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Wastewater Treatment Division

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May 16, 2006

TO: Kathy Loland, CSO Program Manager, MCIP

FR: Karen Huber, CSO Control Program Manager, CPTR

RE: CPTR Transfer Document to MCIP: Combined Sewer Overflow Projects: Barton CSO Facility, Magnolia CSO Facility, Murray CSO Facility and North Beach Pump Station & CSO Facility

The Regional Wastewater Services Plan (RWSP), adopted November 1999, set forth policies for the control of Combined Sewer Overflow (CSO) discharges into local bodies of water, with projects prioritized by their potential impact to public health and safety. The first projects scheduled for implementation based on the priority assigned to them in the RWSP are the CSO facilities located along Puget Sound beaches. This transfer document describes four CSO control projects being transferred to Major Capital (MCIP) from the RWSP list of projects to be implemented in the years 2009-2011, listed below. Please see hand numbered Attachments 2-5 for maps of the existing offsite facilities. Further details about these facilities can be found in the *Offsite Facilities and Miscellaneous Structures Manual*, available on the WTD intranet at http://dnr-web.metrokc.gov/wtd/Offsite/103_OffsiteManual/offfac.htm.

- Barton CSO Facility
- Murray CSO Facility
- Magnolia CSO Facility
- North Beach CSO Facility & PS upgrade

One additional Puget Sound beach project identified in the RWSP, the SW Alaska storage facility, is not being implemented because updated monitoring and modeling data indicate that this CSO is already controlled and therefore no longer needed.

Since the four CSO projects listed above are on roughly the same schedule they are being transferred to MCIP under one transfer document, organized into four sections corresponding to each project. MCIP has already determined it will issue one planning/pre-design contract for the four projects. Under this contract, the consultant will provide planning/pre-design engineering and project related services for the Barton, Murray, Magnolia, & North Beach Combined Sewer Overflow (CSO) facilities. The North Beach work will also investigate upgrading the existing pump station and forcemain. See the attached Scope of Work (Attachment 1) for further detail. King County will conduct new separate contract procurements for the final design and construction phases for each CSO facility.

Outside Funding Sources

King County is obtaining Washington State Revolving Fund money for the Barton, Murray, and North Beach projects to develop Facilities Plans for each facility. In order for the Facility Plans to be approved by the State of Washington, the requirements of the State Environmental Review Process (SERP) must be completed. To complete SERP, King County must receive the Department of Ecology's (DOE) concurrence on all SEPA documents and the Environmental Information Document (EID).

The Magnolia project will not receive any State funding. There is no Federal money involved in these projects.

Background/History

Project alternatives were developed for the Barton, Magnolia, Murray and North Beach CSO facilities in the King County CSO 5-Year Update Task 4 Report, produced by a team of engineering consultant in December 1997. The Task 4 Report contains detail about alternatives considered and the sizing requirements for the facility improvements. However, recent modeling efforts based on more current and extensive flow data indicate the need to re-evaluate the sizing needs and alternatives analysis for each facility. Currently the hydraulic model is being updated and recalibrated to provide more current project sizing. Please see the individual facility sections in this document for further detail on the history of the alternative development for each facility.

Table 1-1: Summary of CSO Projects Transferred to MCIP

Project Name	Schedule	Total Proj. Cost Est.	State Revolving Fund Loan?
Barton CSO	Procure 2006 Pre-Design 2007/08 Final Design 2009/10 Construction 20011/12	\$11.5M	Yes/\$1,143,247
Murray CSO	Procure 2006 Pre-Design 2007/08 Final Design 2009/10 Construction 20011/12	\$6.8M	Yes/\$593,435
Magnolia CSO	Procure 2006 Pre-Design 2007/08 Final Design 2009/10 Construction 20011/12	\$7.5M	No – application is being resubmitted for 2007.
North Beach PS & CSO	Procure 2006 Pre-Design 2007/08 Final Design 2009/10 Construction 20011/12	\$6M	Yes/\$470,915

Schedule

The Facilities Plan must be complete by May 2009 under the SRF loan agreement. Final design and construction may be phased differently than indicated above for the four projects.

