Alternative 3's impacts on the capacity of 468th Avenue circa 2017 wouldn't be seen by Alternative 1 or Alternative 4 until about 2025. Relative to Alternative 1 or

Alternative 4, Alternative 3 would accelerate the use of 468th Avenue's capacity by about 8 years.

Comment *073-057* Alternative 2 would hasten the day when public monies would have to be applied to addressing the roadway capacity of 468th Avenue.

Comment *073-058* Impacts of Alternative 2 and Alternative 3 on the capacity of 468th Avenue would be greatest between 10 AM and 4 PM during Peak-Month days over the life of the proposed project.

Response Additional traffic modeling shows certain intersection operations will exceed the roadway capacity with or without the project prior to the year 2025,

---

Comment *073-059* Magnitude of Tonnage on 468th Avenue.

From Table F, see N107, N121 and N135. See Chart 18.

In Alternative 2, over the course of a year on 468th Avenue, there would be 2,137,500 tons of aggregate, asphalt and concrete transported. There would be 2,482,590 tons of project trucks transporting it. There would be 4,620,090 tons of project trucks carrying transported quantities moving on the roadway.

From Table F, see N114, N128 and N142. See Chart 18.

In Alternative 3, over the course of a year on 468th Avenue, there would be 662,500 tons of aggregate, asphalt and concrete transported. There would be 759,605 tons of project trucks transporting it. There would be 1,422,105 tons of project trucks carrying transported quantities moving on the roadway.

In both Alternative 2 and Alternative 3, empty-weight project trucks transporting themselves would outweigh the transported quantities of aggregate, asphalt and concrete they carry. In either Alternative, 54% of project tonnage moving on 468th Avenue in all years over the life of the proposed project would be the project trucks themselves.

Comment *073-060* Compared to Alternative 2, Alternative 3 would be more benign, by more than factor of 3.

Comment *073-061* Alternative 1 and Alternative 4 would be absolutely benign (see Chart 18) -- they would not impact 468th Avenue.

Comment *073-062* Duration of Concentration of Tonnage on 468th Avenue.

From Table F, compare N108 with N107 and see N109; compare N122 with N121 and see N123; compare N136 with N135 and see N137. See Charts 19, 20 and 21.

From Table F, compare N115 with N114 and see N116; compare N129 with N128 and see N130; compare N143 with N142 and see N144. See Charts 22, 23 and 24.

74% of Alternative 2 or Alternative 3 tonnage on 468th Avenue in all years over the life of the proposed project (either transported quantities, or empty-weight project trucks, or project trucks carrying transported quantities) would occur in the continuous 7-month segment of the year between Month D and Month J.

The substantive portion of yearly project tonnage on 468th Avenue would occur from April through October. All this tonnage would pass through the intersection of 468th Avenue/146th Street.

***Comment** 073-063*

Persistence Of Concentration Of Tonnage On 468th Avenue Based on data from Duration Of Concentration Of Tonnage On 468th Avenue above:

74% of Alternative 2 or Alternative 3 tonnage on 468th Avenue in all years over the life of the proposed project (either transported quantities, or empty-weight project trucks, or project trucks carrying transported quantities) would occur over about 60% of a year. 26% would occur over about 40% of a year.

***Comment** 073-064*

Relative Impact Of Tonnage On 468th Avenue.

The average passenger car with an average passenger load weighs 3,418 pounds, or 1.71 tons.

"In 1998 27,000 [vehicles per day] used I-90 near Exit 34."

Suppose these are all passenger cars. Suppose these passenger cars could be routed up and down 468th Avenue.

The 1998 level of I-90-near-Exit-34 traffic volume would represent 9,855,000 passenger cars and 16,852,050 tons of passenger cars on 468th Avenue over the course of a year.

From Table F, see N135.

In Alternative 2, over the course of a year on 468th Avenue, there would be 4,620,090 tons of project trucks carrying transported quantities moving on the roadway.

Passenger-car-tonnage-on-468th-Avenue 100 days to move itself along 468th Avenue, as tonnage equivalent to the tonnage of all the project trucks carrying transported quantities that would move along 468th Avenue over 1 year.

Clear 468th Avenue and let the project trucks pass for 100 days.

To be clear about this: You are standing at the intersection of 468th Avenue/146th Street. The 1998 volume-level of I-90-near-Exit-34 traffic has just begun to pass before you where you stand. You stand there for 100 days, day and night, watching 9,855, 000 million passenger cars representing 16,852,050 million tons or 33,704,100,000 billion pound, moving past you on 468th Avenue. You have to leave after 100 days and nights, but you have witnessed the tonnage of all project trucks would move on 468th Avenue over 1 year.

Trucks moving tonnage, moving on a roadway, have safety implications. Fatal crashes on rural arterial roads and other rural roads involving trucks with multiple trailers (e.g., Figure 3.12-4, Typical Belly Dump Truck) and trucks with a single trailer (Figure 3.12-3, Typical Truck/Trailer Combinations) have been shown to be more than a factor of 2 greater than fatal crashes involving single unit trucks, light trucks or passenger cars.

***Comment** 073-065*

Assume that in 2025 52,600 vehicles per day would use I-90 near Exit 34.

The 2025 level of I-90-near-Exit-34 traffic volume would represent 19,199,000 passenger cars and 32,830,290 tons of passenger cars on 468th Avenue over the course of a year.

In an Alternative 2 context it would take the 2025 volume level of vehicle-traffic-on-I-90-near-Exit-34-as-passenger-car-tonnage-on-468th-Avenue 51 days to move itself along 468th Avenue, as tonnage equivalent to the tonnage of all the project trucks carrying transported quantities that would move along 468th Avenue over 1 year.

Clear 468th Avenue and let the project trucks pass for 51 days. There has been a reduction in the project truck 'tonnage tax' on 468th Avenue over 27 years, but it still has to be paid.

***Comment** 073-066*

From Table F, see N142.

In Alternative 3, over the course of a year on 468th Avenue, there would be 1,422,105 tons of project trucks carrying transported quantities moving on the roadway.

In an Alternative 3 context, it would take the 1998 volume level of vehicle-traffic-on-I-90-near-Exit-34-as-passenger-car-tonnage-on-468th-Avenue 30 day to move itself along 468th Avenue, as tonnage equivalent to the tonnage of all the project trucks carrying transported quantities that would move along 468th Avenue over 1 year.

***Comment** 073-067*

In an Alternative 3 context, it would take the 2025 volume level of vehicle-traffic-on I-90-near-Exit-34-as-passenger-car-tonnage-on-468th-Avenue 15 days to move itself along 468th Avenue, as tonnage equivalent to the tonnage of all the project trucks carrying transported quantities that would move along 468th Avenue over 1 year.

***Comment** 073-068*

Compared to Alternative 2, Alternative 3 would be more benign, by more than factor of 3.

Response

The transportation system level of service (LOS) is based on the number of vehicles, not tonnage of loads in those vehicles. VISSIM modeling takes into account if the trucks are empty or loaded. The PCE factor in HCM 2000 also takes into account the truck movement/tonnage compared to a typical passenger car movement and weight.

***Comment** 073-075*

Pavement Wear Impacts

The classic study on pavement distress/damage/fatigue/cracking/deformation/rutting (subsequently this document uses the term pavement wear to imply these conditions) was conducted by the American Association of State Highway and Transportation Officials nearly 40 years ago.

"The AASHTO Road Test was conducted...from 1958 to 1960. Six loops of pavement were traversed by controlled truck traffic as part of a statistical factorial design. This $27 million experiment yielded the best information ever developed on pavement, including the AASHTO Pavement Design Procedures."

