Design Review Committee Briefing #35

Subject: Programmatic Risk Register and Contingency Updates

Date: August 19, 2020

The Issue

The City of Nampa allocated programmatic contingency during facility planning. The team has revisited the programmatic contingency and updated it based on recent developments. Programmatic contingency provides flexibility for capital programs during the design and construction phases to address unplanned work or circumstances. There are several standard methods for developing a programmatic contingency including percentage of total capital estimates (10–30 percent), risk register, and lessons learned from past projects. The goal of a programmatic contingency fund is the same regardless of method of development: ensure adequate funding for Phase II Upgrades that is reliable and sufficient to complete the planned work.

Background and Analysis

In the Facility Plan, the team decided to use a risk register approach to develop and update the programmatic contingency. A risk register is a summary of relevant project risks that have the potential to add costs to a project. Risks can also be used to pull uncertain capital costs from capital budgets and account for them in a programmatic contingency. An initial risk register was developed during the Facility Plan and has been maintained through the preliminary design process. This risk register was recently updated to reflect changes in the allocated and mitigated risk for Phase II Upgrades. Risks defined in the Facility Plan fit into five categories:

- Process Risks are related to wastewater characterization and industrial capacity.
- Regulatory Risks are related to permitting.
- Repair and Replacement Risks pertain to repair and replacement projects at the Nampa WWTP.
- Construction Risks are any risk related to the procurement, bidding, schedule, and physical construction of projects included in the Phase II.
- Policy risks are related to schedule slips caused by decisions related to funding, design schedule, or City caused delays that lead to capital cost estimates.

Most risks add costs to the overall project budget to account for potential events that may occur during the project. Some risks are “negative risk” values because they would represent benefits and cost savings to the project. For example, an increase in the discharge allowed for total phosphorus would result in a less costly technology to meet the requirements to reduce the capital cost of the program. These potential benefits have been accounted for in the risk register as well.

The table attached to this briefing shows the updated risk register. The table shows each risk, its potential impact (consequence), likelihood, risk category, and the approach to addressing the risk. It also describes the mitigation strategy for risks, when appropriate. The current risk total for the Phase II Upgrades is $13.9M.

Potential Consequences

Several trends are taking shape in changes from the 2019 risk register update to the 2020 risk register update.

- The overall project contingency has been reduced from $26.9M in the 2019 update (originally $19.3M from Facility Plan) to $13.9M.

- The City received the final Recycled Water Permit from IDEQ on January 21, 2020. Prior to receiving this permit several risks were being carried related to this permit. The potential for these risks has been significantly reduced with the final permit resulting in a reduction in the overall contingency.
- The cost for accelerating the recycled water program, which was originally capture as a benefit (i.e. negative risk), has been realized based on direction from the DRC and City Council. These costs are now included in the capital costs presented in DRC Briefing #34. This reduces the overall cost of the Program by eliminating the need for the Phase III Upgrades, but it also increases the overall contingency for the Phase II Upgrades because the potential benefit has been removed.
- The selection of the progressive design-build project delivery for Project Group F has mitigated large portions risks related to design conflicts, price inflation, and cost certainty. Some of the risks originally carried by the City for Project Group F, such as the risk of permit approvals, have been shifted to the design-builder through the procurement and contract negotiations. Others, such as the potential for change orders, has been reduced through the selection of the delivery method.
- Risks associated with the design of Project Groups D and E have largely been mitigated through the completion of the design and early construction efforts.

Recommendation

DRC briefing is intended to be informational to the Committee.

