Murray Basin Combined Sewer Overflow Project
Community Advisory Group

Meeting 5 Summary

Prepared for
King County Wastewater Treatment Division

August 19, 2010

Prepared by

EnviroIssues

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Meeting Information

Meeting #5
Thursday, August 19, 2010
5:30 – 8:00 p.m.
Fauntleroy Community Services Agency Building (Old Fauntleroy School)
9131 California Ave SW

Attendance

CAG members

- Cindi Barker (alternate)
- Sharon Best (alternate)
- Jim Coombes (alternate)
- Linda Cox (alternate)
- Kate Dee
- Cheryl Eastberg
- Patrick Gordon
- Scott Gunderson
- Chris Jansen
- Vlad Oustimovitch (Fauntleroy Community Association)
- Chas Redmond (Morgan Community Association)
- Donna Sandstrom
- Don Stark
- Ron Sterling
- Linda J. Sullivan (King County WTD)

Facilitation Team

- Penny Mabie (EnviroIssues)
- Amy Meyer (EnviroIssues)

WTD Staff and Consultants

- Kevin Dour (Tetra Tech)
- Jeff Lykken (Tetra Tech)
- Brian Matson (Carollo Engineers)
- Shahrzad Namini (King County WTD)

Also in attendance

- Donna Davis
- Norman D. Hays
- Janet Murphy

Welcome and Review

Penny Mabie, meeting facilitator, welcomed participants to the fifth Community Advisory Group (CAG) meeting and thanked everyone for their attendance. Penny confirmed that there were no further revisions to the Meeting #4 summary and that it will be made final and placed on the King County and Google group websites. Penny also reviewed the agenda which included the following goals and objectives:

- Finalize the Meeting #4 summary.

- Ensure CAG members understand rationale for sizing of distributed storage in upper basin, and the difference between planning for green stormwater infrastructure (GSI) regarding stormwater management and CSO control.
- Develop draft guiding principles to reflect community values regarding siting wastewater infrastructure in Murray basin, and achieve consensus on guiding principles.
- Understand what criteria King County uses and how it is applied, and identify gaps or disconnects between CAG guiding principles and the County project criteria.
- Ensure preparatory work for Meeting #6 is done.

Penny acknowledged several emails that had been sent to the CAG, including Linda Cox's list of draft guiding principles, and Bill Beyers' spreadsheet regarding option evaluation. Penny reviewed some of the schedule and topics for the next two meetings, which include comparison of the eight community-suggested alternatives with nine of King County's alternatives, and reminded the CAG that the purpose of this meeting is to develop guiding principles.

Meeting #4 Information Follow-up

Jeff Lykken, Tetra Tech, introduced a presentation which addressed community-suggested alternative #8 regarding distributed storage facilities. Using hydrographs presented during meeting #4 and the June 19th technical session, Jeff explained that a hydrograph is a measure of how much flow, in millions of gallons per day, are entering the bottom of a basin over a period of time. Another line depicted on a hydrograph is the overall capacity of the pump station. During a rain event, there is more flow than a pump station can handle which results in an overflow at the bottom of the basin. Jeff used animations with inset hydrographs to illustrate two different scenarios: 1) without storage, and 2) with storage. Jeff explained that the application of a storage facility at the bottom of the basin is very simple and reliable because it can capture the entire peak at the overflow location, it relies on a gravity overflow weir to divert flow to storage, and uses simple mechanisms to fill and empty. Next, Jeff used an animation to illustrate upstream storage. In this case, flows will increase and eventually reach a point where they will exceed the pump station capacity, and meanwhile those flows must be predicted and accounted for even as other uncontrolled flows are being intercepted.

Jeff explained that when flows are stored in the upper basin, storage is occurring for a longer period of time which requires larger storage volumes. Upland storage in Barton is successful because 50% of flows pass through one spot in the basin, making it easy to predict how much storage is needed to manage the peak flow. In order to site storage correctly, hydrographs should be split apart to see how much of the flow is going by one spot, as opposed to what is traveling down the rest of the basin. With Barton's 33 million gallons per day (MGD) capacity, there are 22 MGD coming from the uncontrolled portion of the basin which means 11 MGD can pass by the proposed storage location, and the rest of the flow must be stored. This required flow control scheme increases the amount of time flows are diverted to storage, and doubles the required storage capacity from 110,000 gallons to 220,000 gallons. Jeff reiterated that in Barton basin, 50% of the peak flow passes by one location which allows for a better understanding of how to provide control. As more facilities are added "up" in the basin, there is increased risk of estimating flow incorrectly.

