

RWSP Cost Estimates

RWSP reporting policies call for including in RWSP annual reports an update of the RWSP cost estimates through the year 2030. The cost estimates presented in this chapter include estimates for projects in various stages of development including planning, predesign, final design, and construction. Costs of completed RWSP projects are also included.

Details on RWSP capital projects in design and construction are provided as Appendix B. In accordance with RWSP reporting policies, the appendix presents a schedule, an expenditures summary (including staff labor and miscellaneous services), a description of any adjustments to costs and schedules, and the status of contracts for each project.

This chapter discusses the accuracy of cost estimates and presents an overview of the 2007 RWSP cost estimates, followed by a summary table of the 2007 cost estimates as compared to the 2006 cost estimates presented in the *RWSP 2006 Comprehensive Review and Annual Report*.¹ The chapter concludes with an alternative way of showing RWSP cost estimates.

10.1 Accuracy of Cost Estimates

The accuracy of cost estimates increases as projects become more defined and are specified in greater detail. Often the scopes of work and estimated costs for projects in the planning phase will change significantly as more detailed information becomes available over time.

Planning-level cost estimates are based on generic facility concepts. Specific details of a project such as location, technologies, and environmental impacts and potential mitigation of such impacts are determined later during project predesign. Costs for projects in planning can have a rough order-of-magnitude estimate in the range of -50 to +100 percent.^{2,3} By the time a project enters the construction phase, estimates typically narrow to a range of -10 to +15 percent of the final cost.

King County assumes a standard increase of 3 percent per year in projecting costs for its wastewater projects to account for price increases in project components such as materials, labor, equipment, supplies, and contractor markups. This rate is used because it closely approximates the actual rate of inflation over a long period of time. However, since 2004, inflation has significantly affected projects across the country. Overall, construction-related inflation has averaged 4.5 percent per year from 2004 through 2007 as measured by the *Engineering News*

¹ The *RWSP 2006 Comprehensive Review and Annual Report* is available at <http://dnr.metrokc.gov/wtd/rwsp/library.htm#CompReview>

² Project Management Institute's *A Guide to the Project Management Body of Knowledge*, third edition, 2004.

³ Order-of-magnitude estimates are estimates without detailed engineering data; they are often referred to as "ball park" estimates.

Record Construction Cost Index. This average masks a volatile period in which annual price increases ranged from 6.3 percent in 2004 to 2.8 percent in 2007. The Wastewater Treatment Division will continue to use 3 percent inflation in its estimates while also evaluating its appropriateness.

A complication to providing a meaningful comparison of costs is that the RWSP is an ongoing plan that includes expenditures incurred in the past plus expenditures planned for the future. In presenting the comparison shown in Table 10-1, expenditures that have occurred through 2007 are included at their original value and future expenditures, planned for 2008 to 2030, are adjusted for inflation to a base year of 2007.

10.2 2007 RWSP Cost Estimates

Table 10-1 summarizes the 2007 RWSP cost estimates and compares them to the 2006 estimates. The 2007 estimate for implementing the projects and programs associated with the RWSP through 2030 is approximately \$3.26 billion in 2007 dollars, an increase of about \$57 million, or 1.8 percent, from the 2006 RWSP cost estimate of \$3.21 billion in 2007 dollars.

Total project cost estimates reflect anticipated costs from the initial planning stage through construction and startup. The estimates also include the costs for RWSP projects that have been completed and projects that are in the planning, design, or construction phase. Nearly one-fourth of the total 2007 RWSP cost estimate represents planning-level costs. As noted earlier in the chapter, planning level cost estimates have a rough-order-of magnitude estimate in the range of -50 to +100 percent.

The RWSP costs shown in Table 10-1 are broken down by the following categories:

- Brightwater Treatment System
- Treatment and Odor Control Improvements (Non-Brightwater)
- Conveyance (Non-Brightwater)
- Infiltration/Inflow
- Combined Sewer Overflow Control
- Reclaimed Water
- Water Quality Protection
- Habitat Conservation Plan/Programmatic Biological Assessment
- RWSP Planning and Reporting

The table is followed by an explanation of cost changes associated with each category.

