Exhibit A

TETRA TECH

Technical Memorandum

Date:	February 15, 2019		
To:	Greg Zentner and Steve Ogle, Washington Department of Ecology Leana Kinley and Eric Hansen, City of Stevenson		
Cc:	File		
From:	Hunter Bennett-Daggett, P.E., Tetra Tech Katy Isaksen, KI&A	***Reviewed by:***	Jim Santroch, P.E., Tetra Tech Cynthia L. Bratz, P.E., Tetra Tech
Project:	Additional Wastewater Alternatives Analysis	***Project Number:***	200-48600-19001
Subject:	Amendment to Stevenson 2017 General Sewer Plan and Wastewater Facilities Plan Update		

This Amendment revises the 2017 *City of Stevenson General Sewer Plan and Wastewater Facilities Plan Update* (the GSP), which was approved by the Washington Department of Ecology (Ecology) in December 2017. The majority of the GSP is unchanged, and as directed by Ecology, the Amendment is limited to summaries of the following:

- Results of additional significant industrial user (SIU) sampling that the City of Stevenson conducted in 2018
- Revisions to flow and load projections, based on additional sampling and permit compliance data
- Workshops conducted by City to evaluate alternative options for wastewater treatment improvements
- Changes made by the City Council to the GSP's recommended plan for wastewater treatment improvements
- An updated financial program for implementing the recommended plan

BACKGROUND

The GSP was submitted to Ecology in November and approved in December 2017. It recommended a major upgrade to the City's wastewater treatment plant (WWTP) and a series of upgrade projects for the City's wastewater collection system. Design of these improvements was scheduled to begin in 2018. However, the cost of the scheduled improvements was a major concern to the City and the public. Public meetings held during the GSP preparation had indicated a desire to gather more data about the impact of wastewater discharged by SIUs and the possible availability of lower cost wastewater treatment options.

In June 2018, the City partnered with Skamania County's Economic Development Council and InfrastructureNEXT to conduct a value planning charrette. The charrette assembled community leaders and stakeholders to review Stevenson's wastewater treatment challenges, identify criteria for success, and generate additional wastewater alternatives with the hope of achieving regulatory compliance at a reduced cost.

Following the charette, the City hired Tetra Tech to evaluate these additional wastewater alternatives and incorporate the findings into the GSP. The City currently has a self-imposed moratorium on new industrial wastewater discharges with greater than residential strength, and a central objective of the alternatives analysis was to find a way to bring the WWTP into permit compliance without implementing the full WWTP improvement project. This would allow the City to remove the moratorium on a faster schedule while also

15350 SW Sequoia Pkwy, Suite 220, Portland, OR 97224
Tel 503.684.9097 **Fax** 503.598.0583 **tetratech.com**

postponing the more expensive WWTP upgrades. This Amendment document is the result of the analysis of alternatives to achieve that objective.

ADDITIONAL SAMPLING

Starting in early 2018, the City worked with Wallis Engineering and the SIUs to develop a plan for collecting additional data about wastewater discharged by SIUs. Samples were collected during June and July at four sites: LDB Beverage, Walking Man Brewing, Skamania Lodge, and the waterfront building that houses Backwoods Brewing and Skunk Brothers Distillery. Wastewater flows were estimated in gallons per day (gpd) using water use and a consumption factor agreed to with each SIU to estimate the portion of water consumed or shipped off-site. The estimated flows were used to calculate biochemical oxygen demand (BOD) and total suspended solids (TSS) loading in pounds per day (ppd) for each SIU. Table 1 summarizes the sampling results, as well as loading and flow results at the WWTP for the same period, based on Discharge Monitoring Report (DMR) data.

Table 1. June-July 2018 SIU Sampling Results

	BOD Loading (ppd)			TSS Loading (ppd)			Flow (gpd)		
Discharger	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum
Waterfront Bldg. (Backwoods/Skunk Bros.)	15	279	655	3	69	282	2,181	6,069	13,076
Walking Man	0	20	64	0	4	14	38	1,084	2,976
LDB Beverage	3	134	380	4	33	102	3,411	10,054	28,499
Beverage Industries Combined	***18***	***434***	***1,099***	***7***	***106***	***397***	***5,630***	***17,208***	***44,550***
Skamania Lodge	42	82	141	16	45	103	27,646	38,612	49,615
Significant Industrial Users Combined	***60***	***516***	***1,240***	***23***	***152***	***501***	***33,276***	***55,819***	***94,165***
WWTP	**654**	**989**	1,596	**496**	**897**	1,334	**85,000**	**121,313**	169,000

