South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment

Wastewater Program and Cost Estimate Update

Thursday, September 3, 2020

GoToMeeting

Workshop Agenda

1. Project Background and Justification
    1. 2017 Master Servicing Plan (MSP) Overview and Recommendations
    2. Projected Growth
    3. SNF WW Solutions Class Environmental Assessment
2. Cost Estimate
    1. Principles, Accuracy and Approach
    2. Class D Cost Estimate
3. Financial Review
    1. Scope comparison – MSP to EA
    2. Rate Impact Analysis
    3. Financial Considerations
    4. Operating Savings & Impact
4. Next Steps
5. Q & A

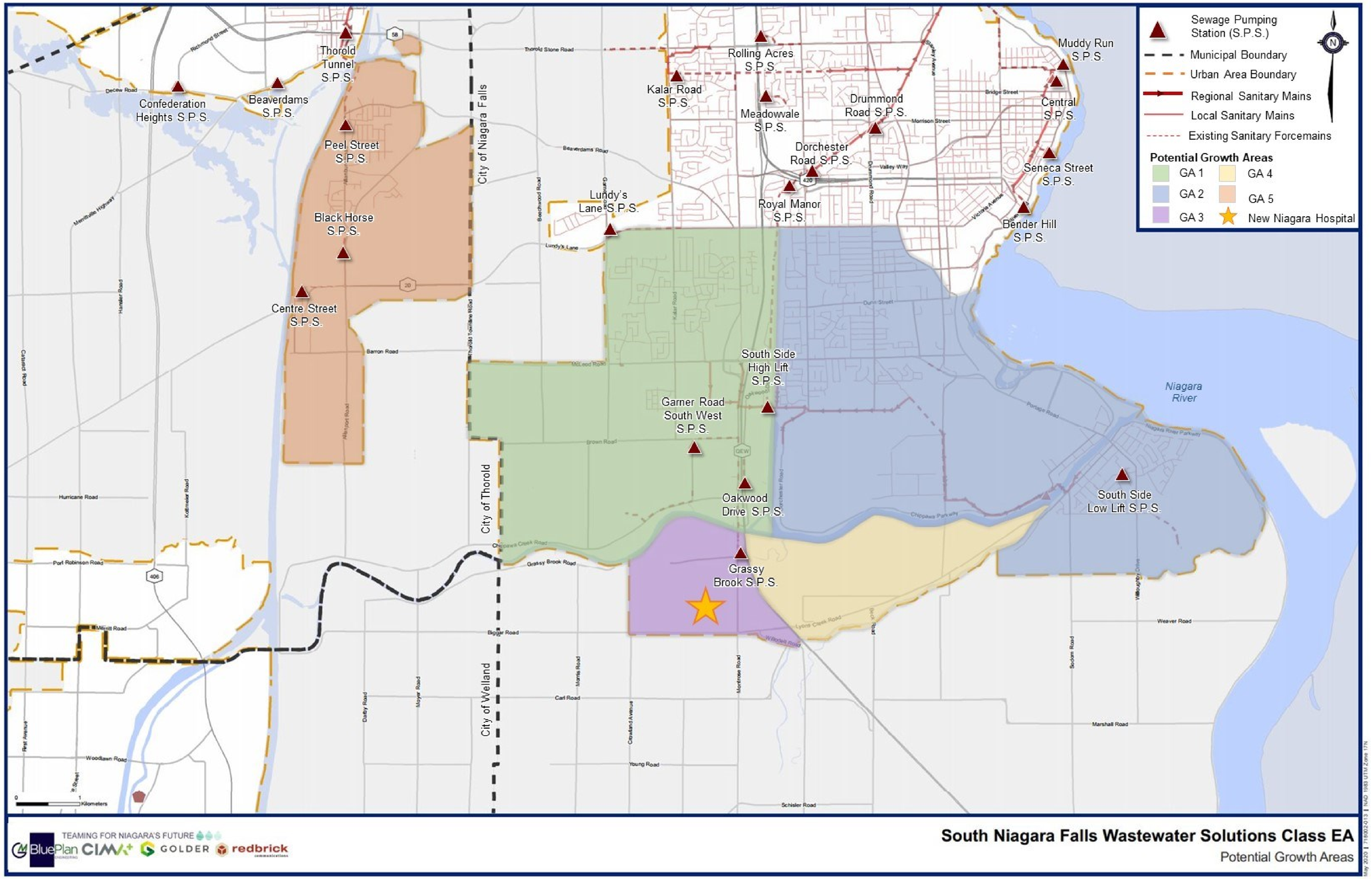
2017 MSP Overview and Recommendations

- 2041 growth projections were developed through the Municipal Comprehensive Review (MCR) process, approved by Council and utilized in the Master Servicing Plan (MSP) Update
- The MSP developed Region-wide servicing strategies and established the Niagara Falls strategy including the new WWTP
- Niagara Falls Strategy:
