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## FINANCIAL ANALYSIS

This chapter includes financial information for the proposed CSO control alternatives for the Barton and Murray CSO basins. Estimated project costs are provided, including construction, engineering, property acquisition, and operation and maintenance (O&M). This chapter also provides life-cycle costs and project financing information.

### 9.1 ESTIMATED COSTS

Planning-level estimates for construction, engineering, property acquisition, and O&M costs for the proposed alternatives are presented below in 2010 dollars. Estimated quantities are based on the conceptual design presented in Chapter 8. Estimates will be updated during project design.

#### 9.1.1 Construction Cost Estimate

The planning-level cost estimate is based on cost curve data supplemented by quantity takeoffs. Cost curves were developed using data from the design and construction of similar facilities and/or using Tabula 2.0, the County's cost-estimating database. General contractor overhead and profit, estimating contingency, and allied costs (including engineering, legal, and administrative costs) were added to the construction cost estimate to develop total project costs.

The estimating contingency of 30 percent is derived from the cost estimate classification system defined by the Association for Advancement of Cost Engineering (AACE) International. Class 4 estimate accuracy ranges from -30 percent to +50 percent due to the preliminary nature of project data and engineering. The estimating contingency of 30 percent reflects the recommended standard contingency for the preliminary stage of the project.

Key cost factors include:

- Year: 2010.
- Engineering News Record Construction Cost Index: 8645.
- AACE Cost Estimate Classification: 4.

Table 9.1 summarizes the construction cost estimate for the proposed alternative. A more detailed estimate is provided in Appendix F.

#### 9.1.2 Project Cost Estimate

Table 9.2 summarizes the total project cost estimate including engineering, construction management, and County administrative costs.

<b>Table 9.1 Construction Cost Summary</b>			
<b>Item</b>	<b>Description</b>	<b>Barton</b>	<b>Murray</b>
Base Cost	Construction costs including contractor's overhead, profit, and general conditions	\$5.3M - \$6.8M	\$13.6M
Construction Contingency	30%	\$1.6M - \$2.1M	\$4.1M
<b>Total</b>		<b>\$6.9M – \$8.9M<sup>1</sup></b>	<b>\$17.7M</b>

<b>Table 9.2 Project Cost Summary</b>			
<b>Item</b>	<b>Description</b>	<b>Barton</b>	<b>Murray</b>
Construction	See Table 9.1	\$6.9M - \$8.9M	\$17.7M
Land/Easement	Includes land purchase and temporary construction easement for staging	0	\$6.4M
Street Use Fee		\$1.2M	\$1.7M
Additional Costs	Tax, Allied costs, permit fees and project contingency	\$5.1M-\$5.9M	\$15.2M
<b>Total</b>		<b>\$13.2M-\$16.0M</b>	<b>\$41.0M</b>

### 9.1.3 Operation and Maintenance Costs

The basis of O&M costs for the purpose of developing planning-level estimates and calculating life-cycle costs was developed using information supplied by the county (*South Sammamish Basin Conveyance Facility O&M Assumptions*, T. Giesbrecht, Brown and Caldwell, March 2002). Relevant information and assumptions include the following:

- Engineering News Record Construction Cost Index: 7341.
- Labor: \$32/hour
- Storage Tank, \$/MG:
  - Cleaning: \$6,600/year
  - Inspection: \$6,600/year
  - Maintenance: \$4,300/year
- Gravity Sewers: \$1/foot/year
- Force Mains: \$0.02/foot/year
- Ancillary Facilities:

<sup>1</sup> Cost range represents difference between 32 half-blocks and 64 half blocks, which is the estimated range of area needed for CSO control, depending upon final design conditions.

- One inspection time per week or 4 hours per week based on half the general maintenance and inspection required for regulator stations.

Based on the assumptions above and the conceptual design, approximately 630 hours per year is required for O&M. This estimate includes supplemental manual cleaning of the storage pipeline (assumed every three years) with O&M hours normalized over the life of the facility. The initial labor rate in 2014 is estimated to be \$53 per hour. Table 9.3 summarizes O&M costs for the first year of operation. Subsequent years are escalated at approximately 3 percent per annum for the life-cycle cost calculations.

