



Design Review Committee Briefing #27

Subject: Programmatic Risk Register Updates

Date: August 9, 2019

Introduction

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 and III 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. This risk register was recently updated to reflect changes in the allocated and mitigated risk for Phase II/III 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 and Phase III Upgrades.
- 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 and Phase III Upgrades is \$26,869,000 and \$151,000, respectively. Figure 1 shows the result of updates to the risk register. Figure 2 shows changes for each risk category between the Facility Plan (2017) and now (2019).

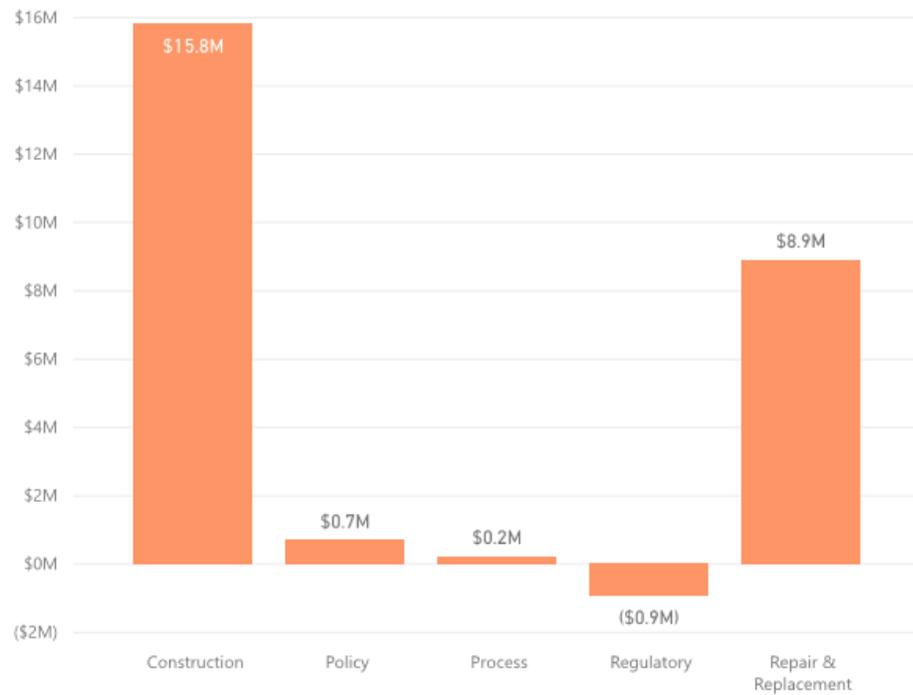


Figure 1. Updated program risk by category

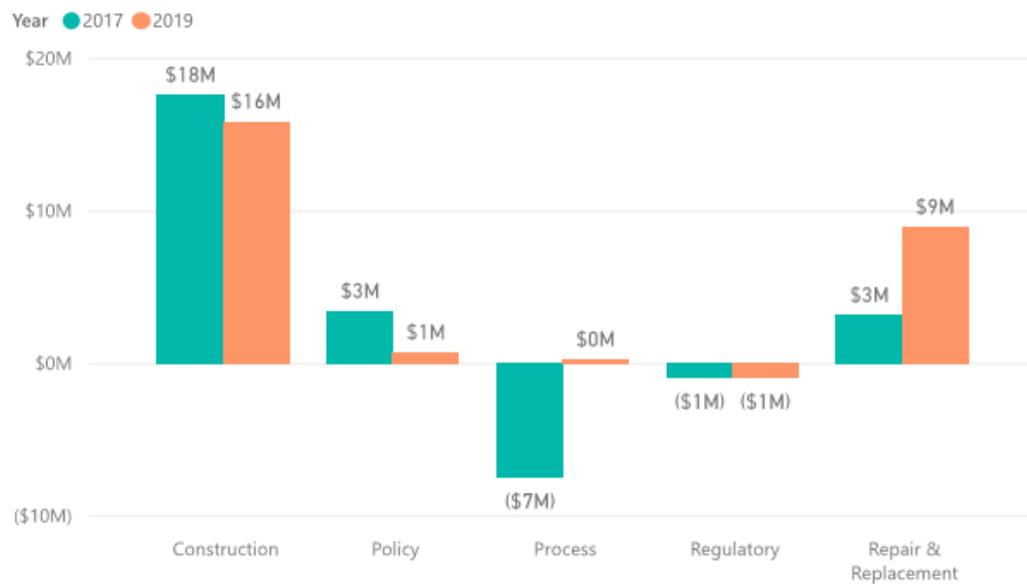


Figure 2. Changes in allocated programmatic contingency from 2017 to 2019 for each risk category

Potential Consequences

Several trends are taking shape in changes from the 2017 Facility Plan risk register to the 2019 risk register updates.