Table 10-1. Comparison of 2006 and 2007 RWSP Cost Estimates (1999–2030)

RWSP Element	2006 RWSP Cost Estimates (2006\$ x 1M)	2006 RWSP Cost Estimates (2007\$ x 1M)	2007 RWSP Cost Estimates (2007\$ x 1M)	Cost Change (2007\$ x 1M)
Total RWSP	\$3,137	\$3,207	\$3,264	\$57
Total Brightwater Treatment System^a	\$1,664	\$1,701	\$1,732	\$31
Brightwater Treatment Plant	\$587	\$601	\$623	\$22
Brightwater Conveyance	\$835	\$856	\$861	\$5
Land and Right-of-Way	\$97	\$97	\$102	\$5
Mitigation	\$145	\$147	\$145	(\$2)
Total Treatment & Odor Control Improvements (Non-Brightwater)	\$163	\$167	\$174	\$7
Odor Control at South Plant	\$7	\$7	\$7	--
West Point Odor Control	\$1	\$1	\$2	\$1
West Point Digestion Improvements	\$6	\$6	\$6	--
King Street Regulator Odor Control Project	\$3	\$3	\$5	\$2
South Plant Expansion	\$106	\$109	\$109	--
Vashon Treatment Plant Upgrade	\$20	\$20	\$22	\$2
Carnation Treatment Plant	\$19	\$20	\$20	--
Chinook Wetlands Enhancement			\$3	\$3
Total Conveyance System Improvements (CSI) (Non-Brightwater)	\$754	\$771	\$791	\$20
Completed CSI projects, acquisitions, and planning	\$143	\$143	\$173	\$30
CSI projects in design or construction in 2006	\$197	\$202	\$192	(\$10)
Planned CSI projects, acquisitions, and planning	\$414	\$426	\$426	--
Total Infiltration/Inflow (I/I)^b	\$49	\$49	\$44	(\$5)
Total Combined Sewer Overflow Control	\$444	\$456	\$456	--
CSO Control Projects ^c	\$388	\$400	\$400	--
CSO Planning and Updates	\$6	\$6	\$8	\$2
Sediment Management/Lower Duwamish Superfund	\$49	\$49	\$47	(\$2)
Total Reclaimed Water	\$36	\$36	\$41	\$5
Technology Demonstration (completed in 2004)	\$1	\$1	\$1	--
Future Water Reuse	\$3	\$3	\$6	\$3
Water Reuse Satellite Facility (cancelled in 2003)	\$5	\$5	\$5	--
Reclaimed Water Backbone	\$25	\$25	\$25	--
RWSP Water/WW Conservation (completed in 2005)	\$1	\$1	\$1	--
Reclaimed Water Comprehensive Plan			\$3	\$3
Water Quality Protection (completed in 2006)	\$16	\$16	\$16	--
Habitat Conservation Plan (HCP)/ Programmatic Biological Assessment	\$8	\$8	\$8	--
RWSP Planning and Reporting	\$3	\$3	\$2	(\$1)

Notes: All costs in 2007 column are as of December 31, 2007; projects shown are not exhaustive, but are listed to illustrate changes. Totals may not add due to rounding. Expenditures that have occurred through 2007 are included at their original value.

^a The Brightwater cost estimates are shown in constant dollars to be consistent with other components of total RWSP costs. Section 10.4.2 of this chapter discusses presenting Brightwater costs in nominal dollars, consistent with the *Brightwater Cost Update: Current Conditions and Trends*, January 2008.

^b Design and construction costs for the initial I/I reduction projects are funded by the CSI program in accordance with the recommended program approved by the King County Council in 2006; therefore, these costs are not shown in this line item.

^c The 2006 and 2007 cost estimates for the CSO control projects are the 1998 planning-level estimates adjusted for inflation. Updated estimates for the CSO Puget Sound Beach projects are anticipated at the end of pre-design. The remainder of the CSO control project cost estimates are expected to be updated as part of the 2010 CSO program review.