"Most current design procedures still use the factors determined at the Road Test because this is the only comprehensive study where applications of the same axle loads only were run over given pavements to determine their performance. What is the relative damage? The research has shown that the relative damage is about the fourth

power of the ratio of the loads. Therefore, doubling the load would cause 16 times the damage. Also, increasing the load by only 10% increases the damage effect by 50%.

The "AASHTO pavement deterioration relationship -- the fourth power relationship -- when a single axle is loaded to 20,000 pounds it will do more than 12 times the damage compared to an axle with a 10,000 load with increasing axle load, pavements [deteriorate] at a rate that [is] roughly equivalent to the weight increase raised to the fourth power."

"The results of the AASHTO Road Test performed in the 1960's in Illinois showed that the traffic stream could be quantified in a common denominator. That denominator was the passage of [18,000 pound] equivalent single axle loads (ESALs). All traffic ranging from two axle vehicles to multiple axle large trucks could be dimensioned in terms of [18,000 pound] ESALs... AASHTO also concluded that [a single] passenger [ear causes] negligible wear and that virtually all wear is caused by trucks."

"ESAL stands for Equivalent Single Axle Load. The single axle load is usually an 18,000 pound single axle load with dual wheels. Other magnitudes and types of axles are then related to the 18,000 pound single axle load by their damage effect on a pavement."

It is beyond the scope of this document to cast all project truck configurations, empty and loaded, with their variations of single, tandem and tridem axles and axle-groups, with their variations of axle spreads, in terms of ESALs (or LEFs -- Load Equivalency Factors) -- then to factor in asphalt pavement characteristics such as thickness, composition, layer-depth -- and to present a detailed model and analysis of pavement wear.

***Comment** 073-076*

[Question: It is not beyond the scope of the lead agency of the DEIS to require the developer of the proposed NBGO to supply ESAL data by project truck configuration - all of them -- for inclusion in the FEIS; and it is not beyond the scope of the lead agency to require a pavement wear analysis and detailed documentation of it for inclusion in the FEIS will these things be done?]

***Comment** 073-077*

However, analysis can be done on available data to identify the magnitude of impact of project truck traffic on pavement wear in the Exit 34 environs, and the relative impact of loaded versus empty project trucks.

***Comment** 073-078*

"One legal 80,000-pound tractor/semi-trailer does as much damage to the roads as 9,600 cars. "

Where do they come up with this stuff?

Here's where.

"Assume the 80, 000 truck has 5 axles, each loaded with 18, 000 pounds. Assume a passenger car weighs 3,636 pounds and has 2 axles, each loaded with 1,818 pounds. 18000/1818 = 9. 9. 9. 94 is approximately 9, 600.

***Comment** 073-079*

The average passenger car with an average passenger load weighs 3,418 pounds with a per axle load of 1,709 pounds.

Where loaded project trucks "average 13,000 to 14,000 pounds per axle" (or 13,500 pounds), a project truck transporting aggregate, asphalt or concrete would cause as much pavement wear during one trip on 468 Avenue as 3875 passenger cars.

Where empty project trucks average about 4,500 pounds per axle an empty project truck moving on 468th Avenue would cause as much pavement wear during one trip as 48 passenger cars.

Comment *073-080* Magnitude Of Pavement Wear On 468th Avenue

From Table E, see N75.

In Alternative 2, there would be 173,821 project truck trips on 468th Avenue over the course of a year. Half of these would be loaded; half of these would be empty.

In Alternative 2, over the course of the year on 468th Avenue, loaded project trucks would cause as much pavement wear as 336,778,187 passenger cars. Empty project trucks would cause as much pavement wear as 4,171,704 passenger cars. All project truck traffic would cause as much pavement wear as 340,949,891 passenger cars.

Comment *073-081* From Table E, see N82.

In Alternative 3, there would be 58,955 project truck trips on 468th Avenue over the course of a year. Half of these would be loaded; half of these would empty.

In Alternative 3, over the course of the year on 468th Avenue, loaded project trucks would cause as much pavement wear as 114,225,312 passenger cars. Empty project trucks would cause as much pavement wear as 1,414,920 passenger cars. All project truck traffic would cause as much pavement wear as 115,640,232 passenger cars.

Comment *073-083* In an Alternative 3 context, it would take the project truck traffic on 468th Avenue 1 year to cause the pavement wear it would take the 1998 level of vehicle-traffic-on-I-90-near-Exit-34-as-passenger-cars-on-468th-Avenue 11 years to cause. It would take the 2025 level of vehicle-traffic-on-I-90-near-Exit-34-as-passenger-cars-on-468th-Avenue 6 years to cause the 1-year-project-truck-traffic amount of pavement wear.

Comment *073-084* Compared to Alternative 2, Alternative 3 would be more benign, by about a factor of 3.

Comment *073-085* Alternatives 1 and 4 would be absolutely benign -- they would not impact 468th Avenue.

Comment *073-086* Relative Impact On Pavement Wear Of Loaded Project Trucks On 468th Avenue.

From Table F, see N107 and N121.

In Alternative 2, over the course of a year on 468th Avenue, there would be 2,137,500 tons of aggregate, asphalt and concrete transported in 2,482,590 tons of project trucks. All of the production quantities would be transported in half of all trips, or via half of all tons of project trucks: 3,378,795 total tons. The other half of all tons of project trucks would move in empty trips: 1,241,295 tons. The impact on pavement wear of loaded project trucks would be 55 times the impact on pavement wear of empty project trucks.

Comment *073-087* From Table F, see N114 and N128.

In Alternative 3, over the course of a year on 468th Avenue, there would be 662,500 tons of aggregate, asphalt and concrete transported in 759,605 tons of project trucks. All of the production quantities would transported in half of all trips, or via half of all tons of project trucks: t,042,302 total tons. The other half of all tons of project trucks

would move in empty trips: 379,802 tons. The impact on pavement wear of loaded project trucks would be 57 times the impact on pavement wear of empty project trucks.

Half of the time, in carrying transported quantities, in either Alternative 2 or Alternative 3, the impact on pavement wear would be circa 55 times as great as the other half of the time, in arriving or leaving the Lower Site empty.

Comment *073-091* What has been shown in general is there is more to show on the topic than was shown in the Transportation portions of the DEIS. In the absence of anything else, the magnitudes and relative impacts presented stand as the best indicators of impact on pavement wear, or pavement conditions, by project trucks on 468th Avenue.

Response This is an environmental assessment of the impacts of this project. There is no doubt that generally a truck would wear out a roadway surface faster than a car. Roadway surfaces are made thicker because of truck traffic. The end result is that roads with project traffic will have to be responded/replaced or improved faster over time, but additional truck taxes are collected to cover this cost.

Comment *073-092* Average and Peak Trip Rates.

From Table D, compare row 32 versus row 33, and row 35 versus row 36. Trip rates in the Transportation portions of the DEIS for the Peak-Month by and large reflect more tons per load for aggregate and asphalt than corresponding trip rates for average months, in both Alternative 2 and Alternative 3. The effect is that the Peak-Month generates trips at a lower rate than the 11 average months for the same amount of aggregate and asphalt in Alternative 2 and Alternative 3.

Comment *073-093* It is Alternative 2. There is an aggregate hauling assignment. Move 5000 tons of aggregate for re-supply to another Cadman site. Use SUDTs w/Trailers. A set of drivers in the Peak-Month would execute the assignment in 5000/1000*60.6=303 trips. A set of drivers in an average month would execute the assignment in 5000/1000*80=400 trips.