Programmatic Contingency Estimate							
Risk No.	Risk Overview	Impact	Probability	Category	Risk Strategy	Funded Contingency	Mitigation Strategy
1	Additional wastewater characterization data or peaking factors lead to lower capacity than expected.	$8,316,000	1%	Process	Accept - Funded	$83,160	Risk lowered from 5% to 1%. All current influent flow and loadings are within or below the range projected in the Facility Plan.
2	Changes in TASCO discharges result in need for additional carbon. (Reduce only carbon and not TKN)	$500,000	25%	Process	Accept - Funded	$125,000	Potential for a digester. This risk will carry through Project Group F or until further information is known from TASCO. Alternative mitigation strategy to partner with Mother Earth Brewing Company to increase carbon supply. Current risk will be carried until formal direction is determined.
3	Opportunity to buy remaining capacity from Simplot to offset need for capital improvements related to flow	-$20,000,000	40%	Process	Closed	$0	
4	Reduction in TN requirement for recycled water to 30 mg/L TN	-$2,758,000	100%	Regulatory	Closed	$0	TN limit of 30 mg/L issued in final Water Reuse Permit. Savings realized in elimination of mixed liquor pumps.
5	Reduction in TP requirement for discharge to 0.35 mg/L year-round	-$21,398,000	100%	Regulatory	Closed	$0	TP limit of 0.35 mg/L issued in final Water Reuse Permit. Original savings projections only assumed savings from filtration technology. Realized savings included in accelerated recycled water program.
6	Changes in NPDES permit result in need for additional unit processes	$41,032,000	1%	Regulatory	Accept - Funded	$410,320	
7	Inability to obtain recycled water permit results in need to build temperature facilities	$15,596,000	2.5%	Regulatory	Accept - Funded	$389,900	Water Reuse Permit Issued. Pending legal action will continue to be mitigated.
8	Changes in state, federal, or landfill requirements for Class B biosolids disposal result in implementing Class A	$25,225,000	2%	Regulatory	Accept - Unfunded	$0	
9	Issues identified during design require that Headworks is replaced (rather than equipment repaired)	$18,211,000	25%	Repair & Replacement	Accept - Funded	$4,552,750	Preliminary design efforts indicate higher likelihood of replacement (increased from 10% to 25%). Headworks replacement will be dependent on remaining budget following Project Group F completion and further investigated in preliminary design of Project Group G.
10	Issues identified during design require that Primary Clarifier #1 is replaced (rather than repaired)	$4,073,000	100%	Repair & Replacement	Accept - Funded	$4,073,000	Preliminary design efforts indicate higher likelihood of replacement (increased from 25% to 75%). PC No. 1 replacement will be dependent on remaining budget following Project Group F completion and further investigated in preliminary design of Project Group G.
11	Post Aeration Basin is replaced (rather than repaired)	$2,530,000	100%	Repair & Replacement	Mitigate - Funded	$0	New post aeration basin, and potential outfall relocation, included in Project Group F.
12	Issues identified during design require that Primary Sludge Pumps 1, 2, and 3 are replaced (rather than repaired)	$140,000	1%	Repair & Replacement	Accept - Funded	$1,400	Preliminary design efforts indicate higher likelihood of replacement (increased from 5% to 25%). Primary Sludge Pump replacement will be dependent on remaining budget following Project Group F completion and further investigated in preliminary design of Project Group G.
13	Issues identified during design require that Digester Mixing Pumps 1, 2, and 3 are replaced (rather than repaired)	$192,000	5%	Repair & Replacement	Accept - Funded	$9,600	
14	Owner requested changes (outside of current project scope) results in 10% increase in overall project price	$13,500,000	20%	Construction	Mitigate - Funded	$0	Selected Progressive Design Build delivery method to allow for "design to budget" approach. Likelihood of increasing budget due to Owner requested changes reduced as a result of this decision. City staff identified leaky air pipe as a potential new issue Spring 2020. Assumed replacement in Project Group F.
15	Underground utilities and conflicts increase overall construction costs by 10% (based on PGA data)	$13,500,000	10%	Construction	Accept - Funded	$1,350,000	Selected Progressive Design Build delivery method to allow for "design to budget" approach lowers probability from 25% to 10%.
16	Weather, construction sequencing, or other factors lengthen schedule and result in violations of NPDES permit	$450,000	5%	Construction	Mitigate	$0	Addressed through delivery method.
17	NPDES permit violations during construction as a result of process upsets, industrial inputs, construction sequencing or other factors.	$75,000	5%	Construction	Mitigate	$0	Addressed through delivery method.

18	Bidding climate (i.e. availability of trades, availability of GCs, etc.) at time of bid results in bid prices that are 10% higher than expected.	$40,500,000	5%	Construction	Accept - Funded	$2,025,000	Selected Progressive Design Build delivery method to allow for "design to budget" approach.
19	Delay in funding decision, delay in design schedule, or City caused delays results in shortened project schedule increasing overall project cost by 10%.	$13,500,000	5%	Policy	Accept - Funded	$675,000	Project funding has been completed. Project delivery and packaging approach has been selected. SRF loan has been secured for $165M.
20	Definition of requirements for Project Group E is not sufficient for Contract Documents.	$50,000	95%	Construction	Closed	$0	PGE under contract. Contingency currently not carried in Project
21	Definition of requirements for Project Group D is not sufficient for Contract Documents.	$50,000	95%	Construction	Closed	$0	PGD under contract. Contingency currently not carried in Project
22	Pumping challenges in Project Group B increase costs for Project Group F.	$250,000	95%	Construction	Accept - Funded	$237,500	
23	Permitting for pipeline (especially railroad permit) delay pipeline for recycled water	$328,500	25%	Construction	Mitigate	$0	Risk allocated to Design-Builder in Preliminary Risk Allocation Matrix
24	Permitting: Air Permit delays construction	$13,500,000	1%	Construction	Mitigate	$0	Mitigated by program team
25	Permitting: 404 Permit for canal discharge delays implementation of Recycled Water Program	$13,500,000	10%	Regulatory	Mitigate	$0	Risk allocated to Design-Builder in Preliminary Risk Allocation Matrix
26	Permitting: Building Department permits delay construction	$13,500,000	10%	Construction	Mitigate	$0	Risk allocated to Design-Builder in Preliminary Risk Allocation Matrix
27	Permitting: DEQ permit delays construction	$13,500,000	10%	Regulatory	Mitigate	$0	Risk allocated to Design-Builder in Preliminary Risk Allocation Matrix
28	Reuse Automation requirements delay implementation of Recycled Water Program	$13,500,000	10%	Regulatory	Mitigate	$0	Irrigation Automation Requirements currently in discussion with PID