Water Quality Assessment and Monitoring Study

Project Objective

The primary objective of the Water Quality Assessment and Monitoring Study ("WQA" or "assessment") is to help ensure that the significant investments in Combined Sewer Overflow (CSO) control ($711 million) are well-planned and timed to optimize water quality improvements where King County's CSOs discharge. Specifically, the assessment will:

- identify opportunities to lower the cost of CSO control;
- provide information on how CSO control can work in conjunction with other water quality projects;
- evaluate the effectiveness of emerging technologies (such as green stormwater infrastructure); and
- establish baseline conditions for mandatory post-construction monitoring of CSO control projects.

Any new monitoring conducted in order to fill data gaps during the assessment would help establish baseline conditions for County CSO sub-basins now, which will be used for comparison throughout CSO program implementation to 2030; provide information about the overall contribution of CSO's to existing/current water quality impairments; and help predict water quality outcomes post-CSO project construction.

The assessment will also help inform whether to pursue an integrated CSO control plan under the EPA Consent Decree, and would provide needed information for the plan if a decision is made to pursue it.[1] Recommendations that emerge from the assessment could focus on changes in the composition, sequencing and prioritization of seven of the remaining nine CSO control projects, while maintaining King County's commitment to complete all projects by 2030.

Project Scope Elements and Initial Cost Estimate

The cost estimate for the Water Quality Assessment and Monitoring Study ranges from $2.1 million to $3.2 million based on implementation of all scope elements described in Table 1 below. Of this amount, approximately $1.5 million to $2 million covers items required for CSO program reviews, plan updates and project implementation. The additional $620,000 to $1.2 million covers scope items that add value to the existing CSO program and planning efforts, by providing information that could lead to increased water quality outcomes while potentially reducing the cost of delivering the CSO program objectives by 2030. The additional investments also provide for an independent scientific review of the data analysis, as well as an external advisory group that would provide a transparent regional discussion around policy recommendations that could come from the assessment. All cost items include coordinated project management of scope, schedule and budget for the water quality assessment, team coordination and project reporting.

A detailed description of the scope elements and costs are in Table 1 on the next page. The table describes which of the scope elements would already be needed for CSO planning efforts, and those which add value to the program as unique efforts.

[1] "Integrated Planning" is a new regulatory approach introduced by the Environmental Protection Agency, that allows entities to pursue ways to meet their CSO control obligations simultaneously with other water quality projects, so that water quality improvements can be achieved more quickly and potentially at lower overall cost.

Table 1
Scope Elements

Scope Element	Accomplishes	CSO Project Planning Needs Met	WQA Added Value to CSO Program	Estimated Cost Required for CSO Projects	Estimated Cost for Added WQA Elements
1. Literature Search & Existing Data Review and Analysis	Analyzes existing reports and data for impairments in water bodies where CSOs discharge, and the causes (the contribution of CSOs and other sources); reviews existing and planned corrective actions; identifies and summarizes data gaps in understanding the impairments and causes.	This work would need to be conducted for each CSO project anyway to establish baseline water quality conditions as part of post-construction monitoring. This information is also needed for the next CSO program review. The previous CSO planning literature review (for the 2012 Plan Update) was high level to inform prioritization, but did not analyze data comprehensively. This additional literature and data review and analysis allows for characterization of water quality in the receiving waters, against which success of the CSO program will be measured. Detailed analysis increases knowledge of baseline conditions and of each CSO contribution to impairment in receiving waters.	Provides comprehensive review sooner than would be done for individual projects.	$400,000-500,000 (4,500 staff hours over one year if done as part of WQA, or similar level of effort spread over several years if done on project or basin-specific basis for CSO program)	$0
2. Filling Data Gaps (additional monitoring)	Fills scientific data gaps, as needed, to answer prioritization and benefit enhancement questions.	Monitoring for each of the basins would be needed anyway for post construction monitoring, as well as the next program review. This information would be key to support any future changes to the sequencing of CSO projects.	Provide additional data as needed for baseline and post-construction monitoring for CSO projects. This work also allows a better understanding of water quality impairments where CSOs discharge; and the causes of those impairments.	$360,000-450,000 (3,800 staff hours over 1.5 year period if done as part of WQA, or similar effort done over several years on a project or basin-specific basis for each project)	$0