Comment *073-094* It is Alternative 2. There is an aggregate delivery assignment. Move 5000 tons of aggregate for delivery to a construction project. Use 67% SUDTs w/Trailers and 33% SUDTs. A set of drivers in the Peak-Month would execute the assignment in (5000/1000*60.6)*2/3)+(5000/1000* 133.3)* 1/3)-=423 trips. A set of drivers in an average month would execute the assignment in 5000/1000*80=400 trips.

Comment *073-095* It is Alternative 3. There is an aggregate hauling assignment. Move 1000 tons of aggregate from the Upper Site to the concrete or asphalt plant at the Lower Site. Use SUDTs w/Trailers. A set of drivers in the Peak-Month would execute the assignment in 1000/1000*60.6=61 trips. A set of drivers in an average month would execute the assignment in 1000/1000*80=80 trips.

Comment *073-096* It is Alternative 2 or Alternative 3. There is an asphalt delivery assignment. Deliver 3500 tons of asphalt to a paving project. Use SUDTs w/Trailers. A set of drivers in the Peak-Month would execute the assignment in 3500/1000*64.5=226 trips. A driver in an average month would execute the assignment in 3500/1000*66.7=234

Comment *073-097* Question: Why isn't it a reasonable conclusion that the Peak-Month trip generation data used in the Transportation portions of the DEIS for Alternative 2 and Alternative 3 is: 1) artificially deflated by 24% for aggregate for re-supply in Alternative 2? 2) artificially inflated by 6% for aggregate for delivery in Alternative 2? 3) artificially

deflated by 24% for aggregate for concrete or asphalt plants in Alternative 3? 4) artificially deflated by 3% for asphalt delivery in Alternative 2 and Alternative 3.

***Comment** 073-098*

303 versus 400 trips, 423 versus 400 trips, 61 versus 80 trips, and 226 versus 234 trips for the same job in the Peak-Month versus average months (months that may be adjacent months) is a ineffective or inconsistent way to run a business. This raises questions about the validity of the Peak-Month data under actual operating conditions.

***Comment** 073-099*

It should be noted that the same consultants that generated the Peak-Month trip generation data for the Transportation portions of the DEIS (North Bend Trip Generation Worksheet in Chapter 6) were employed by Cadman to generate traffic volume and trip generation data to support the process of obtaining a Certificate of Transportation Concurrency from King County in August 1998. The North Bend Trip Generation Worksheet in Chapter 6 is dated May 10, 1999. "Trip generation for [Alternative 2] was documented in a memorandum, North Bend Gravel Operation - Trip Generation Information...May 29, 1998...to support the Transportation Concurrency Analysis performed by King County."

It is not precisely clear from the Transportation portions of the DEIS that the North Bend Trip Generation Worksheet in Chapter 6 and the May 28, 1998 memorandum are identical in trip generation content. One assumes they are and the Peak-Month versus average months trip generation issues described above are applicable to the Certificate. It may be too late to address discrepancies in the Certificate, but all this should raise an eyebrow or two. This use of trip rates is very questionable, especially in light of the use of Peak-Month data to focus and to portray the transportation impacts in the Exit 34 environs.

Response

The EIS shows the methodology used to establish the peak month and peak hour traffic data. It is the peak hour data and LOS level that is used for alternative traffic comparisons, plus roadway capacity. The proposed project data was supplied by the project based on similar/previously operating experience at various gravel operations. The "certificate of transportation concurrency" for King County has not been reviewed for the EIS.

***Comment** 105-003*

I am concerned about the traffic issue.

***Comment** 106-002*

Also, the noise and dust, not to mention the traffic will greatly impact a residential and wilderness area.

***Comment** 108-004*

Access in and out of the planned site can be accomplished by using Exit 34, already used for commercial and industrial truck traffic. I would not want to see gravel trucks traveling down the winding, scenic road off Exit 38 through the heart of Ollalie State Park. Just on the safety issues alone that would arise by adding truck traffic to this area where thousands come to enjoy so many outdoor activities should eliminate Exit 38 as an option.

Response

Comments acknowledged.

***Comment** 114-001*

Big business seems to be able to work outside of what common sense about the common good. I question if it is a good idea to take the gravel out of Grouse Ridge at all, but that argument does not even seem to be on the table. So I will stick to the part of the discussion that has to do with freeway exits. I cannot believe that we need to process this material at exit 34 and that the disruption anticipated in this largely

residential neighborhood is necessary to forward the interests of Weyerhaeuser, Cadman and local developers. How much more is it going to cost to either process up at exit 38 or use existing processing plants at lower elevations? It probably means a few more percentage points in profits, which means an increase in the amount of political contributions by those interests. Are we going to leave exit 38 to the five or so households that now use it? I am disgusted. Stupid, Stupid, Stupid!!!

Response The EIS looks at alternatives that would use I-90 Exit 34 and 38, including Alternative which would use only Exit 38.

Comment *125-007* I live less than 800 feet from the I-90 off ramp - I have not opposed the project because I felt that Cadman would address all the important issues - I am a little disappointed in the traffic analysis.

Response Additional traffic analysis is included in the FEIS.

Comment *126-005* This project will increase by 900 the number of trucks driving through our neighborhoods, increasing traffic congestion in an area without the infrastructure to support it. It will increase the noise and pollution and most significantly will put our loved ones in harms way.

Response Additional infrastructure to support the project is proposed in the mitigation section of the Transportation chapter.

Comment *127-012* We also have concerns of safety. There is a lot of rock climbers that use that area, and they actually would have to be crossing the path of the these trucks that will be coming down the road. So we are opposed to the trucks using Exit 38.

Response Some roadway safety improvements for SE Homestead Valley Road are listed in the mitigation section of the Transportation chapter.

Comment *127-060* Falls Ridge. Because someone mentioned traffic impact, and homes create more traffic than an outfit that is going to operate. They are not going to operate 24 hours a day. I don't know where they heard that at. I was told only morning until evening.

Response Project operating times are stated in the FEIS.

Comment *127-111* From when we started with 600 trucks, it is now 995 potentially, and it is okay. Don't worry. Everything will be fine. Thank you.

Response Comment acknowledged.

Comment *127-121* I read an article on this proposal in the newspaper here locally recently where I believe it was a representative of Cadman stated that no trucks would be going through downtown North Bend or Snoqualmie. I guess I would like to think that there would be some enforcement of that, if that is actually to be a part of the proposed agreement.

Response The direct route to and from the proposed project site would be 468th Avenue NE to I-90 (Exit 34). Market demands determine local delivery routes, so they can not be controlled.

Comment *127-169* We have people driving through using our parking lot, using it as a means of conveniently turning around their vehicles. I know we go out and sweep up the dust that is left there.

Response Cadman would be required to sweep offsite area roads that become dirty because of their operations. Cadman trucks can maneuver on site.

Comment *128-002* In particular, we believe the Lower Site (where gravel excavated at the Upper Site will be crushed, sorted, and washed) will have a devastating effect on our livelihood and environment. Your Lower facility operations (which would occur from 5:30 a.m. to 10:30 p.m., 306 days per year) would create noise, pollution (including diesel exhaust, dust, obnoxious odors, and potential damage to our water quality), and strain our water supply. An additional 600 trucks per day, operating around the clock Monday through Saturday, would be required to use SE 146th street to service this facility.

Comment *128-004* The additional traffic caused by you large trucks will scare off much of our business. Many of our customers work odd hours and request quiet rooms to sleep in. In addition to the large number of trucks operating 24 hours per day, your crushing operations will make this impossible. Other customers use our facilities to rest while enjoying the natural beauty of the North Bend area. Your operations will also encourage these customers to look for a more tranquil place to rest.

Response Comments acknowledged.