    - Go North vs New Plant
    - Rationale for selection (financial, technical feasibility of expanding existing system, development pressures/growth)
    - Foundation moving forward into Class EA
- Identified need for new South Niagara Falls Wastewater Treatment Plan (SNF WWTP)
- Recommended moving forward to Schedule C Class EA

Cost Benefit Validation

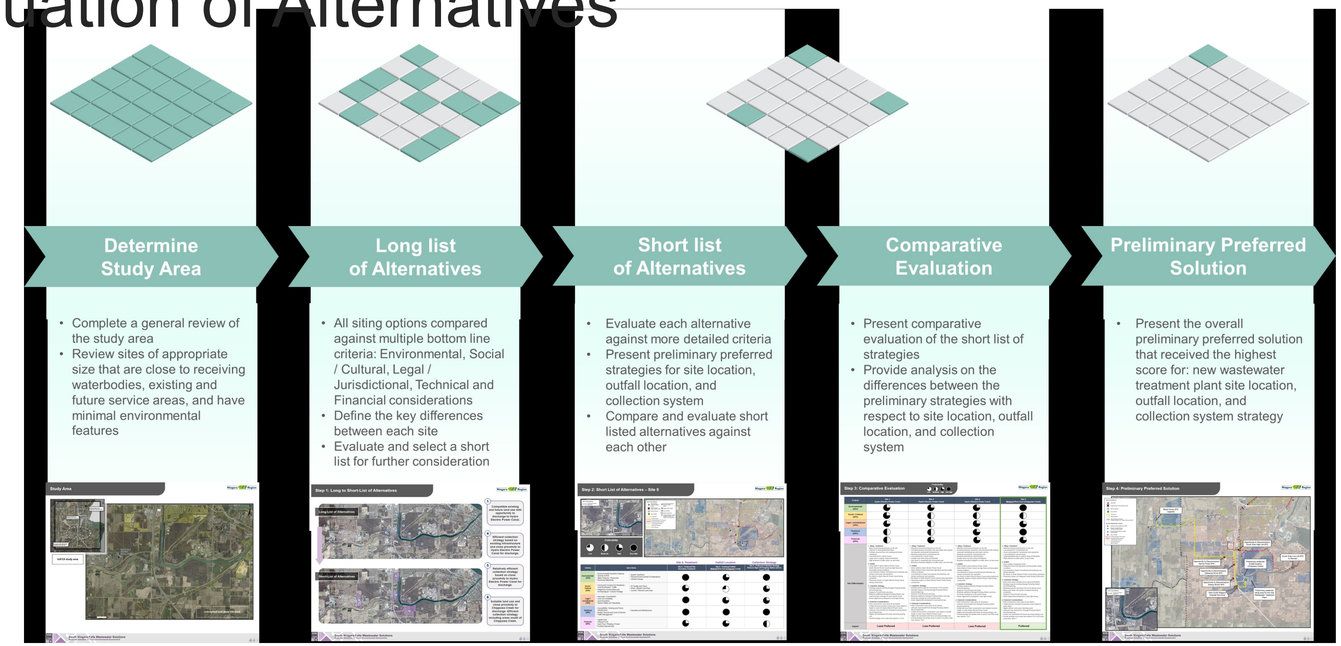
- MSP undertook a cost benefit evaluation of the Go North vs New Plant options
- New Plant was selected as preferred
    - Higher capital costs and higher lifecycle costs
    - Better financial risk management (capacity phasing, greenfield construction)
    - Greater flexibility and ability to service long term growth
    - More efficient and cost effective post period capacity
    - Avoids difficult and costly construction related to existing infrastructure within urban developed areas as well as site constraints at the existing Stanley Ave WWTP
- Class EA has validated the Cost Benefit Analysis