Scope Element	Accomplishes	CSO Project Planning Needs Met	WQA Added Value to CSO Program	Estimated Cost Required for CSO Projects	Estimated Cost for Added WQA Elements
3. Synthesis Report	Answers: How can CSO control projects and other planned/potential actions be integrated to be most effective? How do various sequences compare? What other possible actions would help to reduce costs or improve water quality outcomes?	The information generated in the synthesis report would be needed for CSO Program review, which reviews prioritization of projects. Responds to King County Auditor's office recommendations to develop more quantitative measures of evaluating CSO project impacts on water quality, and provides information sufficient for WTD to decide whether to pursue integrated planning, or a change in current CSO schedule.	The Synthesis Report would provide information needed to evaluate other means to increase the effectiveness while reducing the costs of controlling all county CSOs by 2030. Synthesizes the literature and data search and results of any monitoring for filling data gaps; examines how CSO projects and other actions can be most effective at addressing impairments, using a variety of metrics; evaluates various CSO and other project sequences.	$440,000-550,000 (9,800 staff hours over one year, including 3 water quality analysts, 1 technical writer and project management. Work completed by WLRD staff in-house)	$440,000-550,000
4. **Science and Technical Review Team** (technical experts)	Independent review of scientific data analysis and methods	For every CSO program review, WTD does outreach to regional experts and scientists. Responds to KC Auditor's interest in applying the best science to program decisions. Responds to interested party input emphasizing importance of scientific rigor and independent external review.	Obtains objective, independent and expert input on the scientific and technical analyses and report findings.	$180,000-225,000 (1,800 staff hours over 2.25 years; $50K consultant contract; $150K for science team stipends/salary reimbursements)	$180,000-225,000