- Risk has been reduced in the construction, and policy categories. This is mainly attributed to the City's efforts to fund the project and the selection of progressive design-build as the delivery method for Project Group F. While the construction risk has been reduced it still represents the single largest risk category.
- The regulatory risk has remained unchanged since the initial development of the programmatic risk register. When the permit is finalized, the risks will be removed, and the capital costs will be updated to reflect the final limits.
- The repair and replacement category has increased by approximately \$6M. This is caused by the increased likelihood at the Headworks and Primary Clarifier #1 will require replacement rather than rehabilitation. Project Group G has been sequenced at the end of the Phase II Upgrades so that total available funding can be understood before these projects are started.

Recommendation

Risks will continue to be monitored and mitigated as work progresses on the Phase II Upgrades.

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	Checked current influent flow and loadings against the projections in the Facility Plan. All current influent flow and loadings are within or below the range projected in the Facility Plan. As such, risk probability has been lowered.
2	Changes in TASC0 discharges result in need for additional carbon.	\$500,000	25%	Process	Accept - Funded	\$125,000	Continue communication with TASC0 on status of decision for new facilities.
3	Opportunity to buy remaining capacity from Simplot to offset need for capital improvements related to flow	-\$20,000,000	0%	Process	Closed	\$0	Evaluated potential to purchase capacity. Expected cost does not justify this purchase.
4	Reduction in TN requirement for recycled water to 30 mg/L TN	-\$2,758,000	10%	Regulatory	Accept - Funded	-\$275,800	Conducted groundwater evaluation to justify higher TN limit in Recycled Water Permit application.
5	Reduction in TP requirement for discharge to 0.35 mg/L year-round	-\$21,398,000	5%	Regulatory	Accept - Funded	-\$1,069,900	Conducted surface water analysis to justify higher TP limit in Recycled Water Permit application.
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	5%	Regulatory	Mitigate	\$0	Project phasing will be planned around negotiations with DEQ and Pioneer.
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	City is pursuing opportunity for land application that would limit this risk further.
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	
10	Issues identified during design require that Primary Clarifier #1 is replaced (rather than repaired)	\$4,073,000	75%	Repair & Replacement	Accept - Funded	\$3,054,750	Perform site investigation/condition assessment on this structure.
11	Issues identified during design require that Post Aeration Basin is replaced (rather than repaired)	\$2,530,000	50%	Repair & Replacement	Accept - Funded	\$1,265,000	
12	Issues identified during design require that Primary Sludge Pumps 1, 2, and 3 are replaced (rather than repaired)	\$140,000	5%	Repair & Replacement	Accept - Funded	\$7,000	
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	Accept - Funded	\$2,700,000	Selected Progressive Design Build delivery method for Project Group F to limit risk of scope and budget creep.
15	Underground utilities and conflicts increase overall construction costs by 10% (based on PGA data)	\$13,500,000	20%	Construction	Accept - Funded	\$2,700,000	
16	Weather, construction sequencing, or other factors lengthen schedule and result in violations of NPDES permit	\$450,000	5%	Construction	Mitigate	\$0	Project sequencing will be considered throughout design process to limit risk. Also potentially addressed through delivery approach.
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	Project sequencing will be considered throughout design process to limit risk. Also potentially addressed through delivery approach.
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	25%	Construction	Accept - Funded	\$10,125,000	Coordinate with the design-build firm to identify strategies to limit risk.
19	Delay in funding decision, delay in design schedule, or City caused delays result in shortened project schedule increasing overall project cost by 10%	\$13,500,000	5%	Policy	Accept - Funded	\$675,000	
20	Definition of requirements for Project Group E is not sufficient for Contract Documents.	\$50,000	95%	Construction	Accept - Funded	\$47,500	Establish contingency fund in PGE Contract Documents to address changes after move-in occurs.
21	Issues with Project Group B increase design and construction costs for Project Group F.	\$250,000	95%	Construction	Accept - Funded	\$237,500	Review current PGB issues and refine expected costs.
22	Permitting for pipeline (especially railroad permit) delay pipeline for recycled water	\$328,500	25	Construction	Mitigate	\$0	Setup meeting with City Engineering to understand railroad permitting process.