Basis of Costs

Cost estimates for the Magnolia, Murray and Barton projects are derived from the 1994 estimates developed in the RWSP Task 4.0 technical memo, and for North Beach based on 1993 estimates developed in the July 1993 pre-design EWR report. These costs were updated to 1998 dollars and published with the adopted RWSP.

The RWSP employed the “component cost estimating” method to estimate construction cost. A quantity take-off analysis was performed for each CSO control facility over the range of anticipated sizes, so that an equation could be established that expressed increased cost growth with facility size. Unit price components were then assigned to each control system. Sources for the unit prices include the manufacturers of specific items, the Seattle Engineering Quarterly Unit Cost Report for 1992, construction cost bid tabulations for projects that were similar to the specific CSO control technology, and the Means Construction Cost Data document. All unit prices were adjusted to January 1994 using an ENR factor of 5630. The North Beach report used a similar approach.

This approach differs from the method used in Tabula Rasa, the estimating model developed for the Conveyance Systems Improvement Project after the RWSP was adopted. Tabula is based on cost curves. It is recommended that future refined estimates use Tabula for cross-agency consistency.

The RWSP estimated allied costs using percentages applied in a specific order. Roughly, the components were:

- 10% for mobilization/demobilization
- 10% for contractor’s overhead and profit
- 30% contingency
- 8.2% for sales tax on all items
- 35% for design and owner management

Property acquisition costs were based on \$18.00 per square foot for central business property, \$11.50 per square foot for suburban business property, and \$6.90 per square foot for residential property.

The North Beach estimate used slightly different percentages:

- 5% for mobilization/demobilization
- 20% for contractor’s overhead and profit
- 30% contingency
- 8.2% for sales tax on all items
- 31% for design and owner management

The advent of the WTD allied cost model required a changed approach for these project estimates. Each project’s construction and land costs were extracted from the planning documents, escalated to the current year, and input to the model. Elements were then adjusted to bring the total project cost estimate into close alignment with the adopted RWSP estimates.

BARTON CSO FACILITY

Background/History

The 1997 Task 4 Report (pg 66) referenced a new 7.5 mgd pump station below the Fauntleroy Ferry parking area with a 0.1 MG (in text, map shows 0.15 MG) wet well acting as storage, with 7,400 ft. of 24-in forcemain along the shore to Murray facilities. The final RWSP and Operational Master Plan (OMP) say only “PS Upgrade” w/o sizing to control 7 MG of annual overflow for \$9.3M (98\$). Consultant reports that sizing was unchanged from Task 4.

Asset Management upgrades being done ahead of the CSO project will maximize the pump capacities to what can fit in the existing structure, adding 1.4 mgd of pumping capacity. In 2004 a discarded RWSP alternative to build a 0.4- 0.5 MG storage tank was recommended. This alternative was discussed in the RWSP Task 4 document with a site located at the old Fauntleroy school. Another possible site in road right-of-way just south of ferry area was also identified in the 2004 evaluation. Recent model calibration work indicated that a 20 mgd pump station, not the RWSP 7.5 mgd station, would be required to control Barton. The storage alternative was now cost effective compared to a larger pump station and forcemain. In 2005 rapid decisions were made for the Barton forcemain repair to put in 2 forcemains sized for maximum flow under the pump station upgrades, basically precluding the RWSP approach. This was done to avoid more construction in Cove Park and to avoid passing flows to the Murray area for storage.

Recommended Alternative

The pre-design work for the Barton CSO facility will include a flow analysis based on King County’s calibrated flow model using recently collected flow data. The sizing of the Barton CSO facility will be based on this new model calibration and will influence the sizing of the downstream Murray storage facility. Sizing of both facilities will be optimized together.

Pre-design work will also include further alternative development and a siting evaluation for the facility by a consultant. The final recommended facility alternative and site will come out of this evaluation.

Costs/Budget

Planning Project/Subproject #: 425515/005 (2007-015 in the 2007 budget*)

Total Project Cost Est.: \$11.5M

This estimate is based on the 7.5 mgd pump station and new forcemain described in the RWSP Task 4 document. Costs were escalated from the 1994 estimates and adjusted under the WTD allied cost model as described above.