Projected Growth



SNFWWS Class EA Process Overview

- Pre-Consultation and Stakeholder Engagement
- 3 Public Information Centres (PICs) to date, 1 more anticipated in late fall 2020 or early 2021
- Extensive Development and Evaluation of Alternatives
  - Treatment Plant Site
  - Collection System Strategy
  - Outfall Location



- Presented Preliminary Preferred Solution to the Public on March 11, 2020
- Supported Preferred Solution – Moving forward with Design Concepts

SNFWWS Class EA Preferred Solution

Niagara Region

Servicing Options
- New SPS
- SPS to Decommissioned
- SPS to Remain
- New WWTP
- Forcemain
- Gravity Sewer
- Planned Growth to 2041 (Niagara Region 2017 Master Servicing Plan)

Existing Wastewater System
- Sanitary Pumping Stations (SPS)
- Region Combined Sewer Overflow (CSO) Outfall
- City Combined Sewer Overflow (CSO) Outfall
- Storm Outfall
- Existing Sanitary Forcemains
- Regional Sanitary Sewers
- Local Sanitary Sewers
- Combined Sewers
- Storm Sewers

Black Horse SPS to Remain

South Side High Lift SPS to Decommission

South Side Low Lift SPS to Remain

Garner Road SPS to Decommission

Oakwood Drive SPS to Decommission

Grassy Brook SPS to Decommission

Preliminary preferred Outfall location (Chippawa Creek)

Preliminary preferred siting area for the new Wastewater Treatment Plant

Preferred WWTP Site

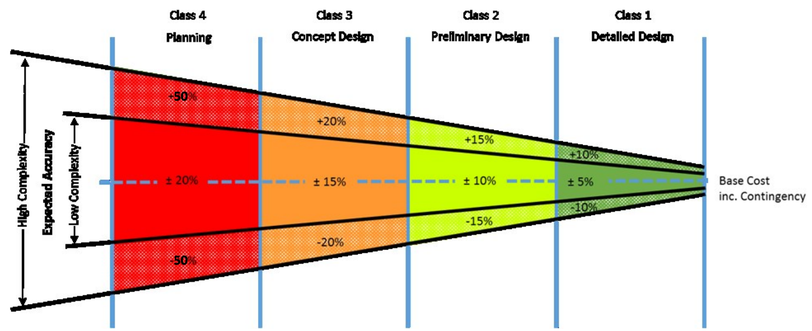
South facing view of the preliminary preferred site from George Bukator Park along Welland River East (Chippawa Creek).

Google Earth, 2018

Cost Estimation Principles and Accuracy

- Cost estimating accuracy will improve as a project moves through concept to design stages
- The MSP cost estimates are truly planning level and in some cases have limited information for costing
- Class EA cost estimates will start at planning/conceptual level in Phase 2 and will continue to improve in accuracy to conceptual/preliminary design level in Phase 3
- The Class EA process will result in complete refinement of the projects technically (design basis) as well as result in a more accurate budget level cost estimate

	Estimate Class	Estimate Class Description	End Usage / Major Deliverables	Accuracy Range (+/-)	
				Low Complexity	High Complexity
D	Class 4	Planning Cost Estimate	Concept Screening; justification for project planning funding. Minimum information requirements.	20	50
C	Class 3	Concept Design Cost Estimate	Basis for budgeting and approvals.	15	20
B	Class 2	Preliminary Design Cost Estimate	Used for project cost control during design; initial detailed estimate.	10	15
A	Class 1	Detailed Design Cost Estimate	Final cost review in preparation for construction; tender ready.	5	10



Cost Estimation Approach

- Unit rates
- Specific project review
- Reference to previous/ongoing Region projects
- Industry benchmark
- Include construction as well as internal/external engineering costs etc
- Contingency
- Current year dollars

Class D Cost Estimate

Project	Total Project Cost ($M)
New SNF WWTP (NF)	$ 192.7
New SNF WWTP Outfall (NF)	10.6
New South West Trunk Sewer - South Niagara Falls (NF)	85.3
New South West Trunk Sewer (NF/TH)	9.8
Black Horse Sewage Pumping Station (SPS) (TH)	4.4
Black Horse Forecemain (TH)	12.7
Peel Street SPS Upgrades and Forcemain (TH)	5.9
South Side High Lift Pumping Station Decommissioning (NF)	0.6
Garner, Oakwood, Grassy Brook SPS Decommissioning (NF)	1.1
McLeod Road Overflow Diversion (NF)	1.9
Total SNF Projects	**$ 325.1**