Questions and Responses

- Patrick Gordon asked if it is possible to fill the distributed storage facilities normally, as opposed to only when the pump stations are predicted to need backup. Jim Coombes asked if this is the same as "equalization," and if so, why is it so difficult.

- Jeff responded that only pipes in close proximity to storage can be routed through that storage, and that the pump station must be monitored at all times. Jeff explained that "equalization" works well at treatment plants as well, but only because the flows are predictable and close together. When it is in the upper basin, the amount of equalization needed at the bottom must be predicted and flows must be routed ahead of time, which is difficult.
- Patrick said his idea is to have an upper basin control system that does not care where flow is coming from, but that immediately drains as the pump station at the bottom of the basin has the capacity to take it. Jeff replied that the critical time that storage is needed is that short period of time where the total flow exceeds the pump station capacity (the portion of the hydrograph indicated in red). Storing flows before that time will not prevent the overflow at the bottom of the basins because once the storage is full the peak flow rate will increase to a point where it exceeds the pump station capacity.
- Donna clarified that in her thinking, rather than the storages being end points (cul de sacs) like the diagram shows, they should be more like throughways (in-line storage), filling as needed and emptying as possible. Jeff replied that inline storage would face the same challenges as offline storage because the timing of when flows are stored is critical to achieving control.
- Kate suggested letting the bottom of the pipe flow through, not store it. Then you would just need a physical trigger so that the inline storage adds when it is full. Jeff replied that what Kate is suggesting is an orifice, or restriction in the pipe that only lets so much through at a time, and when the flow exceeds the size of the restriction, the flow backs up to fill the inline storage. This is the same control scheme as is being developed in the Barton basin. Conceptually the same scheme could be used and be successful in Murray; however a significant amount of bottom of the basin storage would still be required to accommodate flow from the Barton Pump Station; and the upstream storage tanks would dramatically increase in size similar to the Barton example.

- Patrick Gordon asked how large Barton basin's storage must be in order to avoid sending 45% of their flow to Murray basin.
  - Jeff said that the third community-suggested alternative (Combine GSI with Additional Storage in Barton Basin) addresses that question, and that it would require 500,000 gallons of storage at the bottom of the Barton basin, implementation of GSI in the upper Barton 416 subbasin, and implementation of a Rainwise program in the remainder of the basin. This would reduce the storage requirement in the Murray basin to 600,000 gallons.

- Chas Redmond said that all options for the CSO control system are defined by the pipes coming back to Murray and Barton basins from upstream pipes, and asked if any other parts of the city are dealing with similar situations. He also wondered if there are any alternatives that address conveyance between Barton and Alki, and/or Murray and Alki pump stations that can increase capacity in the West Seattle system.
  - Linda Sullivan said that limitations on conveyance systems are a consistent issue in many areas. Jeff also explained that community-suggested alternative #6 (Barton Pump Station pumps directly to Alki) addresses Chas' suggestion.

- Vlad Oustimovitch asked why the bell curve of the projected hydrograph is asymmetrical.
  - Jeff explained that the hydrograph images used in the presentation are not the actual Murray Basin hydrographs – they are just graphical representations, not to scale.
  - Jeff then addressed an outstanding question from Meeting #4 regarding GSI and its application to CSO control versus stormwater control. He explained that when planning

for CSO control, it is a discrete amount of time during a storm event, in which the existing conveyance system capacity is exceeded; and the CSO control measures need to be designed to capture, treat or convey flows during that small snapshot of time. In the Barton and Murray basins, that is a relatively short window of time (approximately 40 minutes) when the peak rainfall is occurring. With GSI, as soon as it begins to rain, stormwater runoff is routed through rain gardens as opposed to combined sewer systems. In order for the rain gardens to capture regular rainfall, plus the storm peak, the rain gardens must be large enough to accommodate the increased flow.

An important element of stormwater control is removing pollutants from the water before they enter the storm drain. Jeff illustrated this with a pollutograph, which showed that the critical time for stormwater pollution control is at the very beginning of a storm event when the amount of pollutants is highest. This means it is a high priority to capture and treat the first flows for stormwater control, as opposed to capturing and storing the highest volume of flows for CSO control.