10.3 Explanation of RWSP Cost Estimate Summary Table

Table 10-1 on the previous page includes four columns:

- **2006 RWSP Cost Estimates (2006\$ x 1M) column.** This column shows the 2006 RWSP cost estimates as presented last year in the *RWSP 2006 Comprehensive Review and Annual Report* in 2006 dollars. The 2006 cost estimates include costs expended through 2006 at their original value and costs anticipated for 2007 through 2030 adjusted for 3 percent inflation to a base year of 2006.
- **2006 RWSP Cost Estimates (2007\$ x 1M) column.** This column shows the 2006 RWSP cost estimates adjusted to 2007 dollars to create a common base for comparison with current estimates. Adjustments for inflation are based on the assumption of a standard increase of 3 percent per year. Expenditures that occurred through 2006 are included at their original value and not adjusted for inflation.
- **2007 RWSP Cost Estimates (2007\$ x 1M) column.** This column shows the updated 2007 cost estimates in 2007 dollars that were developed based on project details as of December 31, 2007. Future expenditures—costs anticipated for 2008 to 2030—have been adjusted for inflation to a base year of 2007. Expenditures that occurred through 2007 are included at their original value.
- **Cost Change (2007\$ x 1M) column.** This column shows the changes in cost estimates for each line item and total category cost from the 2006 cost estimates to the 2007 cost estimates in 2007 dollars.

The following sections provide more detail on each category presented in Table 10-1.

10.3.1 Brightwater Treatment System

The Brightwater cost estimates in Table 10-1 are shown in 2007 dollars to be consistent with the other RWSP costs presented in the table. In other words, Brightwater costs planned for 2008 through 2012 have been adjusted to 2007 dollars. This is a different approach than that used in the cost trend reports that are published annually. Information on the January 2008 Brightwater cost trend update is provided in Section 10.4.2 of this chapter.

Table 10-1 indicates that Brightwater costs have increased by \$31 million over the 2006 estimates. This increase is primarily due to inflation of costs of materials and commodities.

Chapter 2 provides more information on the Brightwater Treatment System.

10.3.2 Treatment and Odor Control Improvements (Non-Brightwater)

The costs in Table 10-1 for non-Brightwater treatment and odor control improvements include treatment plant improvements and specific odor control improvements that result from implementing RWSP policies. The 2007 cost estimates for these projects is \$174 million, an increase of about \$7 million from the 2006 cost estimates. The projects and programs that make up the total treatment and odor control improvements cost estimate follow.

Odor Control at South Plant

There were no significant cost changes from the 2006 cost estimate for odor control at South plant.

West Point Odor Control

This project was substantially complete by the end of 2007. There were no significant cost changes from the 2006 estimate. The change shown in Table 10-1 is a reflection of rounding.

West Point Digestion Improvements

There were no significant cost changes in 2007 from the 2006 estimate.

King Street Regulator Odor Control Project

The 2007 cost estimate for this project increased by approximately \$2 million from the 2006 estimate. This change reflects an increase in construction costs based on an updated construction cost estimate. Costs related to design work also increased to address issues such as site contamination and design revisions to improve safety and functionality.

South Plant Expansion

Because the South plant expansion is planned for 2029, the cost estimates for this project have not been updated since the 1998 RWSP cost estimate. The current estimate of \$109 million reflects the 1998 preliminary planning-level estimate adjusted for inflation, using the 3 percent per year assumption, to 2007 dollars.

Vashon Treatment Plant Upgrade

The 2007 cost estimate for this project increased by approximately \$2 million. This change is attributed to costs associated with improvements to the stormwater management system at the site and costs associated with responding to a construction claim for a differing site condition; the claim was received in summer 2007.

Carnation Treatment Plant

There were no significant cost changes from the 2006 cost estimate for the Carnation Treatment Plant.

Chinook Wetlands Enhancement

The Chinook Wetlands Enhancement project is a new project, adding \$3 million to the 2007 estimate of the overall Treatment and Odor Control Improvements category in Table 10-1.

Chapter 6 provides more information on the Vashon and Carnation treatment plant projects. Chapter 7 provides more information on the odor control program.