Comparison of the 2018 sampling data to SIU sampling data collected in 2016 shows that SIU discharges changed significantly during that two-year period. Table 2 compares BOD loading and flow in 2016 to the same results for 2018. During this period, Skamania Lodge modified its method of disposing of food waste and implemented new water conservation methods, and as a result its BOD loading was reduced by almost two-thirds and its flow by one-third. Walking Man Brewing also modified its operations, per brewing industry best management practices (BMPs) and reduced its flow and loading. However, LDB Beverage and the Waterfront Building tenants grew significantly, and any process improvements they made were outweighed by this growth. Loading from the Waterfront Building increased by almost four times from 2016 to 2018. The 2018 data confirm that the beverage industry SIUs represent a significant portion of the WWTP's loading.

Table 2. SIU Sampling Data 2016 to 2018 Comparison

	Average BOD Loading (ppd)		Average Flow (gpd)	
Discharger	September 2016	June-July 2018	September 2016	June-July 2018
Waterfront Bldg. (Backwoods/Skunk Bros.)	69	279	2,646	6,069
Walking Man	51	20	2,195	1,084
LDB Beverage	105	134	5,187	10,054
Beverage Industries Combined	***225***	***434***	***10,028***	***17,208***
Skamania Lodge	223	82	61,043	38,612
Significant Industrial Users Combined	***448***	***516***	***71,071***	***55,819***
WWTP	**903**	**989**	**115,000**	**121,313**

REVISIONS TO FLOW AND LOAD PROJECTIONS

The flow and load projections developed for the GSP were updated in December 2018 to incorporate the new SIU sampling results and better match the current DMR data. The following revisions were made:

- Previous projections assumed greater near-term residential growth due to new developments that were in progress in 2016. Actual growth of occupied units has been slower than anticipated, so the 534 equivalent residential units (ERUs) projected for 2018 in the GSP was reduced to 507 ERUs.
- Beverage industry flow has grown faster than projected, so the GSP's estimate of 86 ERUs for the beverage industry in 2018 was revised to 156 ERUs.
- BOD loading to the WWTP has grown faster than flow since 2016. Adjustments were made to both flow and load data to align with DMR data. Then these adjusted 2019 numbers were used as the baseline for projections.
- BOD loading rates for Skamania Lodge and the "other commercial/public" category of users were adjusted to 0.26 pounds per day per ERU (ppd/ERU) and 1.50 ppd/ERU, respectively. Previously both categories were assumed to be equivalent to the assumed 0.44 ppd/ERU loading from residential ERUs, so this adjustment was made to better align with current DMR data.
- The GSP's BOD peaking factors for the beverage industry were based on a small set of samples. These have been adjusted based on the additional samples collected during 2018. Maximum-month peaking factor was reduced from 2.3 to 1.7, and peak-day peaking factor was reduced from 5.0 to 2.6.

Table 3 shows the updated flow and load projections. The corresponding tables from the 2017 GSP that these updated tables replace are referenced as footnotes to each table. Note that the load projections are given for levels of pretreatment that were identified during the alternatives analysis; these differ from the pretreatment levels uses in the GSP's load projections. The updated pretreatment alternatives are discussed in the following section.

Table 3. Updated Flow Design Conditions

Parameter	Base (Dry Weather Average)			Maximum Month			Peak Day			Peak Hour		
	2019	2025	2040	2019	2025	2040	2019	2025	2040	2019	2025	2040
Flow (million gallons/day)	0.129	0.147	0.187	0.492	0.539	0.657	1.34	1.44	1.70	2.01	2.17	2.54
BOD (ppd)												
No Pretreatment	1,050	1,401	1,854	1,564	2,137	2,859	2,729	3,642	4,820	n/a	n/a	n/a
Low Effort BMPs	806	1,014	1,303	1,149	1,479	1,923	2,095	2,636	3,388	n/a	n/a	n/a
Low Effort BMPs and Equalization	736	903	1,146	1,031	1,291	1,656	1,914	2,349	2,979	n/a	n/a	n/a
Medium BMPs and Equalization	691	832	1,045	955	1,170	1,484	1,798	2,164	2,716	n/a	n/a	n/a
TSS (ppd)												
No Pretreatment	1,050	1,401	1,854	1,564	2,137	2,859	2,729	3,642	4,820	n/a	n/a	n/a
Low Effort BMPs	806	1,014	1,303	1,149	1,479	1,923	2,095	2,636	3,388	n/a	n/a	n/a
Low Effort BMPs and Equalization	736	903	1,146	1,031	1,291	1,656	1,914	2,349	2,979	n/a	n/a	n/a
Medium BMPs and Equalization	691	832	1,045	955	1,170	1,484	1,798	2,164	2,716	n/a	n/a	n/a

Note: This table replaces Table 2-10 from the 2017 GSP.