Comment *134-001* The traffic in truck town must be studied in depth. It is already almost impossible driving through that area. It is a traffic hazard with trucks pulling in and out. Once they start driving, they are not able to brake quickly and we have witnessed and be involved with near misses. Adding more trucks and traffic is absurd.

Response The truck traffic on 468th Avenue SE has been studied for the EIS.

Comment *135-002* There are so many people living in the immediate area and in North Bend. Accidents happen! In addition to noise, smell, health issues, traffic congestion (already terrible near Truck Town).

Response Comment acknowledged.

Comment *135-007* There will be traffic congestion for tourists King County wants to impress and lure to the recreational sites? There wont be any decent places left!

Response Traffic congestion is addressed through proposed mitigation measures.

Comment *139-002* Number of Trucks that will be on the road. This would cause noise & air pollution. Traffic will be awful, too congested and too close to a school. We will have lots of broken windshields too.

Comment *144-001*

Please put me down as one more person opposed to Cadman's gravel operation in North Bend. The fact that truck traffic would increase so substantially near a piece of property that the SnoValley School District plans to built two schools on should be enough by itself to squash this project. It is a bad idea and not in the best interests of the community.

Response

Comments acknowledged.

Comment *019-402*

The FEIS should address the need to provide more thorough measurements than "roughly." The FEIS should address the fact that trucks much larger than the conventional average would service the project site.

Response

Trucks of all shapes and sizes may use this site. See truck size discussion in FEIS.

Comment *073-048*

In Alternative 1 or Alternative 4, the contribution of project traffic to the overall level of traffic on 468th Avenue would be constantly zero in the continuous 9-hour segment between 7 a.m. and 4 p.m. in all Peak-Month days, over the life of the proposed project.

The darker area is exactly as wide all the way across the three charts between 7 a.m. and 4 p.m. Most of the project traffic between 7 a.m. and 4 p.m. during Peak-Month days in Alternative 2 and Alternative 3 would occur outside the AM and PM peak-hours selected for extensive analysis in the Transportation portions of the DEIS.

Response

The project traffic decreases substantially after 4:00 p.m. as shown on DEIS Figure 3.12-9.

Comment *073-032*

Acceleration of The Level of Traffic on 468th Avenue.

In Table B, compare P86 with P88.

Between 7 a.m. and 7 p.m. during Peak-Month days, Alternative 2 would, by 2005, reach and exceed the level of traffic Alternative 1 or Alternative 4 would reach by 2025.

On 468th Avenue, during a continuous 12-hour segment in all Peak-Month days, Alternative 1 or Alternative 4 wouldn't see the Alternative 2 level of traffic of 2005 until after 2025. Relative to Alternative 1 or Alternative 4, Alternative 2 would accelerate the level of traffic by 21 years.

In Table B, compare P86 with P93 and P94.

Comment *073-033*

Between 7 a.m. and 7 p.m. during Peak-Month days, Alternative 3 would, by circa 2019, reach and begin to exceed the level of traffic Alternative 1 or Alternative 4 would reach by 2025.

On 468th Avenue, during a continuous 12-hour segment in all Peak-Month days, Alternative 1 or Alternative 4 wouldn't see the Alternative 3 level of traffic of circa 2019 until 2025. Relative to Alternative 1 or Alternative 4, Alternative 3 would accelerate the level of traffic by 6 years.

Compared to Alternative 2, Alternative 3 would be more benign, by more than a factor of 3.

Response The LOS of each of the alternatives is compared in the FEIS for years 2005, 2015, and 2025.

Comment *073-031* Alternatives 1 and Alternative 4 would be absolutely benign (see Chart 13) -- they would not impact 468th Avenue.

Response The alternatives are compared to each other based on LOS per HCM 2000. Alternatives 1 and 4 don't impact 468th Avenue SE.

Comment *073-120* Varying The Traffic Volume Forecast Assumptions.

The Transportation portions of the DEIS use the following assumptions about traffic volume growth over the life of the project:

- Passenger cars: 2.5% per year
- Heavy trucks: 1.5% per year

Suppose these assumptions were lower (say, because of a different derivation method, as suggested above):

- Passenger cars: 2.0% per year
- Heavy trucks: 1.0% per year

Or higher:

- Passenger cars: 3.0% per year
- Heavy trucks: 2.0% per year

Comment *073-121* By varying Parameters 1 and 2 in Table A, many different Tables A and B may be created. Taking the Acceleration Of The Level Of Project Traffic On 468th Avenue discussion above just for Alternative 2 (in which the result was acceleration by 21 years), a discussion, based on lower and higher yearly rates of increase just listed, would go something like this:

Comment *073-122* If passenger car volumes increased at a rate of 2.0% per year and heavy truck traffic increased at a rate of 1.0% per year over the life of the proposed project, and in the corresponding Table B, you compared P86 with P88, the result would be: Between 7 a.m. and 7 p.m. during Peak-Month days, Alternative 2 would, by 2005, reach and exceed the level of traffic level Alternative 1 or Alternative 4 would reach by 2025.

On 468th Avenue, during a continuous 12-hour segment in all Peak-Month days, Alternative 1 or Alternative 4 wouldn't see the Alternative 2 level of traffic of 2005 until after 2025 (circa 2034). Relative to Alternative 1 or Alternative 4, Alternative 2 would accelerate the level of traffic by 29 years.

Comment *073-123* Accelerating by 29 years, versus accelerating by 21 years, versus accelerating by 16 years, from varying traffic volume increase assumptions lower or higher by 0.5%.

It is important to get the rates as correct as possible, using all known data and factors, because an incorrect rate could result in misrepresenting the impacts.

Response Growth rates were based on the WSDOT I-90 existing data. By adding the two schools and an industrial park to the year 2005 existing data, the traffic volume has been increased substantially for the 468th Avenue SE corridor.

Comment *073-143* [Question: Why didn't the Transportation portions of the DEIS frame impacts of the proposed NBGO, consistently, explicitly and in detail, in terms of quantities and qualities of magnitude, acceleration, duration, persistence, concentration, frequency, relative impact, and portray the impacts they represent relative to baseline conditions, with qualitative and quantitative analogies to bring data down to earth, over more, and more relevant, dimensions of time than were used in the Transportation portions, for trips, tonnage and pavement wear? Will this be done FEIS?]

Response Trips and tonnage data is presented in the EIS and pavement wear is also noted.

Comment *073-157* "Differences in the relative speed of vehicles can cause collisions. The TS&W Study shows that when the speeds of two vehicles traveling the same direction on a highway vary by 10 mph, they're nearly 4 times as likely to collide as when they're traveling the same speed. When the speed differential is 20 mph, a crash is almost 16 times as likely to happen."

"Another study revealed potential safety problems when traffic on the cross street of an intersection without a signal had to be stopped to allow an LCV to turn safely. In fact, responses to an AASHTO survey argued that this failure to maneuver a turn safely at an intersection justifies severely restricting LCVs on roadways."

Response The differences in travelling speeds between vehicles on 468th Avenue SE are not high because traffic is not moving at a high speed. Traffic studies show the operating is generally below 30 mph.

Comment *073-158* Summary: Off tracking

Why all this attention to off tracking and LCVs? These are just dump trucks hauling gravel, right?

Comment *073-161* The DEIS does not address off tracking directly. The word 'off tracking', or terminology associated with its description or analysis (with one, minor exception), may not be found in the Transportation portions of the DEIS. On the other hand, TS&W 1998 devotes significant description, analysis and discussion to the topic and to its implications for roadway geometry, traffic operations and safety -- it is clearly a topic of import for trucks.