- Estimate developed in 2021$ then indexed to future year $
- Includes studies, engineering, internal, property and construction
- Strategy update results in some new post period development charge costs

SNFWWS Strategy Benefits

- The Class EA has established an optimized strategy that balances the needs for the plant, the outfall and collection system
- Meets the capacity needs for growth and addresses current limitations
- While costs have increased since the MSP, the long term strategy is enhanced and other efficiencies and cost savings have been gained
- The updated wastewater strategy that will provide improved level of service, enhanced ability to address wet weather flows, and greater flexibility for efficient servicing in the future
    - Incoming trunk sewer is at a depth to support servicing of broader growth areas including the Chippawa area
    - Trunk sewer is located to support future servicing east of the QEW, west of the QEW and other potential growth areas
    - Trunk sewer sizing will support managing wet weather flows to the plant (storage)
    - South Thorold infrastructure located to efficiently service future growth
- Reduction of existing Operation and Maintenance costs from SPS Decommissioning
- Reduction of Lifecycle costs (sustainability upgrades, major maintenance/rehabilitation/replacement) from SPS Decommissioning

Additional Class EA Tasks

- Currently completing Phases 3 and 4 of the Class EA
    - Undertaking more detailed investigations based on the preferred site and preferred collection strategy
    - Confirming Montrose Road or Oakwood Drive or OPG corridor for trunk sewer alignment
    - Completing more detailed environmental, cultural/heritage and archaeological investigations on the site and for the trunk sewer alignment
    - Completing more detailed geotechnical/hydrogeotechnical investigations on the preferred strategy
    - New archaeological information has come forward related to the site that will guide next steps
    - Confirming orientation of the facilities on the site as well as the outfall location at Chippawa Creek
    - Minimizing risk and surprises in next steps of implementation
    - Completing conceptual design by early 2021
- This will result in refinement of the strategy
- This will also result in another update to the program Cost Estimate in early 2021

Budget Implications

- The SNF capital projects and required debt financing can be accommodated within a 2% rate increase in 2021 with the following key strategies:
    - Temporary reduction in the transfer from operating to the WW capital reserves
    - Use of plant operations, maintenance and debt charge budget to fund pay as you go infrastructure until the plant is operational
    - 5.15% increase from 2022 – 2028 required to re-establish the transfers to capital reserves to $40 million from $21 million in 2020 to support the asset management plan

Cost/Scope Comparison

	2021 Estimate	2017 Estimate	Variance
Total Indexed Costs	$ 325.10 M	$ 236.80 M	$ (88.30) M

Total costs for the SNF WWTP as provided by GMBP have increased by **$88.3M** indexed. The primary reasons for the increase from the 2017 estimates are as follows:

- The trunk sewer estimated depth and length increased based on conceptual design information ($30 million)
- Increased property acquisition cost estimates ($12 million)
- Addition of tertiary treatment to plant ($23 million)
- Capital inflation rate of 4% per year dependent on timing of project cash flow/construction compared to 2% capital inflation rate used previously

Project Budgets and Funding

Project	Development Charge %	Cost: Total Project Cost	Cost: Previously Approved	Cost: 2021 Budget Request	Funding: External Funding	Funding: DCs (Debt)	Funding: Debt	Funding: Total
New SNF WWTP (NF)	65%	$ 192.7	$ (4.9)	$ 187.8	$ 108.0	$ 51.8	$ 27.9	$ 187.8
New SNF WWTP Outfall (NF)	65%	10.6		10.6		6.9	3.7	10.6
New South West Trunk Sewer - South Niagara Falls (NF)	70%	85.3		85.3		59.7	25.6	85.3
New South West Trunk Sewer (NF/TH)	85%	9.8		9.8		8.3	1.5	9.8
Black Horse Sewage Pumping Station (SPS) (TH)	85%	4.4		4.4		3.7	0.7	4.4
Black Horse Forcemain (TH)	85%	12.7		12.7		10.8	1.9	12.7
Peel Street SPS Upgrades and Forcemain (TH)	85%	5.9		5.9		5.0	0.9	5.9
South Side High Lift Pumping Station Decommissioning (NF)	50%	0.6		0.6		0.3	0.3	0.6
Garner, Oakwood, Grassy Brook SPS Decommissioning (NF)	50%	1.1		1.1		0.6	0.6	1.1
McLeod Road Overflow Diversion (NF)	50%	1.9		1.9		0.9	0.9	1.9
Total SNF Projects		**$ 325.1**	**$ (4.9)**	**$ 320.2**	**$ 108.0**	**$ 148.2**	**$ 64.0**	**$ 320.2**