ANALYSIS OF ADDITIONAL WASTEWATER ALTERNATIVES

City staff worked with Tetra Tech to conduct two wastewater alternatives evaluation workshops in December 2018 and January 2019, attended by stakeholders from the SIUs and the community. The first workshop evaluated a wide range of possible options, including satellite pretreatment at the waterfront area for the beverage industry or on the west side of the City to serve Skamania Lodge and new residential growth. Small-scale upgrades at the WWTP were also included. At the completion of the first workshop, the following alternatives had been identified for further investigation:

- Use of BMPs at the beverage industry discharger facilities
- On-site pretreatment of beverage industry wastewater at the waterfront before discharge to the City collection system
- Primary filtration at the WWTP
- Installation of a selector basin at the WWTP oxidation ditch to provide a higher influent BOD loading limit

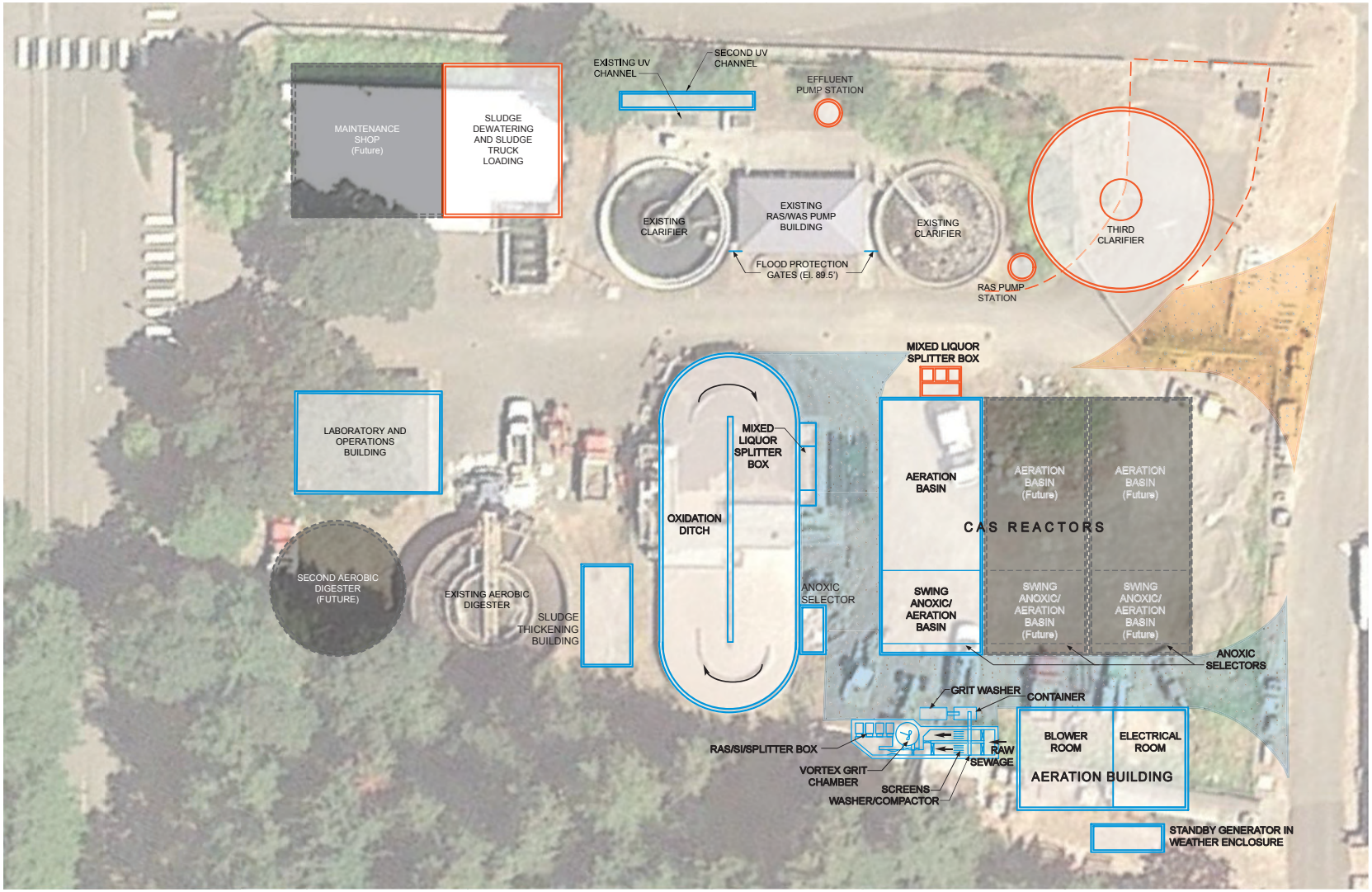
Tetra Tech evaluated the cost and the projected BOD loading reduction of each alternative, using a 5-year planning horizon with year 2024 as a reference date. BMPs were divided into tiers of low effort (pH adjustment and side streaming of concentrated waste products), flow equalization (two average days of capacity), and medium effort (side streaming waste product and screening all discharges). Each tier was assumed to include the previous tiers.