To be fair, DEIS Transportation addresses one off tracking issue:

"Trucks exiting the Seattle East Auto Truck Plaza use more than half of 468th Avenue SE when turning right or southbound onto 468th Avenue SE.

"[DEIS Transportation mitigation idea:] An extra-wide southbound lane on 468th Avenue SE provided for a short distance on the south side of the Seattle East Auto Truck Plaza exit driveway. This wide lane would provide additional maneuvering space for trucks turning right out of Seattle East Auto Truck Plaza [the main issue???] and trucks turning left from SE 146th Street [the real issue, cloaked in a Seattle East Auto Truck Plaza issue]. It would help keep trucks from driving onto a new sidewalk

on the west side of the street. A lane width of 16 feet may be sufficient, but should be validated with truck turning templates [the one, minor exception noted above].

***Comment** 073-164*

Determine where such profiles represent fits within the roadway geometry, traffic operations and safety parameters of the intersection of 468th Avenue/146th Street.

[Question: Will such determinations be made and documented substantively in the FEIS?]

***Comment** 073-165*

determine where such profiles do not represent fits within the roadway geometry, traffic operations and safety parameters of the intersection of 468th Avenue/146th Street.[Question: Will such determinations be made and documented substantively in the FEIS?]

Response

The existing traffic model created for the VISSIM work included off-tracking, which is why three lanes (including a continuous left turn lane) is suggested in the mitigation section along with a 45-foot radius intersection curb. Determinations of roadway geometry necessary for safe project truck traffic operations has been made and mitigation is listed in the FEIS.

***Comment** 073-223*

There are non-project-vehicles moving on the roadway grid in the Exit 34 environs, now and well into the future.

***Comment** 073-224*

It is proposed that there be project-vehicles moving on the roadway grid in the Exit 34 environs as well, soon and well into the future.

***Comment** 073-225*

Make as many conservative assumptions as possible about the presence of these project-vehicles on and their effects on the capacity of the roadway grid in the Exit 34 environs.

***Comment** 073-226*

Show that, under these conservative assumptions, during the peak-hours of a peak-day during the peak-month of project-vehicle-activity, the effects on the capacity of the roadway grid in the Exit 34 environs are by and large within limits of acceptability of some rating system.

***Comment** 073-227*

Show that there are working ideas about how to improve things on the roadway grid in the Exit 34 environs, including sometime in the future for the 'commuter'.

***Comment** 073-228*

Conclude on the basis of 4) and 5) that everything will turn out OK, with no significant unavoidable adverse impacts.

Response

HCM 2000 for intersection LOS is the standard rating of traffic analysis. In addition, a VISSIM analysis for traffic mitigation was also conducted. The commenter's analysis and conclusion is generally correct.

***Comment** 145-001*

The proposed project is adjacent to Interstate 90. The WSDOT - South Central Region maintains I-90 from mile point 33.29 just west of Exit 34 (Edgewick Interchange) into Kittitas County. I-90 is a fully-controlled limited access facility. No direct access to I-90, including the on- and off-ramps, will be allowed. As proposed, access to I-90 from the project site(s) will need to be via an interchange. Although the traffic information provided, seems to indicate Issaquah will be a truck destination for material processing or storage, no traffic data is provided for points west of North

Bend. Please provide traffic data for all State Highways, Interchanges and Intersections where there is art expected, substantial impact of new truck traffic.

Response Traffic data is provided for I-90 Exits 32, 34, and 38 in the EIS. No other State highways, intersections, or interchanges are expected to be substantially impacted by new truck traffic from this project. Some sand and gravel would be processed onsite and at other locations including Cadman, Inc.'s facilities in Seattle, Redmond and Black Diamond, Washington. The sand and gravel transported to these facilities would replace material transported by other suppliers (i.e., there should be no increase in the number of truck trips to these facilities). The proposal does not include processing a significant amount of sand and gravel at any one of the company's facilities in particular.

Comment *145-011* It is the applicant's responsibility to keep and maintain the I-90 right-of-way, including the Interchanges and Intersections, free of any of their debris or hazardous material. No refueling of the applicant's vehicles shall take place on WSDOT rights-of-way. Any spilled material shall be cleaned up promptly by the applicant, or by others at the applicant's expense.

Response Comment acknowledged.

Comment *019-398* The DEIS states, "…volumes collected in September were increased by 17%…traffic volumes collected in March and April were increased by 45%." [DEIS Vol. II, Appendix L, page 2-12, Section 2.2.1]. The FEIS should address how the 17% and 45% respectively were determined and why a conservative approach was utilized. For example, were truck numbers measured individually or according to the number of axels?

Comment *145-004* Further, Table 3.12-14 for Alternative 3 indicates 118 one-way trips per day are generated, hauling aggregate from the Upper Site to the Lower Site. It is important to identify all the trips generated in measuring impacts to the transportation system. Every load of aggregate hauled from the Upper Site to the Lower Site actually generates four trips on the state system: one trip in and one trip out at both Exit 38 and at Exit 34.

Response Two trips each were counted for Alternative 3 at both Exit 34 and Exit 38 for a total of four.

Comment *145-010* Surface runoff generated by this project must not be allowed to flow onto the nearby WSDOT rights-of-way.

Response The proposed project includes stormwater management and water quality control measures.

Comment *145-008* WSDOT does not favor the proposal utilizing Exit 34 (Edgewick I/C). We are very concerned about trucks mixing with the existing commercial and residential traffic, and, ultimately, with school traffic. While this mix of traffic may be forced to co-exist in some areas, it is undesirable and unnecessary at this location.

The proponent acknowledges, traffic signals will be required to move the trucks from SE 146th Street to the interstate. This increased congestion in close proximity to the

existing commercial businesses coupled with residential and school traffic compromises the existing acceptable Level of Service and raises significant ~ concerns. Whereas Exit 34 is a developed interchange with commercial and residential development, Exit 38 (Homestead Valley I/C) is underutilized, is undeveloped and provides direct access to the Upper Site. According to the DEIS, the vast majority 0f material to be mined (260 acres versus 40 acres) comes from the Upper Site, We strongly believe that Exit 38 (Homestead Valley l/C) is the logical choice ~ the primary means of ingress and egress for this development. We feel the vast majority of trucks exiting the site will be in the westbound direction.

The existing split diamond Homestead Valley interchange, with the eastbound off-ramp and the westbound on-ramp, is the preferred alternative when analyzing traffic impacts. To facilitate safe operation the applicant will be expected to improve the turning radii of the Exit 38 ramp terminals at the intersection of Homestead Valley Road. This alternative does not require additional signalized intersections, and does not compromise safety. The time required to travel the additional three miles is mitigated by the time saved avoiding the congestion of traffic signals, and turning traffic competing for "green" time at Exit 34. During pass closures however, no access to Exit 38 will be provided.

Response WSDOT may have to reconsider allowing truck driving and parking along SE Homestead Valley Road during "Pass " closure for Alternatives 3 and 4.

Comment *145-006* The DEIS needs to address the impacts this development has on Homestead Valley Road. Olallie State Park is located on this roadway between Exit 38 (Homestead Valley I/C) and Exit 38 (Garcia I/C). The use of Olallie State Park will be affected by the increased number of trucks using this road.

Response A discussion on traffic safety for Alternative 3 in the Transportation section of the DEIS notes this impact.

Comment *145-003* The Project Trip Generation tables for Alternatives 2, 3, and 4 (Tables 3.12-8, 3.12-14, and 3.12-20) all refer to Daily One-Way Trips. This regulates the return trip generated by each vehicle. Therefore, all the trips in these tables need to be doubled to indicate the correct number of trips being generated by the proposed gravel operation.