10.3.3 Conveyance (Non-Brightwater)

The 2007 cost estimate shown in Table 10-1 for non-Brightwater conveyance is \$791 million, an increase of approximately \$20 million from the 2006 cost estimate. Over one-half of the total conveyance costs represent planning-level cost estimates.

The completed projects category shows a cost change of \$30 million from 2006. This reflects the addition to this category of two projects that were completed in 2007: Fairwood Interceptor Sewer at the cost of \$22 million and Pacific Pump Station at the cost of \$8 million.

The change (decrease of \$10 million) shown in the projects that are in design and construction category is the net result of completion of the Fairwood Interceptor Sewer and Pacific Pump Station projects and increases in construction costs of certain projects. For example, construction costs for the Bellevue Pump Station increased by approximately \$10 million because of market conditions, including higher than estimated labor rates, and additional construction management services needed because of the complexity of the project, such as tunneling under occupied structures. Construction costs for the North Creek Interceptor project increased by about \$9 million. This increase reflects the need for additional micro-tunneling and dewatering locations. These additional activities were identified during final design because of the high groundwater conditions, environmentally sensitive areas, and the need to avoid major traffic impacts on two state highways. Higher than anticipated easement acquisition costs and longer than anticipated delays in obtaining critical permits also contributed to the cost estimate increase of this project.

There were no cost changes from the 2006 estimates in the planned projects category.

Chapter 3 provides more information on RWSP conveyance system improvements.

10.3.4 Infiltration/Inflow

The change (decrease of \$5 million) in this category reflects a correction to the 2006 estimates (infiltration/inflow pilot study projects should have been listed as \$40 million, not \$45 million). The total 2007 infiltration/inflow (I/I) Program estimate reflects expenditures through 2007,

covering costs associated with the I/I pilot study projects (\$40 million) and projected costs (\$4 million) related to flow monitoring for the initial I/I reduction projects; ongoing modeling, cost-benefit analysis, planning, and reporting; public education; and regional I/I clearinghouse and other program related costs.

In accordance with the recommended I/I control program that was approved by the King County Council in May 2006, design and construction costs for the initial I/I reduction projects are funded by the Conveyance System Improvement Program and not included as part of I/I program costs. The purpose of the recommended I/I control program is to invest in I/I reduction in lieu of investing in larger conveyance system improvements when it is cost-effective to do so.

Chapter 4 provides more information on the I/I Control Program.

10.3.5 Combined Sewer Overflow Control Program

The total combined sewer overflow (CSO) control program cost estimate includes costs associated with CSO control projects, CSO planning and updates, the Sediment Management Program, and the Lower Duwamish Waterway Superfund projects. The 2007 total CSO control program cost estimate is \$456 million, which is the same as the program's total cost estimate in 2006.

The cost estimates associated with CSO control projects represent the 1998 RWSP cost estimates of the 21 planned CSO control projects adjusted for inflation to 2007 dollars. There were no changes from the 2006 estimate.

The cost estimates associated with CSO planning and updates increased by approximately \$2 million. This increase is due to additional staff needs to migrate data from the current model to a new model, refinements made in the CSO treatment technology pilot program, and work associated with the U.S. Environmental Protection Agency's program audit.

The change shown in the Sediment Management Program category (decrease of \$2 million) is a result of anticipating expenses for the Hanford and Lander cleanups to occur in the 2010–2011 timeframe instead of 2008–2009 timeframe.

Chapter 5 provides more information on the CSO Control Program.

10.3.6 Reclaimed Water

The 2007 cost estimate for the Reclaimed Water Program is \$41 million, reflecting an increase of approximately \$5 million from the 2006 cost estimate. The projects and programs that make up the total reclaimed water cost estimate follow.

Technology Demonstration Project

This project was complete as of December 31, 2004. The 2007 cost estimate represents the total expenditures for this project.

Future Water Reuse

The future water reuse category includes activities to support the existing Reclaimed Water Program. Costs increased in 2007 by \$3 million from the 2006 estimate. This increase is due to the additional staff needs for the work associated with reclaimed water permitting for the Carnation and Brightwater facilities, customer development, and funding of research that is being conducted by the University of Washington.