The cost-effectiveness of each alternative was assessed by calculating the cost per pound of BOD. Low-effort BMPs and selector basins were found to be the most cost-effective alternatives. However, no alternative or combination of alternatives was found to sufficiently reduce the projected 2024 maximum-month influent BOD of 2,092 ppd to the permit limit of 612 ppd.

At the second workshop, the results of the alternatives analysis were presented to the stakeholders. As the cost of the WWTP upgrades are a major concern to all stakeholders, the option of phasing the WWTP upgrades was discussed. At the conclusion of the workshop, the stakeholders voted to recommend that the City Council require low-effort BMPs at beverage industry dischargers and proceed with phased upgrades to the WWTP. This approach was approved by the Council and presented to the public in January 2019.

REVISED RECOMMENDED PLAN

The City Council voted to revise the recommended plan to a phased version of Alternative 1B from the 2017 GSP, as shown in Figure 1.



LEGEND

- Phase 1 Upgrades
- Phase 2 Upgrades
- Phase 3 Upgrades
- New Access Road/Pavement (Phase 1)
- New Access Road/Pavement (Phase 2)
- Existing Driveway to Be Abandoned in Phase 2

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0 7.5' 15' 30'
SCALE: 1" = 30'

Alt1B_wPhasing.ai

TETRA TECH
www.tetratech.com
15350 SW Sequoia Parkway, Suite 220
Portland, OR 97224

CITY OF STEVENSON, WA
GENERAL SEWER PLAN UPDATE

RECOMMENDED ALTERNATIVE 1B
WITH PHASED IMPLEMENTATION

Project No.: 200-48600-19001
Date: JANUARY 2019
Designed By:

Figure 1

Bar Measures 1 inch

The first phase of construction will include the following improvements:

- **Headworks**—Fine screen; washer compactor; grit chamber; grit pump and classifier; shed for equipment
- **Secondary Treatment**—Second aeration basin with selector basin; selector basin for existing oxidation ditch; blowers and blower building
- **Disinfection**—Second UV channel and equipment
- **Solids handling**—Thickeners and pumps; new building
- **Support facilities**—Lab and operations building; standby generator; electrical and control facilities; instrumentation; SCADA upgrade
- **Flood protection**—Site modifications for flood protection

Phase 2 is expected to be required between 2030 and 2040, depending on City growth, particularly the growth of the beverage industry. The effectiveness of BMPs in reducing loading from SIUs will be a major factor in determining how soon the second phase is required. Phase 2 will include the following improvements:

- **Secondary Treatment**—Third secondary clarifier; RAS pump station and splitter box
- **Solids handling**—Dewatering screw press and support equipment; new building
- **Effluent pumping**—Pump station

Planning level cost estimates for Alternative 1B were updated to incorporate the recommended phasing and escalate costs to 2019 dollars, as shown in Table 4. The GSP evaluated two alternatives for improving the Stevenson WWTP: Alternative 1B provided WWTP improvements needed if minimal pretreatment were provided for wastewater from SIUs; Alternative 2 provided improvements needed if SIU wastewater were pretreated to domestic strength. Alternative 1B was selected as the recommended alternative in the GSP due to its higher treatment capacity at the WWTP site and ability to accommodate smaller offsite pretreatment facilities. The 2019 alternatives analysis took a new look at varying levels of pretreatment at the SIUs and concluded that minimal pretreatment (low-effort BMPs) would be more cost-effective than pretreatment to domestic strength. The selection of Alternative 1B is supported by the conclusions of the alternatives analysis, so costs associated with Alternative 2 have not been updated for this Amendment. The capital improvement plan, shown in Table 5, was updated to reflect the modified costs and schedule. The collection system improvements shown have been updated to escalate costs to 2019 dollars.