*Finance will assign a new capital project number when the 2007 budget is adopted. Temporarily it is identified as 2007-015.

Budget in Servoy (2006 appropriated):

2006	2007	2008	2009	2010	2011	2012
\$256,101	\$287,850	\$226,482	\$2,660,690	\$2,615,663	\$2,615,663	\$2,849,624

Other Issues

Environmental

King County is the designated State Environmental Policy Act ("SEPA") lead agency for this project. King County will determine and conduct the appropriate environmental review, issue a project SEPA Threshold Determination, and release required notices and documents. King County is obtaining Washington State Water Pollution Control Revolving Fund (SRF) money for this project. This funding will require King County to produce a Facility Plan. In order for the Facility Plan to be approved by the State of Washington, the requirements of the State Environmental Review Process (SERP) must be completed. To complete SERP, King County must receive the Department of Ecology's (DOE) concurrence on all SEPA documents and the Environmental Information Document (EID). Details of the environmental review process will start in pre-design with consultant assistance (see Pre-design Scope of Work, Attachment 1). The environmental review process will be completed during the final design phase.

Local Agency Involvement

The Barton Street Pump Station is located next to the Fauntleroy Ferry dock in West Seattle. Coordination and involvement with the City of Seattle, the Seattle Parks and Recreation Department and Washington State Ferries may be necessary. Depending on the project alternative and site selected, various permits may be required including street use, shoreline, wetland or stream crossing. Pre-design team should coordinate with the WTD Right of Way staff to determine permitting and right-of-way needs.

Siting Process and Community Relations

A siting process will be necessary for the Barton CSO facility. Property acquisition or easements may be required. A siting evaluation study should be conducted during pre-design, involving community members and stakeholders. The City of Seattle's Fauntleroy Park is nearby. The Fauntleroy Ferry terminal is also nearby. The community and ferry passengers will be sensitive to any traffic disruptions on Fauntleroy Way.

The County Planning and Compliance group will work with the community to develop policy siting criteria (community, technical, environmental, financial), detailed evaluation questions, and key factors (community, environmental and engineering) to guide the siting process.

MURRAY CSO FACILITY

Background/History

The 1997 Task 4 Report (pg. 66) described a new 0.5MG storage tank at Lowman Beach Park receiving flow from the new Barton PS and forcemain. Under the alternative described, a new 0.4 mgd pump station would have sent flow from the tank to the existing pump station.

The identified project in the final RWSP & OMP was to construct a new 0.8MG storage tank to control 5 MG annual overflow for \$5.1M (98\$). This represented an increase in size from the Task 4 Report.

Decisions made in 2005 related to the Barton Forcemain repair preclude the RWSP approach of transferring Barton flows to Murray for joint storage. Managing Barton flows independently will likely decrease the size of a Murray storage facility. Hydraulic modeling and sizing is under way. Sizing of Murray storage may vary with the size of the Barton storage facility as they are interdependent - sizing of both facilities will be optimized together.

Recommended Alternative

The pre-design work for the Murray CSO facility will include a flow analysis based on King County's calibrated flow model using recently collected flow data. The sizing of the Murray CSO facility will be based on this new model calibration and the ultimate sizing of the Barton CSO facility as stated above.

Pre-design work will also include further alternative development and a siting evaluation for the facility by a consultant. The final recommended facility alternative and site will come out of this evaluation.

Note: WTD's modeling group in CPTR is currently looking at the Murray and Barton pump stations as a system, whereby storage could be divided between them in different configurations. (e.g. There may be a site that could offload enough flow in the Barton area to reduce/eliminate storage in Murray). The pre-design analysis should consider the modeling being done in CPTR in evaluating project alternatives for Barton and Murray.

Costs/Budget

Planning Project/Subproject #: 425515/003 (2007-013 in the 2007 budget*)

Total Project Cost Est.: \$6.8M

This estimate is based on the alternative described in the RWSP Task 4 document. Costs were escalated from the 1994 estimates and adjusted under the WTD allied cost model as described above.