Sammamish Valley Reclaimed Water Facility (Water Reuse Satellite Facilities)

This project was cancelled in favor of the reclaimed water capabilities at the Brightwater Treatment Plant. The Sammamish facility would have produced 1.5 million gallons per day (mgd) of reclaimed water at a cost of \$36 million in 2005 dollars. The cost of the Brightwater reclaimed water pipeline or “backbone” is \$25 million in 2005 dollars and will be able to deliver 7 mgd of reclaimed water to the Sammamish Valley.

The costs expended on the Sammamish Valley facility will continue to be included as part of the RWSP cost estimate.

Reclaimed Water Backbone

There were no changes in costs from the 2006 cost estimate of this project.

RWSP Water/Wastewater Conservation Program

This project was completed in 2005. The 2007 cost estimate represents the total expenditures for this project.

Reclaimed Water Comprehensive Plan

This is a new project as of December 2007. The total cost estimate for this project is anticipated to be approximately \$3 million.

Chapter 9 provides more information on the Reclaimed Water Program.

10.3.7 Water Quality Protection

This program provided scientific information on water quality and hydrologic conditions in both the Lake Washington and Green River watersheds and was complete as of December 2006. The 2007 cost estimate represents the total expenditures for this project.

10.3.8 Habitat Conservation Plan/Programmatic Biological Assessment

As reported in the *RWSP 2005 Annual Report*, the majority of the funds allocated to the Habitat Conservation Plan have been expended. The remaining funds are being used for consultations with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, as required under Section 7 of the Endangered Species Act, on projects that require a federal permit or receive federal funding. Total costs are expected to be approximately \$8 million.

10.3.9 RWSP Planning and Reporting

Table 10-1 shows a decrease of \$1 million from the 2006 cost estimate for RWSP Planning and Reporting. This is due to adjustments made based on previous expenditure history.

10.4 Alternative Way to Show RWSP Cost Estimates

The *RWSP 2006 Comprehensive Review and Annual Report* noted that the Wastewater Treatment Division (WTD) is exploring additional and alternative ways in which to present and compare costs in the most informative manner. One approach that WTD has been discussing is to summarize the RWSP cost estimates by the following categories:

- **Completed RWSP Projects.** This category is comprised of projects for which all activity has been completed.
- **Brightwater Cost Trend Update.** This category is comprised of the trend estimate that is created on an annual basis for Brightwater to incorporate the most current cost and activity and data.
- **RWSP Projects in Design or Construction (non-Brightwater).** This category is comprised of all RWSP projects that are in the current capital improvement plan (CIP) budget for WTD.
- **Projects Planned for the Future.** This category is comprised of projects in which activity has yet to begin.

Presenting costs in this manner provides the reader with an informative snapshot of the progress being made and costs associated with implementing the RWSP. The categories provide a different perspective of project costs by identifying past, present, and future projects in the RWSP and their respective costs. In this way, incurred, current, and future costs can be tracked separately as projects move through the categories. It should be noted that the sum of these categories will not yield a meaningful total cost comparison as is done with the estimates in Table 10-1. This is because some categories would present costs in nominal dollars and some in base-year or constant dollars. An explanation and a summary table of each category follows.

10.4.1 Completed RWSP Projects

Completed RWSP projects refer to projects or programs that have been completed and for which no future expenditures are anticipated. Table 10-2 summarizes the expenditures associated with completed projects and compares expenditures as of December 31, 2007, to those as of December 31, 2006.

**Table 10-2. Completed RWSP Projects
(million dollars)**

	Expenditures as of Dec. 31, 2006	Expenditures as of Dec. 31, 2007	Cost Change
Total completed projects	\$206	\$238	\$32
Total completed Conveyance System Improvement projects, acquisitions, planning	\$143	\$173	\$30
Projects completed through 2006	\$143	\$143	--
Projects completed in 2007:			
Fairwood Interceptor Sewer & Pacific Pump Station		\$30	\$30
Total completed Treatment and Odor Control projects (non-Brightwater)		\$2	\$2
West Point Odor Control		\$2	\$2
Total completed Reclaimed Water projects	\$7	\$7	--
Technology Demonstration	\$1	\$1	--
Water Reuse Satellite Facility	\$5	\$5	--
RWSP/WW Conservation	\$1	\$1	--
Total completed I/I Pilot Study projects and program	\$40	\$40	--
Total completed Water Quality Protection	\$16	\$16	--

Note: Expenditures are shown at their original value. Totals may not add due to rounding.