Table 4. Updated Planning Level WWTP Cost Estimates – Alternative 1B Phase 1

Component	Capital Project Cost	Annual Operation & Maintenance Cost	20-Year Present Worth
Headworks	$1,998,000	$49,104	$3,079,000
Secondary Treatment	$2,382,000	$118,903	$7,377,000
Disinfection	$1,164,000	$26,599	$1,634,000
Solids Handling	$1,886,000	$177,711	$8,020,286
Support Facilities	$3,293,000	$84,605	$8,594,000
Flood Protection	$215,000	$1,771	$246,000
WWTP Mgt Tasks		$68,640	$1,214,056
Lab Labor		$102,960	$1,821,084
Pretreatment Program Labor		$68,640	$1,214,056
WWTP Total	**$10,938,000**	**$698,933**	**$34,162,482**

Note: This table replaces Table 8-4 from the 2017 GSP.

Table 5. Updated Capital Improvements Plan for the Recommended Alternatives

Item	2019	2020	2021	2022	2023
Wastewater Treatment Plant Improvements (Alt 1B, Phase 1)	$521,000	$521,000	$2,121,000	$7,776,000	
Rock Creek Pump Station (PS-01)	$61,000	$61,000	$249,000	$913,000	
Fairgrounds Pump Station – Phase 1 (PS-02)	$6,000	$6,000	$23,000	$84,000	
Cascade Pump Station – Phase 1 (PS-05)				$4,000	$35,000
Cascade Avenue Sewer – Phase 1 (S-01)				$44,000	$413,000
Kanaka Pump Station – Phase 1 (PS-04)				$73,000	$697,000
Cascade Interceptor - Rock Cr PS to MH CI-4 (S-02)				$67,000	$641,000
Total	**$588,000**	**$588,000**	**$2,393,000**	**$8,961,000**	**$1,786,000**

Note: This table replaces Table 9-4 from the 2017 GSP.

UPDATED FINANCIAL PROGRAM

On the financial side, it is clear to the City that significant changes were necessary to be able to afford the improvements recommended in the GSP and subsequently the updated capital improvements plan shown in Table 5. The City has been evaluating and implementing changes to the financial program in terms of rates and fees to allow for increased maintenance and operations of the system to come into compliance.

Program Changes Already in Place

Increased Monthly Sewer Rates

The City Council adopted multi-year water and sewer rate increases for 2018 and 2019 (Ordinance No. 2017-1112):

- The 2017 single-family residential sewer rate of $29.95 was increased to $44.93 for 2018 and $58.41 for 2019.
- A new downspout/sump pump connection fee of $10.00 per month was established to encourage property owners to disconnect rain catchment and sump pumps from the sewer system.
- A new BOD surcharge was established with usage rates for non-residential connections with BOD strength higher than residential to help ensure they are paying their share.

Increased Sewer System Development Charges

The City Council updated the system development charge paid by new or upsized connections to the system, from $2,800 per ERU in 2017 to $5,607 per ERU in 2018-19 (Ordinance No. 2017-1109). The City has also redesigned when the connection fee is due and plans to update the fee for 2020 when the improvement costs are better known.

Continued Moratorium on Commercial Connections

The City continues the moratorium on accepting commercial applications for sewer connection. New residential sewer connections are allowed.

Maintenance & Operating Expenses

The City has significantly increased the maintenance and operating expenses for both the collection system and the WWTP plant:

- **Collection System**—The 2017 expense of $65,000 has grown to $385,000 in the 2019 budget. This includes additional staff time and efforts to reduce inflow and infiltration, etc.
- **WWTP Plant**—This includes both City time and contract operations at the plant. The 2017 expense of $217,000 has increased to $385,000 in the 2019 budget, including additional pretreatment and testing.

Continued Capital Spending on Wastewater Alternatives and Planning

The City has been investing in the process to make sure the implemented wastewater system improvements are the best fit for Stevenson.

Ecology State Revolving Fund Preconstruction Loan

The City has been approved for a State Revolving Fund preconstruction loan for design of the WWTP improvements in the amount of $1,985,000, with forgivable principal of $575,000 and the remaining loan at 2.0-percent interest with a 20-year repayment term (WQC-2019-StevPW-00044).