(NF) - Niagara Falls
(TH) - Thorold

Debt **$212.20**

- A key assumption in the funding of the SNF WWTP is the estimated $108M of external funding
- The remaining $212.2M of funding will come from Debt and Development Charges; future DC's will help fund a portion of the debt servicing cost

Impact on W/WW Financial Plan

The W/WW Financial Plan (W/WW FP):

- Was endorsed by Council in 2019
- Recommended an annual rate increase of 5.15% for 10 years; this rate was approved in 2019 and 2020
- CSD 41-2020 Budget Planning strategy is a 2% rate increase for 2021 due to the impacts of COVID-19

Debt/Reserve Impacts

- Debt Issued may impact the S&P Ratio
  - Consolidated Region Debt - $695.5M (Region - $379.5M, LAM - $316.4M)
  - End of Q2 2020 - $273.3M of Regional unissued debt
  - Increase in debt from 2019 W/WW FP - $224.1M

- A reduction in transfer to reserves is required to fund debt from 2021 – 2024
  - 2020 WW Capital Reserve transfer – $21M
  - 2021 estimated WW Capital Reserve transfer - $12.8M

- The project is contingent on grant funding in order to proceed with “Phase 2” capital budgets which include all project costs not related to design or land acquisition

2021 Initiation of Funds

- Recommendation to initiate the following capital projects in 2021:

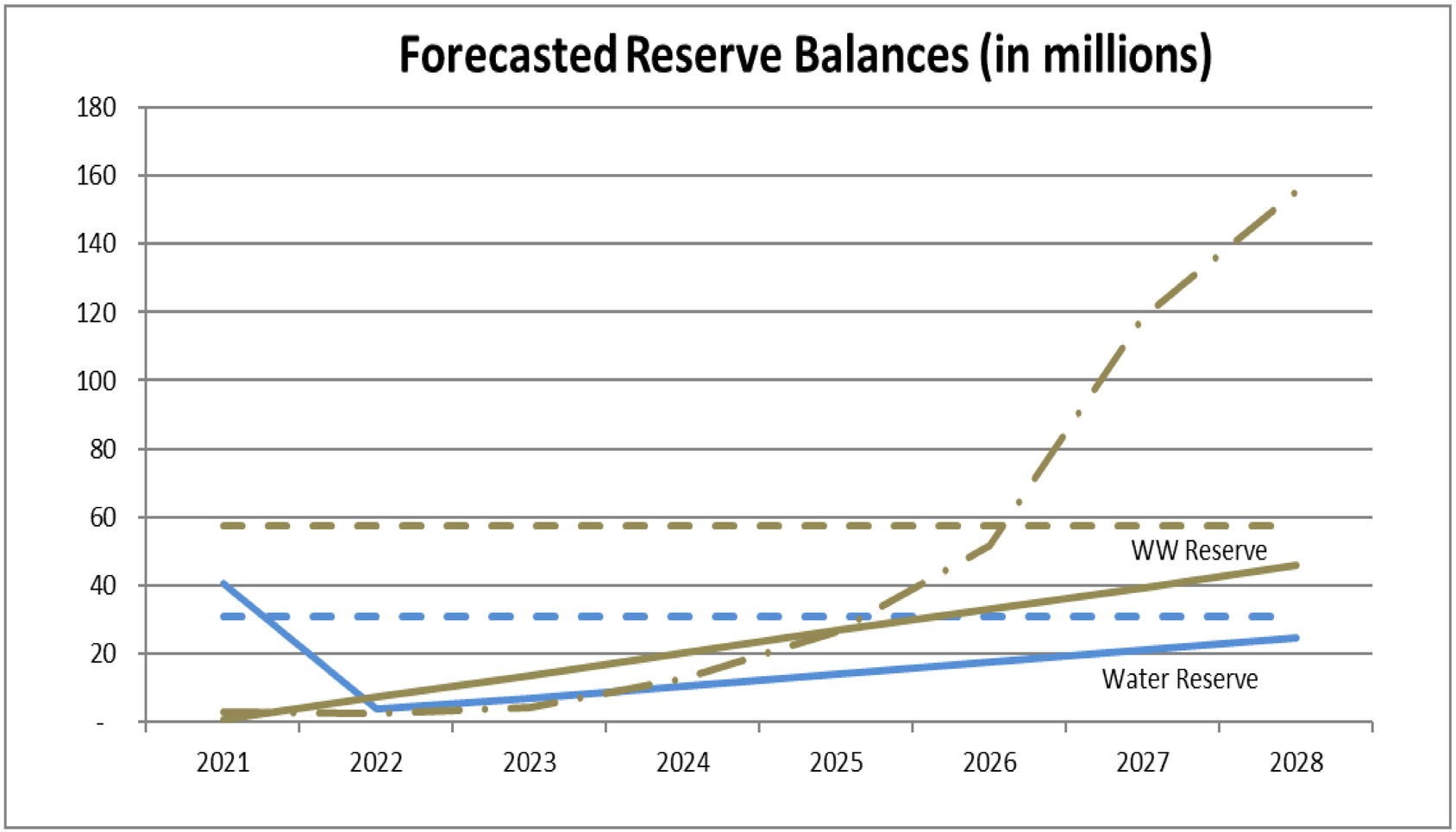
Project	2021 Action	Initiated Budget
SNF WWTP	Land acquisition and design	$26,176,240
New SNF WWTP Outfall	Design	$780,400
New South West Trunk Sewer	Design	$6,264,011
Black Horse SPS	Land acquisition	$600,000
Total		**$33,820,651**