The 2007 expenditures in completed projects is \$32 million more than the expenditures as of December 31, 2006, because of completion of two conveyance projects and one odor control project in 2007. The two conveyance projects that were completed in 2007 are the Fairwood Interceptor Sewer and the Pacific Pump Station projects. The total cost for the Fairwood Interceptor Sewer project is \$22 million; the total cost for the Pacific Pump Station is \$8 million. The total cost of the odor control project, West Point Odor Control, is \$2 million.

10.4.2 Brightwater Cost Trend Update

The January 2008 *Brightwater Cost Update, Current Conditions, and Trends* report notes that the way Brightwater cost estimates are presented has changed over time to reflect the maturing of the project and to better address the needs of the report's end users. Prior to 2006, Brightwater cost estimates were presented in constant dollars; that is, dollars adjusted for inflation (deflated) to the year of the estimate. With the project's transition from design to construction in 2006, costs are now presented in nominal (inflated) dollars to account for the fact that contractors included inflation as part of their bid packages.

Following issuance of the January 2007 Brightwater cost update, the Brightwater Oversight Monitoring Consultant recommended modifications to the presentation format to ensure costs could be compared year to year. Consequently, King County's Department of Natural Resources and Parks proposed using the Brightwater monthly report format adopted by the King County Council in 2005.⁴ The costs presented in the January 2008 Brightwater cost update reflect this revised format and are shown in Table 10-3. As part of the new presentation format, the costs for land and mitigation are now included as part of the treatment and conveyance costs instead of being listed separately.

Table 10-3 shows the January 2008 estimate for the project at \$1.802 billion (including inflation)—representing an overall increase of about \$34.9 million over the January 2007 estimate (an increase of \$35.5 million in estimated treatment plant costs and a decrease of about \$0.6 million in estimated conveyance costs). The increase is primarily due to inflation of materials and commodities.

Table 10-3. Comparison of January 2007 and January 2008 Brightwater Cost Estimates (million dollars with inflation)

	Jan. 2007 King County Estimate	Jan. 2008 King County Estimate	Change Jan. 2007– Jan. 2008	Percent Change
Treatment plant	\$839.8	\$875.3	\$35.5	4.22%
Conveyance	\$927.5	\$926.9	\$(0.5)	-0.06%
Total	\$1,767.3	\$1,802.2	\$34.9	1.98%

Note: Estimates assume project completion in 2012. Inflation is assumed to be 3 percent per year for costs not covered by specific contracts or agreements.

10.4.3 RWSP Projects in Design or Construction (non-Brightwater)

Table 10-4 shows the cost estimates of projects in design or construction as of December 31, 2007, as compared to the cost estimates of projects in design or construction as of December 31, 2006. The projects in this table were included as part of the 2008 and 2007 King County adopted budget, respectively. The cost estimates are shown in inflated dollars. Some costs have been spent; some are allocated to out years. For the 2006 estimate, the expenditures that occurred through 2006 are included at their original value; for the 2007 estimates, the expenditures through 2007 are included at their original value.

The cost estimates for projects in design or construction in 2007 is \$370 million, an increase of \$6 million from the 2006 estimate of \$364 million.

