

*King County Puget Sound Beach CSO Control Projects*  
**Alternative Screening Workshop for North Beach Basin**

**Alternative Screening Workshop for North Beach Basin**

Feb. 11, 2010 and Feb. 17, 2010

King Street Center

**Summary of Discussion**

**Attendance**

<i>King County</i>		<i>Consultant</i>	<i>SPU</i>
Betsy Cooper	John Phillips	Ellen Blair	Sahba Mohandessi
Hien Dung	Kevin Schock	Karl Hadler	
Ron Kohler	Bob Swarner	Jeff Lykken	
Kathy Mathena	Martha Tuttle	Kristine Maristela	
Sue Meyer	Jim Weber	Brian Matson	
Lee Miller	Mary Wohleb	Lloyd Skinner	
Shahrzad Namini	Monica Van der	Bob Wheeler	
Chris Okuda	Vieren		
Ukwenga Oleru	Karl Zimmer		
Sekhar Palepu			

**Purpose of this Summary:**

This document provides a summary of the workshop process and captures the discussion themes that supported recommendations for CSO control project alternatives to be forwarded for review by internal management and further development by the project team.

**Workshop Process**

Team members used a collaborative approach to screen alternative means for CSO control using a range of factors. The work was accomplished through a workshop on Feb. 11, 2010 and is part of the team evaluation process to identify three CSO control alternatives for further evaluation. Documenting the workshop process is a critical piece of the project.

**Workshop Goals and Objectives:**

1. Recommend three alternative means for CSO control for the North Beach Basin to present the public for input and to develop in more detail, with the remaining alternatives to be tabled at this time.
2. Where possible, recommend a set of alternative means that represents the range of complexity and constraints in the basin.
3. Discuss and document the reasons and rationale for recommendations.

**Materials Available for Workshop**

1. Final revised North Beach Basin Alternatives summary sheets (1 for each alternative)
2. Final revised table of selection factors ratings and descriptions of Low, Moderate, and High impact

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3. Final revised Alternative Rating Sheets for North Beach Basin (summary & expanded to include description of ratings)
4. Summary of major changes to Barton, Murray, and South Magnolia Basin Alternatives and overall evaluation criteria
5. Inventory of Available Property and Property Profiles
6. Preliminary planning level cost information for comparison purposes for North Beach Basin

Workshop Approach/Agenda

*1. Overview & Summary of North Beach Alternatives* (Karl Hadler, Carollo Engineers)

- Presentation
- Clarifying questions

*2. Initial “Straw Poll” by King County Staff*

- A “Straw Poll” was conducted to generate discussion and help inform the team’s recommendations. An enlarged chart of the screening factors and draft ratings for all alternatives for the North Beach basin was posted on the wall. King County staff used dot stickers to indicate the alternatives they thought should be recommended for further evaluation and those they thought should not be recommended. Most importantly, staff also wrote their thoughts on the wall charts as to why certain alternatives should or should not be recommended as well as any questions they might have.

*3. Initial North Beach Alternatives Narrowing - Discussion* (facilitated by Bob Wheeler, Triangle Associates)

- Identify alternatives that clearly do not merit further consideration at this time
- Identify alternatives that clearly merit further consideration at this time
- Discussion of remaining alternatives to reduce the recommended number to three
- Discussion of basis for recommendations on all alternatives

*3. Presentation of Preliminary Planning Level Cost Information for Comparison Purposes ()*

- Methodology for determining costs
- Review of methodology for creating comparative cost ratings
- Discussion of whether cost information changes any of the three alternatives currently identified for further evaluation

*4. Team Agreement on 3 Alternative means for CSO control for Further Development* (facilitated by Bob Wheeler, Triangle Associates)

- Survey of team for confidence in recommended alternatives
- Final thoughts on recommendations

Workshop Outcome

King County staff recommended the following alternative means for CSO control to be considered for further development:

- Rectangular Storage, Bottom of Basin (Alternative 1A)
- Pipe Storage in Right of Way, Bottom of Basin (Alternative 1B)
- Conveyance to 8<sup>th</sup> Ave Interceptor, Storage in Upper Basin (Alternative 1C)

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Additionally, King County staff recommended investigation of the infiltration and inflow (I/I) reduction approaches included in Alternative 5A) as an adaptive management strategy for the future.