*Finance will assign a new capital project number when the 2007 budget is adopted. Temporarily it is identified as 2007-013.

Budget in Servoy (2006 appropriated):

2006	2007	2008	2009	2010	2011
\$340,180	\$400,144	\$287,238	\$1,865,370	\$1,842,818	\$2,034,060

Other Issues/Concerns

Local Agency Involvement

The Murray Avenue Pump Station is located below grade in the southeast quarter of Lowman Beach Park in West Seattle. Coordination and involvement with the City of Seattle and the Seattle Parks and Recreation Department may be necessary if any project activity needs to occur in Lowman Beach Park.

Depending on the project alternative and site selected, various permits may be required including street use, shoreline, wetland or stream crossing. Pre-design team should coordinate with the WTD Right of Way staff to determine permitting and right-of-way needs.

Siting Process and Community Relations

A siting process will be necessary for the Murray CSO facility. The facility is either in or adjacent to a city park. Property acquisition or easements may be required. A siting evaluation study should be conducted during pre-design, involving community members and stakeholders.

The County Planning and Compliance group will work with the community to develop policy siting criteria (community, technical, environmental, financial), detailed evaluation questions, and key factors (community, environmental and engineering) to guide the siting process.

Environmental

King County is the designated State Environmental Policy Act ("SEPA") lead agency for this project. King County will determine and conduct the appropriate environmental review, issue a project SEPA Threshold Determination, and release required notices and documents. King County is obtaining Washington State Water Pollution Control Revolving Fund (SRF) money for this project. This funding will require King County to produce a Facility Plan. In order for the Facility Plan to be approved by the State of Washington, the requirements of the State Environmental Review Process (SERP) must be completed. To complete SERP, King County must receive the Department of Ecology's (DOE) concurrence on all SEPA documents and the Environmental Information Document (EID). Details of the environmental review process will start in pre-design with consultant assistance (see Pre-design Scope of Work, Attachment 1). The environmental review process will be completed during the final design phase.

MAGNOLIA CSO FACILITY

The 1997 Task 4 Report (Pg. 43) described an alternative to construct a new 1.3 MG storage tank, new diversion structure, 350-ft gravity line to drain the tank, and a hydro brake to limit flows to the beach lines and force flow into storage to control 15 MG (said 5 but was a typo) annual overflow for \$6.0 M (98\$). The RWSP listed the alternative as constructing a 1.3 MG storage tank to control 15 MG annual overflow for \$6.8 M (94\$).

Recommended Alternative

The pre-design work for the Magnolia CSO facility will include a flow analysis based on King County's calibrated flow model using recently collected flow data. The sizing of the Magnolia CSO facility will be based on this new model calibration.

Pre-design work will also include further alternative development and a siting evaluation for the facility by a consultant. The final recommended facility alternative and site will come out of this evaluation.

Costs/Budget

Planning Project/Subproject #: 425515/002 (2007-012 in the 2007 budget*)

Total Project Cost Est.: \$7.5M

This estimate is based on the alternative described in the RWSP Task 4 document. Costs were escalated from the 1994 estimates and adjusted under the WTD allied cost model as described above.

*Finance will assign a new capital project number when the 2007 budget is adopted. Temporarily it is identified as 2007-012.

Budget in Servoy (2006 appropriated):

2006	2007	2008	2009	2010	2011
\$249,588	\$234,141	\$180,437	\$2,732,791	\$2,731,246	\$1,360,669

No SRF loan was awarded for this project but an application has been resubmitted for 2007.

Other Issues/Concerns

Local Agency Involvement and Community Relations

The 1997 Task 4 Report identified a site for the Magnolia storage facility that is located in a parking lot south of the main commercial center for the Magnolia neighborhood. The site is surrounded by commercial and residential uses. A land use permit application may be underway for the parking lot. Timely coordination and communication with the landowner/developer is

recommended if the site is still being considered. Another alternative identified a site for storage near the water. This would require construction traffic and homeowner access in a ravine, which it was noted may cause some opposition to the project. Coordination with the City of Seattle, area businesses and residents will be critical for the siting and further alternative development of the Magnolia CSO facility.