- Chris Jansen said it seems that the least impact to the community will be achieved by storing flows in the upper basin to avoid overwhelming the downstream areas. He asked for clarification why running existing flows through a 500,000 MGD storage facility in the upper basin would not suffice to avoid overwhelming areas downstream. He wondered if the characterization of flow in the Murray basin is not has sound as the graphics have led the group to believe.
    - Jeff said that we can be confident about the total amount of flow in Murray, because the same flow monitors are used as are in Barton. However, there is less confidence in predicting how much flow is going through each pipeline as you move higher in the basin and the total percentage of flow associated with those pipes decreases.
    - Chris suggested that flows are piped into large storage, and “let go” at a given rate that does not overwhelm the pump station at the bottom of the basin.
    - Scott Gunderson added that the storage facility at the bottom of the basin could be operating at full-bore early on during storm events if you have all flows coming down hill from the beginning of the event. That means the pump is up to working at maximum capacity sooner.
    - Jeff said that the important element is intercepting as much flow as possible, be it the 45% coming from Barton pump station, or 55% from Murray basin. If you try to intercept the Murray basin flows in the conveyance system as you move to the east towards Fauntleroy Way, the flows spread out very quickly over a large area. As the flow percentages decrease in the upper basin it makes accurate flow predictions (and facility sizing) more difficult.
    - Sharon Best said that she agreed that Chris’ proposal could work if there is confidence in predicting flows, but that there is a chance the predictions could be inaccurate.

Draft Guiding Principles Development

Penny introduced the Guiding Principles worksheet document, and asked if the CAG members had any revisions or additions to the list of concepts that she had created as a brainstorming tool.

- Cheryl Eastburg asked to add “Right of Way.”
- Patrick Gordon asked to add “Maximize Applicability of Solution,” or “Fix Multiple Problems.”
- Donna Sandstrom asked to add “Long-Term Solution.”
- Scott Gunderson asked to add “Anticipate additional requirements,” such as stormwater treatment or zero CSO tolerance.
- Chas Redmond asked how long a typical sewer system lasts or how long the county plans for.

    - Linda Sullivan and Jeff explained that they vary in durability, but approximately 35-50 years.
- Chas Redmond asked if King County has any alliances with Thurston or Kitsap County's water treatment regulatory bodies, because all communities around the Puget Sound would need to participate in similar CSO regulations to have the most effective outcome.
    - Linda Sullivan said that other counties may be off a year or two in implementation, but all are primarily working towards the same goals because all CSOs are subject to the Washington State Department of Ecology's regulations.
- Chas Redmond asked to add "Future metrics."
- Vlad Ousitmovitch asked to add "Leverage community assets."
- Patrick Gordon asked to add "Community characteristics and values."
- Cindi Barker asked to add "Unintended consequences."
- Donna Sandstrom asked to add "Leverage best practices."

CAG members were assigned a guiding principle concept and asked to draft a guiding principal for that concept. Once the members were done, the draft guiding principles were discussed one by one. The following are their draft guiding principles, and notes on their respective discussions:

Equity Among Communities	Share the burden of the solution quantitatively and qualitatively for Barton, Murray, and Alki.

Parks	Protect and preserve the mission and purpose of the Parks Department, including providing safe access and preserve the unique scale, natural features, vegetation and character of our parks with the spirit and intent of the existing City parks ordinance.

- Ron Sterling asked that we consider deleting this language so as to not consider parks as an option.

Private Property (Siting Location/ Preferences	Siting of CSO facilities should be strategically prioritized in an order of preference aligned with Seattle Public Utilities Siting Strategy

- Patrick Gordon noted that the CAG should work towards reducing the footprint of utilities.

Downstream Impacts	The solution should confine and contain the problem, so that there is no significant downstream impact.

- It was suggested that there might be a comprehensive solution which uses infrastructure, so the CAG should not eliminate the possibility of impacting infrastructure. The CAG did agree that they prefer not to pass any problems on to the "next community," and that they should clarify where and what "downstream" means.

Green Solutions vs. Gray	1) Prefer green solutions over gray; 2) For every gray solution proposed there should be a cost and feasibility assessment of an equivalent green solution; 3) Prefer solutions that educate, involve and incent the community to participate in practices that reduce their input into the system.

	Regardless of the solution chosen, a green stormwater infrastructure program should be implemented in addition in order to study its applicability and effectiveness.