The engineering basin lead, Karl Hadler, for the North Beach Basin supported these choices.

**February 17, 2010 - Follow up Meeting**

Meeting Approach/Agenda

Several good comments on Alternative 1C (Centralized Storage Up in Basin with Conveyance to 8th Avenue Interceptor) that were made at the February 11 workshop led to the development of a variation of this alternative – Alternative 1D, Centralized Storage at the Bottom of the Basin with Conveyance to 8<sup>th</sup> Avenue Interceptor. This configuration requires a smaller pump station. It also simplifies control in the event of a peak flow event. It would cost less due to the smaller pump station and smaller force mains.

Alternative 1D was presented at the February 17 project team meeting.

Meeting Outcome

King County staff agreed that Alternative 1D should be recommended for further development in place of Alternative 1C.

**Summary of Workshop Process Discussion for North Beach Basin**

Considerations for all CSO Project Basins

- All new force mains must have twin force mains instead of single.

Considerations for North Beach Basin

- The project team will not consider whether an alternative would eliminate the need to upgrade existing facilities while screening the CSO control alternatives. The project team may note that certain alternatives would eliminate the need to upgrade existing facilities and that information will be provided to WTD management. Alternative 1C, 2A, and 2B would eliminate the need to upgrade existing facilities.
- Building Alternative 1A or Alternative 1B would not preclude the County from building a project to pump and convey flows directly to the 8<sup>th</sup> Ave Interceptor in the future.
- It will be important to determine how the storage facilities would be cleaned.
- Remnants of older wastewater facilities may be discovered underground at Blue Ridge Park during construction. These may need to be removed.

Considerations for North Beach Basin CSO Control Alternatives

<i>Alternative 1A: Rectangular Storage, Bottom of Basin (Recommended for further development)</i>
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Design Engineering

No discussion. Comments related to design engineering were captured in the evaluation document for the North Beach basin CSO control alternatives.

Cost

No discussion. Comments related to cost were captured in the evaluation document.

Land Use/Permitting

No discussion. Comments related to land use/permitting were captured in the evaluation document.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

Community Impact

- Construction would be required in or near Blue Ridge Park.
- Construction would be required on private property.

O&M

No discussion. Comments related to O&M were captured in the evaluation document.

<i>Alternative 1B: Pipe Storage in Right of Way, Bottom of Basin (Recommended for further development)</i>
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Design Engineering

- This is large diameter pipe in a narrow Right of Way.

Cost

No discussion. Comments related to cost were captured in the evaluation document.

Land Use/Permitting

No discussion. Comments related to land use/permitting were captured in the evaluation document.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

Community Impact

- Construction would impact traffic on NW Blue Ridge Dr. and access to about a dozen homes.

O&M

No discussion. Comments related to O&M were captured in the evaluation document.

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*Alternative 1C: Conveyance to 8<sup>th</sup> Ave Interceptor, Storage in Upper Basin (Recommended for further development as variation Alternative 1D)*

Design Engineering

- There is a regulatory limit on the volume of flow pumped based on the average wet weather flow.
- There are two gravity lines that connect directly to the North Beach force main. The flow in those lines would have to be re-routed.

Cost

- The cost of operating a high head pump station like this would be very high compared to most pump stations.

Land Use/Permitting

No discussion. Comments related to land use/permitting were captured in the evaluation document.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

Community Impact

- Construction would be required in or near Blue Ridge Park. Construction would be required on private property.
- Construction would impact traffic along the conveyance line alignment.
- Construction would occur and a permanent facility would be built in the upper basin.
- The new pump station would be a little higher above ground than the existing pump station in Blue Ridge Park.

O&M

- Two-stage pumping is challenging to operate and consumes a lot of energy.
- It would be an advantage to take flow away from Carkeek facilities.

*Alternative 2A: Conveyance along Beach Alignment to Carkeek CSO Treatment Plan (Not recommended for further development)*

Design Engineering

- There may not be sufficient space to site an additional treatment facility within the existing footprint at Carkeek. It may be necessary to replace the whole Carkeek treatment facility with a higher capacity treatment facility.

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Cost

No discussion. Comments related to cost were captured in the evaluation document.