Response A one-way trip is just that. Two one-way trips will be required for a load out and return trip.

Comment *019-463* Determine what the actual impact will be from Lower Site operations on traffic at the Exit 32 corridor.

Comment *019-464* Determine what the actual impact will be from Lower Site operations on traffic at the Exit 34 corridor.

Comment *019-467* Determine what the actual impact will be from Upper Site operations on traffic at the Exit 38 corridor.

Comment *019-470* Determine what the actual impact will be from the Lower Site on traffic on North Bend Way.

Comment *019-471* Determine what the actual impact will be from the Lower Site on traffic on 468th Avenue SE.

Comment *019-472* Determine what the actual impact will be from the Lower Site on traffic at Ken's Truck Town.

Comment *019-473* Determine what the actual impact will be from the Lower Site on traffic on SE 140th Street.

Comment *020-591* Determine what the actual impact will be from Lower Site operations on traffic at the Exit 32 corridor.

Comment *020-592* Determine what the actual impact will be from Lower Site operations on traffic at the Exit 34 corridor.

Comment *020-595* Determine what the actual impact will be from Upper Site operations on traffic on the Exit 38 corridor.

Comment *020-601* Determine what the actual impact will be from the Lower Site on traffic on North Bend Way.

Comment *020-602* Determine what the actual impact will be from the Lower Site on traffic at Ken's Truck Town.

Comment *020-603* Determine what the actual impact will be from the Lower Site on traffic at Ken's Truck Town.

Comment *020-604* Determine what the actual impact will be from the Lower Site on traffic on SE 140th Street.

Response All ready completed and included in the EIS. The LOS analysis was completed for all the above and is discussed in the FEIS and the Transportation Technical Reports.

Comment *019-468* Determine what the actual impact will be from Lower and Upper Site operations on traffic at the Exit 25/Hwy 18 interchange.

Comment *019-478* Determine visually and quantitatively how the traffic patterns change at Exit 25/Hwy 18 interchange by days of the week and seasons of the year e.g. spring, summer, fall and winter.

Response The Exit 25/Highway 18 interchange is outside the study area for the transportation analysis in the EIS.

Comment *019-469* Determine WSDOT capability to handle the increased traffic at Exit 25 weight scales. Can the scales process projected numbers of gravel, concrete, and asphalt trucks fast enough to prevent serious delays and congestion on I-90.

Response The weight scales are outside the study area. WSDOT reviewed and commented on the DEIS.

Comment *019-475* Determine visually and quantitatively how the traffic patterns change at Exit 32 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 019-476* Determine visually and quantitatively how the traffic patterns change at Exit 34 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 019-477* Determine visually and quantitatively how the traffic patterns change at Exit 38 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 019-479* Determine visually and quantitatively how the traffic patterns change on North Bend Way by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 019-480* Determine visually and quantitatively how the traffic patterns change on 468th by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 019-481* Determine visually and quantitatively how the traffic patterns change on Ken's Truck Town by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-605* Determine visually and quantitatively how the traffic patterns change at Exit 32 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-606* Determine visually and quantitatively how the traffic patterns change at Exit 34 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-607* Determine visually and quantitatively how the traffic patterns change at Exit 38 by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-609* Determine visually and quantitatively how the traffic patterns change on North Bend Way by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-610* Determine visually and quantitatively how the traffic patterns change on 468th by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-611* Determine visually and quantitatively how the traffic patterns change on Ken's Truck Town by days of the week and seasons of the year e.g. spring, summer, fall and winter.

***Comment** 020-612* Determine visually and quantitatively how the traffic patterns change on 140th Street by days of the week and seasons of the year e.g. spring, summer, fall and winter.

Response Traffic volumes change and this fluctuation is factored into the analysis by analyzing the peak month and peak hour.

***Comment** 019-482* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 32.

***Comment** 019-483* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 34.

***Comment** 019-484* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic in and around Exit 38.

***Comment** 019-485* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on North Bend Way.

***Comment** 019-486* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on 468th Avenue SE.

Comment *019-487* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on Ken's Truck Town.

Comment *019-488* Determine visually and quantitatively how Snoqualmie Pass closures actually impact traffic on SE 140th Street.

Response I-90 closures are discussed in Section 14.17 of the FEIS. Analyzing the impacts of Pass Closures is not within the scope of this EIS.

Comment *019-489* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impact traffic in and around Exit 32.

Comment *019-490* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic in and around Exit 34.

Comment *019-491* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic in and around Exit 38.

Comment *019-492* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on 468th Avenue SE.

Comment *019-493* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on Ken's Truck Town.

Comment *019-494* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on North Bend Way.

Comment *019-495* Determine visually and quantitatively how the requirement to use chains over Snoqualmie Pass impacts traffic on SE 140th Street.

Response Analyzing I-90 chaining requirements impacts is not within the Scope of Work for this EIS.

Comment *047-002* We are also greatly concerned that the increased truck traffic at exit 34 would pose considerable safety hazards as well as air quality concerns. Again, limiting the hours of operation or even moving the operation to exit 38 where few residents would be impacted do not seem too much to ask for in protecting our neighborhood. This would still allow the applicant to make their profits without damaging the quality of our lives. Thank you for your attention to these matters.

Response Comment noted.

Comment *020-721* The FEIS should discuss the impacts of the additional pedestrian and bicycle travel along 468th Avenue S.E. during the life of the project as opposed to the first 5 years of

Response Impacts related to additional auto, bicycle and pedestrian traffic in and around the project site are addressed in the Transportation chapter in the FEIS.

Comment *020-724* The FEIS should discuss the effect of the increased truck traffic at Exit 34 on emergency response times.

Response A traffic simulation model was completed after the DEIS to determine queuing. Queuing related to the project was shown not to impact 468th Avenue or 146th Street. Emergency vehicles will have access despite queuing as 468th will be widened to 3-lanes with 8-foot shoulders.

Comment *048-007* The Traffic is also a concern that I have. Their have been several occasions where 468th has been backed up with traffic from Truck Town. I can't imagine the impact that 900 more trips will create, for not only the locals that use 468th to go to and from work and the daily errands they run, but the patrons that visit Truck Town and the people that use 468th to gain access to the upper reaches of the Middle Fork River for recreational purposes.

Response Comment noted. An analysis of queuing is included in the discussion VISSIM traffic model in the FEIS.

Comment *012-174* [DEIS §3.2; p. 3.2-17] The tenth bullet point states, "All impacts should be reduced by locating the processing plant and haul roads far from residential property." This contradicts the design of the entire Lower Site where dozens of residential properties are within one mile or less of access roads.

Response Comment noted.

Comment *011-005* Development of the Lower Site will generate significant truck traffic and will create turning conflicts at 146th Street and 468th Street. The DEIS indicates that "additional truck traffic from the proposed gravel operation would conflict with school traffic traveling on 468th Avenue SE, turning at SE North Bend Way, and using the [Exit 34] I-90 on/off ramps." DEIS, Section 3.12 (page 3.12-31) (emphasis added). The new schools will generate 64 bus trips and 450 car trips each day. See DEIS, Section 3.12 (pages 3.12-17 to 3.12-18). The vast majority of these trips will use 468th Street and Exit 34, the same route that will be used by up to 998 trucks accessing the Lower Site each day. See DEIS, Section 3.12 (pages 3.12-26 and Figure 3.12-2). Only a relatively small percentage of school traffic will use Homestead Valley Road and Exit 38 (the Exit that will be used by trucks accessing the Upper Site) making that route far less susceptible to such conflicts.

Response Please see the expanded discussion of school traffic in the FEIS.