Depending on the project alternative and site selected, various permits may be required including street use, shoreline, wetland or stream crossing. Pre-design team should coordinate with the WTD Right of Way staff to determine permitting and right-of-way needs.

Environmental

King County is the designated State Environmental Policy Act ("SEPA") lead agency for this project. King County will determine and conduct the appropriate environmental review, issue a project SEPA Threshold Determination, and release required notices and documents. King County is applying for Washington State Water Pollution Control Revolving Fund (SRF) money for this project in 2007. If this funding is approved by DOE, it will require King County to produce a Facility Plan. In order for the Facility Plan to be approved by the State of Washington, the requirements of the State Environmental Review Process (SERP) must be completed. To complete SERP, King County must receive the Department of Ecology's (DOE) concurrence on all SEPA documents and the Environmental Information Document (EID). Details of the environmental review process will start in pre-design with consultant assistance (see Pre-design Scope of Work, Attachment 1). The environmental review process will be completed during the final design phase.

NORTH BEACH PUMP STATION & CSO FACILITY

The 1997 Task 4 Report (Pg. 89) identified a phase 1 alternative to construct a new 0.14MG underground storage tank to reduce overflows from 18 to 4 times per year. The phase 2 alternative would upgrade the existing pump station to 4.5 mgd, replace 2,060 lineal feet of the North Beach forcemain within Carkeek, and make minor improvements to Seattle pipelines to control overflows from 1.9 to 0.2 MG annual overflow for \$3.5 M (94\$).

The final RWSP & OMP listed the project as constructing a storage tank and pump station upgrade to control 2 MG annual overflow for \$3.9 M (98\$). A pre-design report containing sizing information for the North Beach Pump Station Overflow Control project was done in July 1993.

Recommended Alternative

The pre-design work for the North Beach Pump Station upgrade and possible storage will include a flow analysis based on King County's calibrated flow model using recently collected flow data. The sizing of the North Beach CSO facility will be based on this new model calibration.

Pre-design work will also include further alternative development and a siting evaluation for the facility by a consultant. The final recommended facility alternative and site will come out of this evaluation.

Costs/Budget

Planning Project/Subproject #: 425515/004 (2007-014 in the 2007 budget*)

Total Project Cost Est.: \$6M

This estimate is based on the alternative described in the 1993 pre-design EWR report document. Costs were escalated from the 1993 estimates and adjusted under the WTD allied cost model as described above.

*Finance will assign a new capital project number when the 2007 budget is adopted. Temporarily it is identified as 2007-014.

Budget in Servoy (2006 appropriated):

2006	2007	2008	2009	2010	2011	2012
\$671,904	\$690,836	\$209,951	\$961,950	\$961,950	\$961,950	\$1,511,517

Other Issues/Concerns

Local Agency Involvement

Coordination and involvement with the City of Seattle and Seattle Parks may be necessary if any work occurs in Carkeek Park.

Depending on the project alternative and site selected, various permits may be required including street use, shoreline, wetland or stream crossing. Pre-design team should coordinate with the WTD Right of Way staff to determine permitting and right-of-way needs.

Siting Process and Community Relations

The County will work with the community to develop policy siting criteria (community, technical, environmental, financial), detailed evaluation questions, and key factors (community, environmental and engineering) to guide the siting process.

Environmental

King County is the designated State Environmental Policy Act ("SEPA") lead agency for this project. King County will determine and conduct the appropriate environmental review, issue a project SEPA Threshold Determination, and release required notices and documents. King County is obtaining Washington State Water Pollution Control Revolving Fund (SRF) money for this project. This funding will require King County to produce a Facility Plan. In order for the Facility Plan to be approved by the State of Washington, the requirements of the State Environmental Review Process (SERP) must be completed. To complete SERP, King County must receive the Department of Ecology's (DOE) concurrence on all SEPA documents and the Environmental Information Document (EID). Details of the environmental review process will start in pre-design with consultant assistance (see Pre-design Scope of Work, Attachment 1). The environmental review process will be completed during final design.

cc: Dave Dittmar
Laura Wharton