Land Use/Permitting

- If this alternative requires the replacement of the entire Carkeek treatment facility, the Carkeek treatment facility would be out of service for 24 – 30 months during construction. The project team would need to consult with the Department of Ecology about the feasibility of doing this.

Environmental

- Force main alignment requires construction on the beach and it crosses creek.

Community Impact

No discussion. Comments related to community impacts were captured in the evaluation document.

O&M

No discussion. Comments related to O&M were captured in the evaluation document.

<p><i>Alternative 2B: Conveyance with Neighborhood Alignment to Carkeek CSO Treatment Plant</i> (Not recommended for further development)</p>
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Design Engineering

- There may not be sufficient space to site an additional treatment facility within the existing footprint at Carkeek. It may be necessary to replace the whole Carkeek treatment facility with a higher capacity treatment facility.
- Topography would make siting the conveyance pipeline challenging.

Cost

No discussion. Comments related to cost were captured in the evaluation document.

Land Use/Permitting

- If this alternative requires the replacement of the entire Carkeek treatment facility, the Carkeek treatment facility would be out of service for 24 – 30 months during construction. The project team would need to consult with the Department of Ecology about the feasibility of doing this.

Environmental

No discussion. Environmental comments were captured in evaluation document.

Community Impact

- Requires construction of over 1000 feet of force main through residential neighborhood.

O&M

No discussion. Comments related to O&M were captured in the evaluation document.

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*Alternative 3A: Bottom of Basin Treatment Facility* (Not recommended for further development)

Design Engineering

- There is a cross-connection between the sewer system and a stormwater outfall in one of the subbasins. The design of this alternative needs to account for closing the stormwater outfall so it does not receive overflows from the sewer system.

Cost

No discussion. Comments related to cost were captured in the evaluation document.

Land Use/Permitting

- Treatment facility in shoreline is currently prohibited by code.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

Community Impact

- Community members may object to treatment facility in residential neighborhood.
- The treatment facility is larger than the storage tank proposed in Alternative 1A for the same location. Since a storage tank is more attractive for other reasons, there does not appear to be a good reason to pursue the treatment facility.

O&M

- O&M more complicated and time-consuming for staff than storage.

*Alternative 3B: Upper Basin Treatment Facility* (Not recommended for further development)

Design Engineering

No discussion. Comments related to design engineering were captured in the evaluation document.

Cost

- High cost compared to other North Beach CSO control alternatives.

Land Use/Permitting

No discussion. Comments related to land use/permitting were captured in the evaluation document.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

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Community Impact

- Location near a school may result in community opposition, which could delay the project schedule.

O&M

- O&M more complicated and time-consuming for staff than storage.

<i>Alternative 5A – Infiltration and Inflow (I/I) Control (Not recommended for further development)</i>
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Design Engineering

- Further investigation will be needed to determine if it would be required to build a stormwater collection system in subbasin NB03.
- Further investigation will be needed to determine where improper stormwater connections are located.
- Further investigation is needed to determine if the stormwater collection system in subbasin NB02 has sufficient capacity to take flow discussed for this alternative.
- The topography of subbasin NB03 would make it challenging to construct a stormwater collection system.
- I/I reduction removes flow and therefore reduces stress on the entire wastewater system.
- Participation by property owners would have to be sufficient to meet the CSO control requirement.

Cost

- Low cost compared to other North Beach CSO control alternatives if no stormwater collection system is required in subbasin NB03. Cost would be the high end of what was estimated for this alternative if a stormwater collection system is required in subbasin NB03.
- Cost estimates assume no cost-sharing with the City of Seattle.

Land Use/Permitting

No discussion. Comments related to land use/permitting were captured in the evaluation document.

Environmental

No discussion. Comments related to environmental issues were captured in the evaluation document.

Community Impact

- A landslide was recently repaired near subbasin NB03. Community members may prefer not to remove stormwater from the sewer system.
- Ratepayers may expect King County to minimize capital outlay. This alternative would focus instead on fixing existing infrastructure. Ratepayers might find that attractive.

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- Infiltration reduction would require construction on many private properties.
- I/I reduction can lead to localized flooding and drainage problems.
- Project schedule could be considerably delayed because of need to coordinate with City of Seattle and work required on hundreds of private properties.

O&M

No discussion. Comments related to O&M were captured in the evaluation document.