Comment *020-636* Determine what the traffic impact will be on North Bend Way from roadway construction in the Exit 34 corridor.

Comment *020-637* Determine what the traffic impact will be on SE 140th Street from roadway construction in the Exit 34 corridor.

Response Details on implementing any alternative mitigation would be determined at the site approval/building permit stage of the project. Potential impacts due to construction would be addressed in the traffic control plan.

Comment *020-501* Specific technical data contained in the DEIS in regard to Trip Generation is inaccurate or conflicting and does not present an adequate assessment of the realistic impacts of this project. For example, the DEIS claims that Alternative 3 will generate 1054 daily

truck trips (DEIS, table 3.12 - 14), while the proposed alternative will generate only 936 (DEIS table 3.12 - 8), even though nothing in the descriptions of the alternatives explains how this would be so. In addition, the trip generation rates regarding Alternative 3 fail to distinguish between the two Alternative 3 options. Further, it would appear that the trip generation rates fail to take into account the fact that under Alternative 3 - Lower Site Option, the area of

Response Inaccurate or conflicting data has been corrected in the FEIS.

Comment *020-502* Specific technical data contained in the DEIS in regard to Level of Service is inaccurate or conflicting and does not present an adequate assessment of the realistic impacts of this project. When Level of Service (LOS) studies are referenced, it is estimated that I-90 ramp (left through and right) would be a level F at PM Peak by 2025 without the project. Yet, the DEIS states that it would still be a LOS F in 2025 with the proposal as planned. Since the DEIS Methodology shows worst case as LOS F, then the 1152 project trucks are represented as if they don't add to an already unacceptable level of congestion.

Response It is true that the LOS will be F, with or without the project. The report notes levels of (time) delay for LOS F which increases slightly with the project. Conflicting data is corrected in the FEIS.

Comment *020-503* The DEIS suggests that a traffic signal at this intersection will mitigate the problem. However, when delays occur at the loading or processing sites one can easily visualize heavy trucks queuing on 468th Avenue SE, up the Exit 34 off-ramp, and onto I-90. This scenario is reminiscent of backups at exits in Issaquah or Preston.

Response The onsite queuing space is discussed in the FEIS.

3.12.12 Cumulative Impacts

Comment *016-016* It lacks a full consideration of alternative traffic designs, and clearly delineated and enforceable mitigation standards. Cumulative effects of other trucking and industrial operations in the vicinity must be considered and factored into mitigation

Response Traffic volumes for other trucking and industrial operations now, and in the near future (including schools), have been included in year 2005 traffic counts.

Comment *073-130* Analytical Qualities And Quantities. There are qualities and quantities of Magnitude, Acceleration, Duration, Persistence, Concentration, Frequency, Relative Impact, Capacity. There are portrayals of the impacts they represent relative to baseline conditions, and there are qualitative and quantitative analogies to bring data down to earth.

In the text of Section 3.12: Transportation, the word or phrase: 'magnitude', 'acceleration', 'duration', 'persistence', 'concentration', 'frequency', 'relative impact' appears 0 (zero) times in the context of a factor or a result of an analytical method (or otherwise);'duration' appears 4 times in the context of Snoqualmie Pass closures; 'concentration' appears 1 time in the context of fugitive dust from construction activities; 'cumulative impacts' is the heading of a brief Section and in it 'cumulative transportation impacts' and 'accelerate' each appear 1 time, in proximity:

"Cumulative transportation impacts under Alternatives 2, 3, and 4 should be viewed in terms of localized and regional growth in traffic. At least Alternative 2 would likely accelerate the need to improve 468th Avenue SE from I-90 Exit 34 to SE 140th Street."

There is insufficient foundation in the DEIS to make the sweeping statement in the first sentence. It is not an objective perspective and not only does it go unquantified, it goes undiscussed. The second sentence has basis to it, but it loses full validity because anything north of 146th Street dropped out of the analysis and discussion in DEIS Transportation early on and was not completed (see Unnecessarily-Realized Or Partially-Realized Data above).

Response Comment noted. The project traffic has direct impacts on 468th Avenue SE from SE 146th Street South to I-90.

Comment *020-573* Determine the construction specifications for Exit 38.

Comment *020-574* Determine the intended purposes for the construction of Exit 38.

Response No changes are proposed for I-90 at Exit 38.

Comment *073-201* To satisfy the "at least twenty percent" criterion of King County C 14.80.030 (A), the proposed NBGO would have to generate 200 trips in any one hour in Alternative 2 or 72 trips in any one hour in Alternative 3. This is not the case in any one hour in either Alternative between 7 p.m. and 4 p.m. However, it should be observed and noted that the criterion is at least satisfied by any two consecutive hours between 7 a.m. and 3 p.m. in Alternative 2. That it is satisfied in this fashion should suggest that substantive qualities and quantities of duration, persistence, concentration and frequency, of both project truck trips and tonnage, are clearly present, as well as other related qualities and quantities, as discussed elsewhere in this document. It must be considered that the cumulative impact profile of all this raises significant safety concerns per King County C 14. 80. 030 (B).

Response The 20 percent criteria regarding increase in trips of King County 14.80.030 calls for 1 hour, not 2 hours.

Comment *019-532* Indicate whether or not there are any analogous intersections to Exit 34 anywhere in the U.S. that can be presented as a successful example of similar traffic flows to what is being proposed by the Grouse Ridge operation.

Response Exit 34 is a typical interstate intersection and traffic modeling can be conducted.

3.12.13 Summary of Proposed Mitigation Measures

Comment *045-062* Preventing queuing of trucks near site on local roads outside of site boundaries; use of warning signs, in conformance with the manual on Uniform Traffic Control Devices, along any public right-of-way or road where view of oncoming or exiting or entering trucks is impeded.

Response The proposed project and associated mitigations to local roads will follow all standards including the Manual of Uniform Traffic Control Devices.

Comment *019-663* Comparisons of current, projected/estimated and worst-case scenarios between each Alternative are not adequately addressed. Mitigations for impacts caused due to pass closures, recreational (which is year around) and future growth estimates were not addressed.

Response Mitigation for pass closures is not within the scope of work for this EIS. Future growth is incorporated into the traffic analysis in the FEIS.

Comment *019-395* The FEIS should address in further detail why the three-lane transition will start at the south side of SE North Bend Way when the actual increase in traffic will start at the exit ramp of Exit 34 from Interstate 90.

Comment *020-517* The FEIS should address in further detail why the three-lane transition will start at the south side of SE North Bend Way when the actual increase in traffic will start at the exit ramp of Exit 34 from Interstate 90.

Response The three-lane road section will begin and end where required for mitigation of traffic along 468th Avenue SE.

Comment *020-651* Analyze the traffic light queuing on 468th for traffic exiting I-90 Eastbound at Exit 34.

Comment *020-657* Analyze the traffic light queuing for traffic entering I-90 Eastbound at Exit 34

Response The addition of traffic signals for mitigation and queuing are analyzed as part of the FEIS.

Comment *020-652* How many vehicles can Exit 34 safely and efficiently accommodate in the event that a traffic signal is installed at this off-ramp?

Response Queue storage capacity has been analyzed as part of the traffic signal and VISSIM analysis and is discussed in the FEIS.

Comment *020-653* Analyze the traffic light queuing on 468th for traffic exiting I-90 Westbound at Exit 34.

Comment *020-654* How many vehicles can Exit 34 safely and efficiently accommodate in the event that a traffic signal is installed at this off-ramp?

Comment *020-655* Analyze the traffic light queuing on 468th for traffic entering I-90 Westbound at Exit 34.