- Further initiation of capital budget for “Phase 2” components would be done when external funding is confirmed

Changes to Financial Plan – Operating Impacts

Description	Original Financing Strategy	Updated Financing Strategy	Variance	Notes
Annual Debt Charge Budget (net of DC recovery)	N/A	$12.5M Issued Debt ($8.7)M DC Recovery $3.8M Net Debt Charge	($3.8M)	• Original W/WW FP did not require debt; adequate reserve contributions would have been established by construction (2025) • Updated Plan issues debt including debt to fund DCs not collected • Net impact is an increased Debt Charge of $3.8M
Transfer to WW capital	$21M	$12.8M	$8.2M	• Target - **$74M** • Reduction required to offset debt charges and operating impacts of SNF projects and 2% budget strategy
Annual Operating, maintenance and lifecycle costs	N/A	$6M	($6M)	• Includes operational, maintenance, staffing costs associated with SNF projects • Includes FTE $ to operate and maintain plant
Annual Operating Savings	N/A	($.77M)	$.77M	• Savings associated with decommissioning of sewage pumping stations • Net operational impacts = $5.23M

Forecasted W/WW Reserve Balances



- 2019 W/WW FP forecasted reserve balance of **$152 M** in 2028
- Revised WW forecasted reserve balance of **$46 M** in 2028
- Target - **$56 M**
- Annual contributions to reserve in 2028 - **$40 M** (2019 W/WW FP- **$50 M**)

Key Considerations

- Ensuring clarity on cost estimating:
    - Current year dollar estimates
    - Indexed future year dollar estimates
    - Clarity on how these estimates are accounted for in budgeting, rates, development charges
- Acknowledge potential changes in scope / costs moving forward through the Class EA process and subsequently the detailed design process
- Further development and mitigation of project risks
- Commitment to the full program budget

Class EA Process Next Steps

Schedule:

Today: Public Information Centre No. 3 (Present preliminary preferred plant site, outfall location and collection strategy)

Spring / Summer 2020: Validate preferred solution and work through conceptual design

Fall 2020/Early 2021: Public Information Centre No. 4 (Select preferred design concept)

Early 2021: Environmental Assessment completion

2022: Post EA - Design & Construction

2027: Post EA - Estimated plant in-service date