Wastewater Alternatives Evaluation

The wastewater alternatives evaluation process was funded by a Community Economic Revitalization Board planning grant of $50,000.

Median Household Income

Ecology estimates and publishes an updated list of median household income values (Appendix K of *SFY 2020 Water Quality Financial Assistance Funding Guidelines*). For 2019, the annual median household income for the City of Stevenson is $32,277. Escalating by 3.0 percent per year, the projected 2024 median household income is $37,418, or $3,118 per month. Monthly sewer rates of $155.90 in 2024 would be considered severe hardship (greater than 5 percent of median household income).

Six-Year Capital Improvement Funding

Funding for the six-year improvements continues to require borrowing from sources such as Ecology's State Revolving Fund (SRF) or the U.S. Department of Agriculture's Rural Development program. The 2019 City budget includes $25,000 in pay-as-you-go. The City is continuing activities to attract grant funding to make the improvements most affordable to the current ratepayers. The City has participated in the Infrastructure Assistance Coordinating Council (IACC) Conference in Wenatchee each year and has had a "Funding Tech Team" meeting at the conference to receive additional guidance on securing funding.

The following funding groups were developed for the financial plan:

- 2019 City budget group—Pay-as-you-go and included in the City's budget.
- Funding Group 1—Design and preconstruction of the WWTP improvements, including the Rock Creek and Fairgrounds Pump Stations, which are connected with the plant. The City has been approved for this loan from Ecology.
- Funding Group 2—Construction of the WWTP improvements and the Rock Creek and Fairgrounds Pump Stations. The City would plan to apply in 2020.
- Funding Group 3—Completion of the recommended six-year improvements for the collection system. These are scheduled when the WWTP improvements are complete. At less than $7 million, this group would be eligible for a Step IV design and construction loan from Ecology.

Table 6 lists the recommended improvement projects by years and groups the projects for funding. The annual CIP costs are escalated by 4.0 percent per year to reflect the anticipated increase in construction costs. The six-year capital improvement funding need is $15,982,000 in escalated dollars.

Table 6. Six-Year Capital Improvements

Six-Year Sewer Capital Improvements	2019	2020	2021	2022	2023	2024
2019 City Budget						
2019 Sewer Capital Budget	25,000					
Funding Group 1						
Wastewater Treatment Plant Improvements	521,000	521,000				
Rock Creek Pump Station	61,000	61,000				
Fairgrounds Pump Station – Phase 1	6,000	6,000				
Funding Group 2						
Wastewater Treatment Plant Improvements – Phase 1			2,121,000	7,776,000		
Rock Creek Pump Station			249,000	913,000		
Fairgrounds Pump Station – Phase 1			23,000	84,000		
Funding Group 3						
Cascade Pump Station – Phase 1				4,000	35,000	
Cascade Avenue Sewer – Phase 1				44,000	413,000	
Kanaka Pump Station – Phase 1				73,000	697,000	
Cascade Interceptor - Rock Cr PS to MH CI-4				67,000	641,000	
Total CIP by Year ($2019)	***613,000***	***588,000***	***2,393,000***	***8,961,000***	***1,786,000***	**—**
Total CIP by Year (Escalated @ 4%/year)	***613,000***	***612,000***	***2,588,000***	***10,080,000***	***2,089,000***	**—**
Total Six-Year CIP (Escalated)			**15,982,000**			

Note: This table replaces Table 10-5 from the 2017 GSP.

The CIP funding sources are shown in Table 7. In order to be conservative, the loan amounts are shown as if no grants are received. Any grants received would reduce the amount to be borrowed. The total six-year CIP funding sources equal $15,982,000 for the period 2019-24.

Table 7. Six-Year CIP Funding Sources - Without Grants

CIP Funding Source	2019	2020	2021	2022	2023	2024
Sewer Budget	25,000					
Ecology Loan 1 - WWTP Design	588,000	612,000				
Ecology Loan 2 - WWTP Construction			2,588,000	9,869,000		
Ecology Loan 3- Pump Stations, Cascade Avenue				211,000	2,089,000	
Total CIP Funding Sources by Year	613,000	612,000	2,588,000	10,080,000	2,089,000	—
Total CIP Six-Year Funding Sources	**15,982,000**					

Note: This table replaces Table 10-6 from the 2017 GSP.