Comment *020-656* How many vehicles can Exit 34 safely and efficiently accommodate in the event a traffic signal is installed at this on-ramp?

Response Traffic Signal is not required at this location per LOS analysis in DEIS.

Comment *020-658* How many vehicles can Exit 34 safely and efficiently accommodate in the event that a traffic signal is installed at this on-ramp?

Response Queue storage capacity will be provided as part of the traffic signal and VISSIM analysis.

Comment *020-659* Analyze the traffic light queuing for traffic entering and exiting 468th Avenue SE.

Comment *020-660* How many vehicles can 468th safely and efficiently accommodate in the event that one or more traffic signals is installed?

Comment *020-661* Analyze the traffic light queuing for traffic entering and exiting North Bend Way.

Comment *020-662* How many vehicles can North Bend Way safely and efficiently accommodate in the event that a traffic signal is installed?

Response Signal requirements have been evaluated based on HCS 2000 and VISSIM analysis presented in the FEIS.

Comment *024A-102* It is our understanding that Exit 38 was particularly constructed to handle aggregate trucks and that there would be no problems with the project using this freeway access under Alternative 4. Please clarify.

Response Some roadway improvements would be needed and are recommended in the FEIS.

Comment *026-005* Cadman is committed to the road mitigations detailed in the DEIS. Specifically, we would like the FEIS to provide further detail (including diagrams) on the proposed road mitigation and the long-term traffic monitoring briefly discussed in the DEIS.

Response Mitigation measures are discussed in the FEIS. King County will review permit conditions every five years.

Comment *026-008* What is the recommended timing on implementing the proposed road improvement mitigations?

Response Mitigation work is usually done before start of project.

Comment *026-009* We would like the FEIS to note, as traffic and noise mitigation, that the Lower Site will be configured in a manner to reduce the need for vehicles to move in reverse. There will be a series of circular loop drives to minimize the need for maneuvering or reversing of vehicles.

Response Comment acknowledged.

Comment *073-221* 2.3.5 Summary: Mitigation Ideas Issues

The mitigation ideas in Section 3.12.13.2 are premature. DEIS Transportation is rife with erroneous or irrelevant or limited or incomplete or ambiguous or under-developed or methodologically-questionable or empirically-questionable data. Such data yields analysis and discussion with the same qualities. Interesting as some of the mitigation ideas may be under other circumstances, because of the qualities that underlie the

analysis and discussion that lead to them, the mitigation ideas in DEIS Transportation are casual reading, only.

DEIS Transportation needs to get the data, analysis and discussion right first of all, then see about any mitigation ideas. DEIS Transportation is way ahead of itself. DEIS Transportation puts the cart before the horse. DEIS Transportation puts the aggregate trailer before the dump truck.

Mitigation ideas should not be generated to fit a possible or a desired outcome. Mitigation ideas should not be created and used to generate data, analysis and discussion that supports them. Mitigation ideas should only address well-identified, well-understood and well-articulated issues and problems. Data, analysis and discussion should be used to generate and justify appropriate mitigation ideas.

That is how things are engineered, to last, and to satisfy constituencies. Then they stand on their merits

Response Revised mitigation measures for the alternatives are included in the FEIS.

3.12.13.1 Construction Mitigation

Comment *125-003* You can probably tell from my email that I work for King County DNR. I'm a project administrator for Open Space, Wastewater Division. As you may guess, I work on permitting anything from standby generators and pump stations to major tunnels. I find it odd that I do significant offsite improvements and mitigation for something as small as adding a generator to an existing facility and Cadman is proposing do so little in an area identified to experience massive traffic increase while currently experiencing commercial traffic that is questionably within the design thresholds of the current infrastructure.

Response Please see the Transportation chapter for a discussion of mitigation for all the alternatives.

3.12.13.2 Operation Mitigation

Comment *022A-001* At the time the video was taken, a fiber optic cable was being installed east of the intersection of 468th Avenue SE (Exit 34) and SE 146th Street and gravel trucks were traveling east and west on SE 146th Street as part of the installation process. At one point on the video tape, a gravel truck initially traveling north on 468th Avenue SE is shown to turn right from 468th Avenue SE onto SE 146th Street when no vehicle is waiting at the stop sign on SE 146th Street. I videotaped the truck having to swing substantially into the lane of on-coming traffic on SE 146th Street

Comment *022A-002* At another point on the video tape, a gravel truck initially traveling north on 468th Avenue SE is shown to turn right from 468th Avenue SE onto SE 146th Street when another gravel truck is waiting at the stop sign on SE 146th Street and I saw that the truck coming from 468th Avenue SE had to swing substantially into the lane of on-coming traffic on 468th Avenue SE to make the turn without colliding with the truck at the stop sign on SE 146th Street.

Response Roadway improvements for these right-turning vehicles are included in Transportation mitigation measures.

Comment *019-526* Analyze the traffic light queuing for traffic entering I-90 Eastbound at Exit 34.

Comment *019-527* How many vehicles can Exit 34 safely and efficiently accommodate in the event a traffic signal is installed at this on-ramp?

Response Queue storage capacity as part of the VISSIM analysis and the addition of traffic signals for mitigation is discussed in the FEIS.

Comment *019-528* Analyze the traffic light queuing for traffic entering and exiting 468th Avenue SE.

Comment *019-529* How many vehicles can 468th safely and efficiently accommodate in the event that one or more traffic signals is installed?

Comment *019-530* Analyze the traffic light queuing for traffic entering and exiting North Bend Way.

Comment *019-531* How many vehicles can North Bend Way safely and efficiently accommodate in the event that a traffic signal is installed?

Response The VISSIM analysis of queuing is discussed in FEIS Transportation chapter.

Comment *011-006* To address safety concerns, the DEIS proposes the following mitigation measures: widening 468th Street to allow for a turn lane, installing shoulders on 468th Street, restricting truck traffic to certain streets, improving intersections, and installing signs and traffic signals to control traffic flow. See DEIS, Section 3.12 (pages 3,12.44 to 3.12-46). The District is concerned that these mitigation measures will not be sufficient to avoid peak hour conflicts. The District believes that the best way to avoid such conflicts is to select Alternative 4, which would route all trucks via Exit 38. Before pursuing one of the Exit 34/Lower Site alternatives, the District requests that Cadman work with the District to develop traffic models of peak hour conflicts based on the schools' projected hours of operation and proposed bus routes, and that the County incorporate this additional analysis into the FEIS. If one of the Exit 34/Lower Site alternatives is selected, then the District urges the County to require Cadman to limit truck movements during the hours when students are going to or leaving the schools and when truck traffic is most likely to conflict with school buses and other vehicles carrying children.

Response Comment noted. School traffic volumes are included in FEIS totals.

Comment *026-006* The FEIS should also recommend how often monitoring should be performed, given that the intersection won't fail for more than 20 years. Cadman would like to suggest 3 to 5-year increments.

Response According to King County, project review (and associated monitoring) would be required every 5 years.

3.12.14 Significant and Unavoidable Adverse Impacts

No comments were received on this section of the DEIS.

4.0 LIST OF PREPARERS

No comments were received on this section of the DEIS.

5.0 REFERENCE AND DISTRIBUTION LIST

No comments were received on this section of the DEIS.

6.0 GRADING PERMIT APPLICATION AND BACKGROUND INFORMATION

Comment *045-064*

Chapter 6, Appendix C of Spill Prevention Control Plan: The "Site Supervisor" is to be the first person to contact in case of a spill, yet his/her name and phone numbers to contact on- and offsite are not listed on any of the contact lists in the entire Spill

Response

Comment noted. The final spill plan would have the required level of detail.