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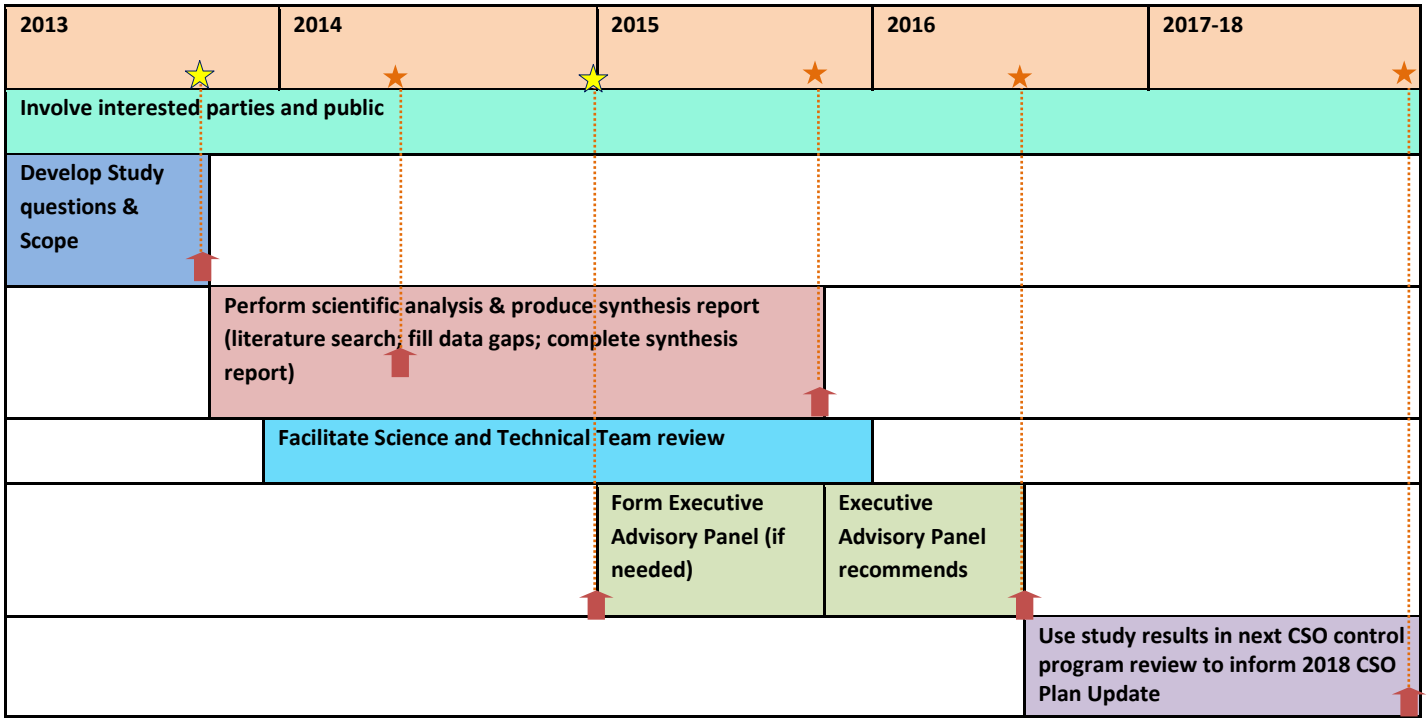
5. **Executive Advisory Panel** (anticipated to include regional leaders with policy expertise)	Independent advisory panel, to be appointed by the County Executive but confirmed by the County Council, which would make recommendations to Executive and Council for next CSO Control Program Review. The panel would have facilitation and staff support.		If convened, this group would make recommendations for changes in CSO sequencing or integrated planning. Would ensure any changes to the recommended CSO project sequencing and timing maximize water quality benefits for the region. There would be significant value in having any major policy recommendations come from a transparent regional discussion. If the synthesis report does not suggest the possibility of significant changes to the CSO program, this Panel would not be convened.		$0: Low $225,000: Mid $450,000: High Dependent on level of effort required. (up to 1,800 staff hours over one year; $100-200K consultant cost. Range is dependent on the effort required based on relative significance of recommendations.)
6. **Outreach to Interested Parties** (ongoing communication, one-on-one meetings, web site, workshops, meeting presentations)	Provides a transparent stakeholder process, engaging interested parties for input on the scientific study, milestones, interim findings and conclusions.	Outreach to interested parties is a requirement of the CSO program review and plan update process.	The value of the WQA in terms of stakeholder involvement is that it provides a comprehensive review of data and allows for consolidated communication and engagement with interested parties throughout the data gathering process, so there is understanding and support for the findings.	$125,000-250,000 (2,000 staff hours over 3.5 years; less effort if findings and recommendations do not result in significant changes)	
Cost Category Subtotals:				**$1.5 million to $2 million**	**$620,000 to $1.2 million**
Combined Project Total Estimate:				**$2.1 million to $3.2 million**	

Project Schedule and RWQC Briefing Points

The WQA project has a narrow window to complete the science and technical study and produce a synthesis report to feed into the CSO program review in 2016. Effectively, work needs to be complete on the scientific assessment by the end of 2015. The following schedule illustrates the sequence of work so that the Executive Advisory Panel could deliberate in 2016.

The schedule shows points at which the Regional Water Quality Committee (RWQC) could be briefed during the project. It should be emphasized that in addition to periodic briefings of the technical work, the County Council (and RWQC) will have a role in determining the outcome of the study in late 2015, with its role in approving the Executive Advisory Panel. Any recommendations emerging from the assessment would be made by that body.

Water Quality Assessment and Monitoring Study Schedule



★ = Potential RWQC Briefing and Stakeholder Outreach points (e.g., workshops)

☆ = RWQC and Council Vote