New annual debt payments were estimated without grants and with $3 million in grants, as shown in Table 8. The annual debt service for three new loans to complete the recommended six-year CIP is estimated to be $1,032,600 without grants. With $3 million in grants, the annual debt service would be reduced to $840,100, for an annual savings of $192,500. The City continues to pursue potential grants.

Table 8. Estimated New Annual Debt Payments – With and Without Grants

New CIP Estimated Debt Payments	2019	2020	2021	2022	2023	2024
Ecology Loan 1[a]			86,000	86,000	86,000	86,000
Ecology Loan 2[b]					799,100	799,100
Ecology Loan 3[b]						147,500
Est. New Debt Payments - Without Grants			86,000	86,000	885,100	1,032,600
Est. New Debt Payments - With $3 Million Grants			**86,000**	**86,000**	**692,600**	**840,100**

a. Current State Revolving Fund design loan approved for $1,985,000; repayment includes $575,000 forgivable principal, 2.0% interest.
b. Future debt payments assume 20-year loan at 2.5% interest
Note: This table replaces Table 10-7 from the 2017 GSP.

The City has been approved for a preconstruction loan (Ecology Loan 1; WQC-2019-StevPW-00044) in the amount of $1,985,000. Based on Ecology's definition of hardship for preconstruction projects, the City was offered $575,000 in forgivable principal, with a 2.0-percent interest rate over 20 years. If the City were to borrow the full amount, the annual debt service would be $86,000. Estimated debt service for the two anticipated future loans assumes a 20-year loan at 2.5-percent interest. The actual debt repayment will depend on the amount borrowed, interest rates and term of repayment at the time.

Six-Year Financial Plan

Uncertainties will remain until the improvements are constructed, operation of the improved plant has stabilized, the grants and financing packages are known, and the customer base is supporting a balanced utility. In the interim, this financial plan has been updated. The update is conservative to ensure that financial needs can be met during the planning period. As key elements become clear in the future, the plan can be further refined to assist the City in meeting its sewer obligations. The Scenario G rates shown in Table 9 include a level increase over the period 2019-2024 to allow time to step rates up to afford operation and new debt service related to the recommended six-year improvements in 2024.

Table 9. Six-Year Rate Outlook (Scenario G)

	Monthly Residential Sewer Rate							
	2017	2018	Existing	2020	2021	2022	2023	2024
Scenario G-1, $0 grant	$29.95	$44.93	$58.41	$83.91	$109.41	$134.91	$160.41	$185.91
Scenario G-2, $3 million grant	$29.95	$44.93	$58.41	$80.41	$102.41	$124.41	$146.41	$168.41

Note: This table replaces Table 10-8 from the 2017 GSP.

The six-year financial plan has been updated to demonstrate the impact on the monthly residential customer, or on a per equivalent residential unit basis. Without grants, the current monthly sewer rate of $58.41 would need to be $185.91 in 2024 based on the assumptions described. With $3 million in grants, the 2024 monthly impact would be reduced to $168.41, or a savings of $17.50 per month.

As was discussed earlier, the City has been working hard to step up to the level necessary by increasing monthly sewer rates from $29.95 to $58.41, increasing SDC's on new connections from $2,800 to $5,607, establishing surcharges on commercial high-strength discharges and downspout connections to the sewer system. Another key assumption that has changed is the number of new homes/ ERUs to connect has decreased from 25 per year over five years 2018-2022, down to 6 per year over 2019-2022 and 7 per year 2023-2024. This reduction in growth affects the new connection revenue from SDCs, as well as reduced revenue from monthly sewer rates.

The updated six-year sewer financial plan for Scenario G-2, with $3 million in grants, is shown in Table 10. This plan shows sewer rates stepping up over the six years from 2019 through 2024 with an assumed increase of $22.00 per month in each year, reaching $168.41 in 2024.