- Vlad Oustimovitch disagreed with the use of "green," as he is concerned that some alternatives may be merely labeled green when they are actually just "green-washed." He noted that sometimes, "gray" solutions might be better for the environment than those considered green.
- Patrick Gordon suggested the language be changed to "explore and test the feasibility of green solutions over gray," and was concerned that by labeling certain alternatives as green, that they would automatically be rejecting anything that is not. He suggested that environmentally-friendly techniques should be encouraged in all the alternatives instead.
- Scott Gunderson asked that GSI techniques be used in any selected alternative in order to add the level of knowledge about GSI applicability.
- Kate Dee suggested removing this guiding principle altogether, as their common purpose is a green endeavor. She suggested seeking to use as much GSI technology as makes sense to solve the problem.
- Penny agreed to work with Donna Sandstrom, Kate Dee, Chris Janson, Chas Redmond and Scott Gunderson to develop this principle further.

Environmental	Solutions need to employ techniques and materials that do no further harm to the environment and that make quantifiable improvement. These may include elements that do not directly include flow, but help broaden community understanding of need for control.

- Chris Jansen mentioned using techniques such as swales in order to foster understanding of GSI, even if their impact is small.
- Penny suggested that this principle be combined with Scott's language under "Green solutions vs. gray."

Costs	Define land acquisition, mitigation, and construction more comprehensively, including initial construction as well as maintenance and operating costs. The time frame for evaluation will be 50 years.

Construction and Life Cycle Operating Costs	Incorporated into general Costs principle.

Short-term (Construction) Impacts	1) Work should be done to minimize disruption to neighborhoods; 2) Changes to streets and other parcels of land should not cause adjacent property owners any loss of property value; 3) During construction, access to streets should be maintained for vehicular traffic; 4) Work should occur within the time period of _:00 a.m. to 6:00 p.m. five days per week.

- Scott Gunderson and Don Stark noted that these are guiding principles which will conceivably all be optimized, and one principle does not eliminate any alternative, it only conditions it against others.
- Patrick Gordon added that the City of Seattle has a certain threshold for construction impacts that the chosen alternative will have to meet as well.

- Penny noted that being definite amount construction hours might be too limiting; there may be times when the community wants to consider limiting duration of construction by allowing for a longer work day.
- Don and Patrick offered to provide their "higher level" version of this principle from the Central Seattle Waterfront advisory group process.

Long-term Impacts (Life-cycle)	Minimize disruptive access, noise, and unsightly visual structures and odors through integrating these considerations into design and maintenance procedures.

- Linda Cox requested that once the alternatives have been narrowed down, the engineers should produce above- and below-ground sketches of impacts to the neighborhood and streets.
    - Penny noted that the engineers will not be able to provide that level of detail yet, however the details in concern should be included as guiding principles.

Long-term Reliability	We should strive for a solution that will last for multiple generations, and exemplifies durability, simplicity, ease of maintenance, accessibility, expandability, and adaptability.

Incorporating Community Values in Facility Siting	Protect community characteristics. Protect unique places, spaces, scale, land use and amenities that define and support community identity and values.

Storage Size (Safety Factors)	Make capacity of the chosen solution large enough to exceed models, within reasonable cost to provide for a margin of error in modeling, and future unpredictable weather patterns.

- Ron Sterling noted that the CAG should avoid choosing an alternative that would require additional tanks to be built 10-20 years from now.

Comprehensive Solution	All government agencies must coordinate to ensure requirements building water treatment facilities are not ROW are efficiently repaved.

Leverage Community Assets	When possible, use CSO solution to enhance neighborhood assets, streets, community facilities and green spaces.

Leveraging Best Practices	Seek out all opportunities to incorporate newest technologies and successful approaches to create a solution that has the highest chance to achieve County, City, and community goals for CSO overflows.

Unintended Consequences	Every effort should be made during the project selection process to review each for unintended consequences. The final proposed solution should be reviewed by (non-advocate) neutral parties to ensure there are no overlooked unintended negative consequences to the environment or the community.

Long-Term solution	Did not get to this principle.

Closing

Linda Sullivan said that although King County has not had a chance to describe the similarities and differences between the CAG's discussion of guiding principles and the County's criteria, she is heartened by what she has heard from CAG members thus far. She said that areas where the CAG struggled with finding consensus are the same areas where the County teams debates internally over the best approach. She asked the CAG members to review the King County's criteria to see the similarities and differences for themselves.

ACTION: CAG members should review King County's criteria document before Meeting #6.

Penny announced that the next meeting will be held Monday, August 30th, 2010. She said that the list of draft guiding principles will be distributed to the CAG, and that they should please review this draft list developed tonight and to make any language revisions before the next meeting.

ACTION: The list of draft guiding principles should be distributed to the CAG.

ACTION: CAG members should review the draft list of guiding principles and make any language revisions before Meeting #6.