⁴ Motion 12189, approving a monthly report format and baseline budget for the Brightwater project, was passed by the King County Council in August 2005. More information on Motion 12189 is available at <http://mkcclegisearch.metrokc.gov/detailreport/?key=5807>

**Table 10-4. RWSP Projects in Design or Construction (non-Brightwater)
(million dollars)**

	2006 Cost Estimates ^a	2007 Cost Estimates ^b	Cost Change
Total Costs for RWSP Projects in Design/Construction	\$364	\$370	\$6
Total Conveyance Projects	\$205	\$197	(\$7)
Hidden LakePS/Boeing Trunk	\$38	\$38	--
Fairwood Interceptor Sewer ^c	\$22	--	(\$22)
Bellevue Pump Station	\$21	\$32	\$11
Juanita Bay Pump Station	\$37	\$37	--
Kent/Auburn Conveyance Improvements	\$45	\$46	\$1
Pacific Pump Station ^c	\$8	--	(\$8)
Black Diamond Storage	\$6	\$5	(\$1)
North Creek Pipeline Project	\$28	\$38	\$10
Northshore Utility District Acquisition ^d		\$1	\$1
Total Non Brightwater Treatment and Odor Control	\$57	\$63	\$6
Odor Control at South Plant	\$8	\$7	(\$1)
Odor Control at West Point ^c	\$1	--	(\$1)
WP Digestion Improvements	\$6	\$6	--
King St Odor Control	\$3	\$5	\$2
Vashon TP	\$20	\$22	\$2
Carnation TP	\$20	\$20	--
Chinook Wetland Enhancement ^d		\$3	\$3
Total I/I^e	\$4	\$4	--
Total CSO Control Program^f	\$56	\$59	\$3
Sediment Management/Lower Duwamish Superfund	\$50	\$50	--
CSO Planning and Updates	\$7	\$9	\$2
Habitat Conservation Plan (HCP)/Programmatic Biological Assessment	\$8	\$8	--
Reclaimed Water	\$31	\$36	\$5
Brightwater Reclaimed Water Backbone	\$27	\$27	--
Future Water Reuse	\$3	\$6	\$3
RW Comp Plan ^d		\$3	\$3
RWSP Planning and Reporting	\$3	\$3	--

Note: Totals may not add due to rounding.

^a Project costs in this column reflect costs reported in the 2007–2012 WTD CIP budget submittal (October 2006).

^b Project costs in this column reflect costs reported in the 2008–2013 WTD CIP budget submittal (October 2007).

^c These projects were in design or construction in 2006, and completed during 2007. Their total expenditures for 2007 are reflected in Table 10-2, Completed RWSP Projects.

^d These are new projects as of 2007.

^e These costs reflect projected costs related to flow monitoring for the initial I/I reduction projects; ongoing modeling, cost-benefit analysis, planning, and reporting; public education; and regional I/I clearinghouse and other program related costs. The expenditures associated with the I/I pilot programs are reflected in Table 10-2, Completed RWSP Projects.

^f Although the Puget Sound Beach CSO control projects were included in the 2008–2013 WTD CIP budget submittal, they are not reflected in this table. Updated cost estimates for these projects will occur at the completion of pre-design. Because their costs reflect planning-level costs, these project costs are included in Table 10-5, RWSP Projects Planned for the Future.

10.4.4 RWSP Projects Planned for the Future

Table 10-5 shows the planning-level cost estimates for projects planned in the future for 2006 and 2007. As was noted previously in the chapter, costs for projects in planning can have a rough order-of-magnitude estimate in the range of -50 to +100 percent. The costs in Table 10-5 are presented in constant (2007) dollars. Costs shown in constant dollars are adjusted for inflation (deflated) to reflect base-year prices and therefore do not include the effects of changing prices and inflation.

There were no cost changes in projects planned for the future from the 2006 estimates.

Table 10-5. RWSP Projects Planned for the Future

	2006 Cost Estimates (2006\$ x 1M)	2006 Cost Estimate (2007\$ x 1M)	2007 Cost Estimate (2007\$ x 1M)	Cost Change (2007 x 1M)
Total Planned Projects	\$908	\$935	\$935	--
Planned Conveyance Projects ^a	\$414	\$426	\$426	--
Planned CSO Control Projects ^b	\$388	\$400	\$400	--
Planned South Plant Expansion ^c	\$106	\$109	\$109	--

^a Conveyance project costs are based on the cost estimates developed for planned projects through 2030 as part of the 2007 CSI Program Update

^b CSO Control Project cost estimates reflect the 1998 planning-level estimates adjusted for inflation for the planned CSO Control projects.

^c South Plant expansion cost estimates reflect the 1998 planning-level estimate adjusted for inflation.