Table 10. Six-Year Sewer Financial Plan (Scenario G-2)

	2019	2020	2021	2022	2023	2024
ASSUMPTIONS						
New Homes / ERUs	6	6	6	6	7	7
General Cost Escalation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Inspection Fee	50	50	50	50	50	50
System Development Charge per ERU	$5,607	$9,400	$9,400	$9,400	$9,400	$9,400
Monthly Residential Sewer	$58.41	$80.41	$102.41	$124.41	$146.41	$168.41
Assumed increase in residential rates/month		$22.00	$22.00	$22.00	$22.00	$22.00
SEWER REVENUE						
Sewer Service Income	652,000	903,000	1,157,000	1,415,000	1,676,000	1,942,000
New High Strength Surcharge	34,000	34,000	34,000	34,000	34,000	34,000
New Downspout-Sump Pump Discharge	12,000	12,000	12,000	12,000	12,000	12,000
Installation Sewer	300	300	300	300	350	350
Interest on Investments	2,000	2,000	2,000	2,000	2,000	2,000
Sewer Miscellaneous Income	50	50	50	50	50	50
Sewer Capital Contributions (system development charges)	33,642	56,400	56,400	56,400	65,800	65,800
Subtotal Sewer Operating Revenue	*700,350*	*951,350*	*1,205,350*	*1,463,350*	*1,724,400*	*1,990,400*
Subtotal Sewer Capital Contributions	*33,642*	*56,400*	*56,400*	*56,400*	*65,800*	*65,800*
Total Sewer Revenue (Operations + Capital)	***733,992***	***1,007,750***	***1,261,750***	***1,519,750***	***1,790,200***	***2,056,200***
SEWER EXPENDITURES						
Administration & Training	46,700	48,100	49,500	51,000	52,500	54,100
Operation & Maintenance - T&D Collection	206,300	173,500	178,700	184,100	189,600	195,300
Operation & Maintenance - WWTP Plant	385,600	397,200	409,100	575,300	741,500	763,700
General Operations, Testing, Phone, Insurance	66,400	68,400	70,500	72,600	74,800	77,000
Customer Service & Marketing	12,000	12,400	12,800	13,200	13,600	14,000
Sewer Taxes	20,500	28,700	37,200	46,000	55,200	64,700
Subtotal Operating Expenditures	*737,500*	*728,300*	*757,800*	*942,200*	*1,127,200*	*1,168,800*
Existing Debt - USDA-RD (principal + interest)	32,670	32,670	32,670	32,670	32,670	32,670
New Debt for CIP	—	—	86,000	86,000	692,600	840,100
Subtotal Debt Expenditures	*32,670*	*32,670*	*118,670*	*118,670*	*725,270*	*872,770*
Sewer Capital Projects	613,000	612,000	2,588,000	10,080,000	2,089,000	—
Ecology Loan Proceeds for CIP	-588,000	-612,000	-2,588,000	-10,080,000	-2,089,000	—
Subtotal Rate-Funded Capital	*25,000*	—	—	—	—	—
Total Sewer Expenditures	*795,170*	*760,970*	*876,470*	*1,060,870*	*1,852,470*	*2,041,570*
Planned use of reserves	*62,000*					
Annual Increase (Use) of Reserves	**822**	**246,780**	**385,280**	**458,880**	**-62,270**	**14,630**

Note: This table replaces Table 10-9 from the 2017 GSP.

The financial plan assumes that surplus amounts of $1,090,000 generated in the early years (2020-2022) will be used to meet an anticipated deficit in 2023 and be used for the required debt reserve of one year's debt service. The collection system improvements are planned to be completed when the WWTP project is complete. If these assumptions prove to be conservative, it may be possible that the third Ecology loan could be reduced or may be unnecessary. The City will be monitoring the financial outlook to balance the necessary rate adjustments with the need to meet sewer financial obligations.

Financial Conclusion

The City continues under an administrative order from the Department of Ecology to plan for a major upgrade to the WWTP. This expensive undertaking is planned for design in 2019 and 2020, construction in 2021 and 2022 and the first full year of operation in 2023. The City will need to secure grants and loans to be able to pay for the project, and the result is expected to have a significant impact on the monthly rates of all customers to meet the increased operation and maintenance costs and new debt service related to the loans.

The City has shown its commitment to the program by already increasing monthly sewer rates, establishing surcharges for high-strength and downspout discharges, increasing the SDCs on new connections, continuing a moratorium on commercial sewer connections, and actively seeking grants to make the project more affordable to current customers. The high-strength surcharge as implemented is lower than assumed in the GSP. Increasing revenue from a high-strength surcharge would reduce the impact on residential customers.

The excess revenue that is generated by stepping rates up will be saved in reserve to fund the required debt reserve and to reduce or avoid future loans, such as the third loan for collection system improvements. The City will continue to review the financial outlook periodically to make sure obligations can be met and to avoid drastic impacts on ratepayers.

These projections are based on current known information and reasonable assumptions, and may or may not reflect actual conditions. Results should be monitored every year during the budget process. An increase in annual new connections above the six assumed will improve the City's sewer financial outlook.