<b>Table 9.3 O&amp;M Cost Summary</b>		
<b>Item</b>	<b>Annual Cost 2014 (\$/year)</b>	
	<b>Barton</b>	<b>Murray</b>
Operations and Maintenance Labor (Landscape maintenance, tank, diversion structure, ancillary facilities)	\$37,300	\$29,300
Flow Monitoring	\$7,000	\$0
Electricity (ventilation, power)	\$0	\$500
Chemicals (activated carbon replacement once per two years)	\$0	\$21,000
Standby Generator (fuel)	\$0	\$1,200
<b>Total</b>	<b>\$44,300</b>	<b>\$52,000</b>

#### **9.1.4 Life-Cycle Cost Estimate**

Life-cycle costs are based on a 20-year capital cost repayment, and operations and maintenance over a 35-year project life (2015-2049) using a Wastewater Treatment Division Business Case Evaluation calculation method (King County, 2009). The nominal discount rate is 5.5 percent and the real discount rate is 2.7 percent.

The net life-cycle cost is estimated to be \$14.3 million to \$17.1 million for the proposed Barton project and \$42.8M for the proposed Murray project. The average project annual cost is estimated to be between \$640,000 and \$765,000 for the proposed Barton project and \$1,915,000 for the proposed Murray project.<sup>2</sup>

## **9.2 PROJECT FINANCING**

### **9.2.1 Financial Capability**

The County's Wastewater Treatment Division (WTD) capital improvement program (CIP) is funded primarily through proceeds from sewer revenue bond sales, variable-rate short-term borrowing, capacity charge revenues, and transfers from the operating fund. Additionally,

<sup>2</sup> These costs are summarized from the WTD Business Case Evaluation Results sheets for the Barton and Murray Alternatives. These sheets are located in Appendix F.

some low-interest loan programs such as the State Revolving Fund and the Public Works Trust Fund are available to fund all or part of the proposed projects. However, loan applications must go through a competitive ranking process and rank high enough to receive available loan funds. Approximately 84 percent of WTD's total operating revenues are from monthly sewer charges collected from WTD's component agencies. Transfers of operating funds to the capital program are the result of the additional cash generated to meet the financial policy requirement of maintaining a debt service coverage ratio of no less than 1.15 times all debt service requirements. WTD uses these transfers to reduce the amount of borrowing necessary to finance the capital program.

Standard & Poor's and Moody's Investor Services are financial firms that rate corporate stocks and municipal bonds according to risk profiles. In 2009, the firms confirmed the ratings to the Wastewater Treatment Division's bonds, citing:

- Strong management practices.
- Continued positive financial performance.
- Solid rate base and large service area.
- Commitment to a capital improvement plan.

The Moody's rating for WTD's sewer revenue bonds, as well as similar bonds issued in the past, remained at Aa3 while the Standard and Poor's rating remained at AA+. These favorable credit ratings lower the cost of borrowing by reducing the amount of debt service, which, in turn, reduces impacts on user rates.

### **9.2.2 Capital Financing Plan**

The capital costs associated with the Barton and Murray CSO projects will be financed through the resources available for capital improvements in accordance with the financial policies of the County and the WTD. The actual financing mix and cost of these instruments will reflect economic and financial conditions, WTD's financial position, and the appropriateness of the project for securing below-market-rate resources.

### **9.2.3 Customer Charges**

The costs associated with construction plus operation and maintenance of the proposed facilities will be reimbursed or supported through user charges. These include the regular monthly sewer rate and the capacity charge that is levied on customers establishing new connections to the system. The monthly rate is a uniform amount levied on all system customers. The capacity charge is levied on new connections to the system for a period of 15 years, with the option of payoff at a discount.

Annually, the County Executive proposes a sewer rate and capacity charge reflecting the current forecast of monetary requirements. In accordance with long-term contracts with the component sewer agencies, the monthly sewer rate must be adopted by the King County Council by June 30 of each year. In June 2010, the County Council adopted a monthly wholesale sewer rate of \$36.10 and a capacity charge of \$50.45 commencing January 1, 2011. In accordance with the financial plan associated with the 2011 adopted sewer rate and

the proposed 2011 capital budget for the period from 2011 to 2016, the revenues generated by this rate and capacity charge and subsequent planned increases in each will provide the funding for the construction of the proposed projects.