# Appendix K

# Town Center Hydraulic Analysis

# TECHNICAL MEMORANDUM

**Date:** January 25, 2019

**To:** Jason VanGilder, PE

**From:** Peter Cunningham, PE, Breanna Paulson, EIT, Chris Kelsey, PE

**Subject:** Red Apple Market Water and Sewer Analysis

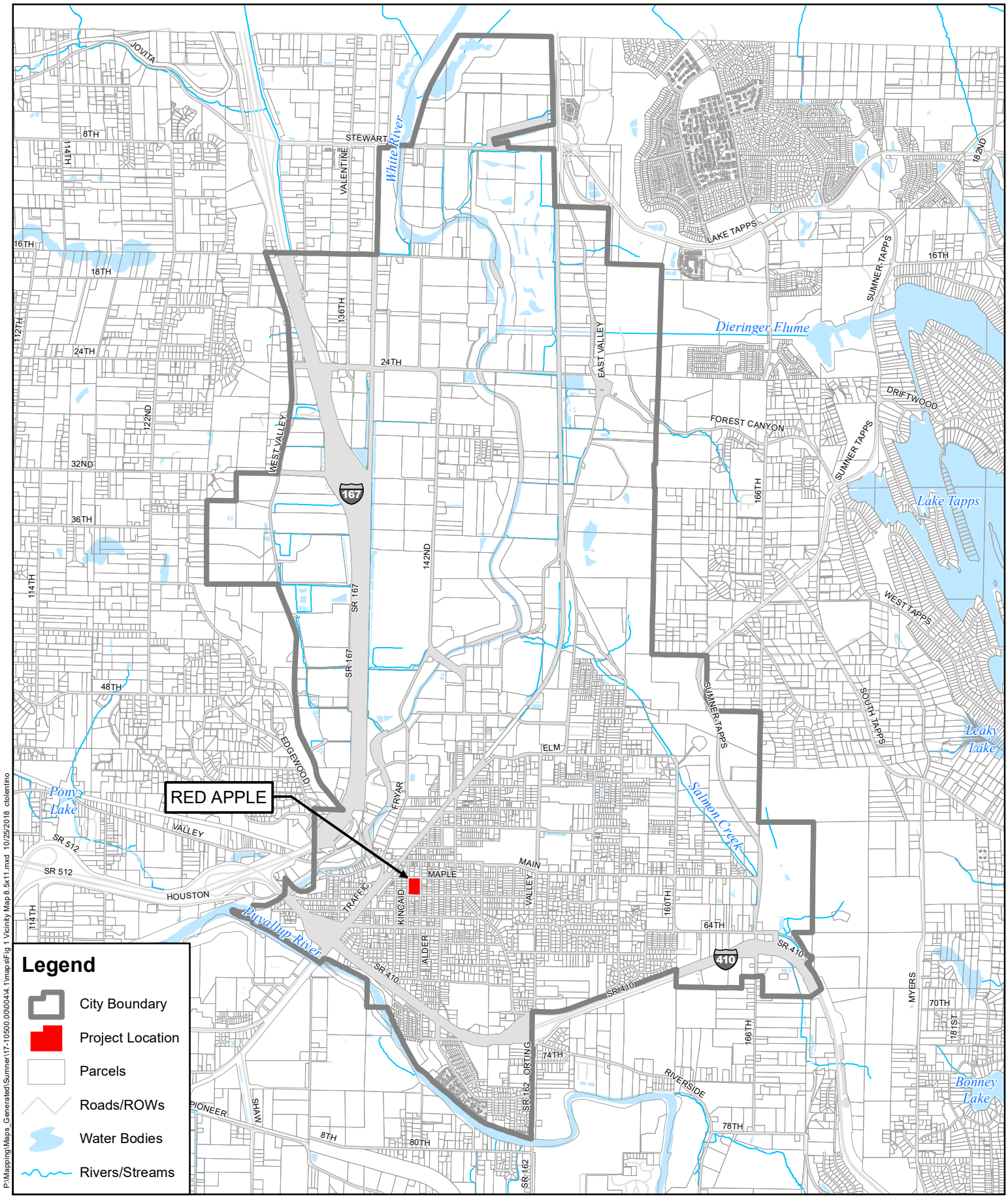
**Project No:** 17-10500.00


Christopher W. Kelsey, PE
BHC Consultants, LLC


Peter Benedict Cunningham, PE
BHC Consultants, LLC

## 1. Background

The City of Sumner (City) contracted with BHC Consultants, LLC (BHC) to evaluate the impact of redevelopment of the Red Apple Market on the City's water supply and sewer collection system. The project is located on a City block bounded by Maple Street to the north, Alder Avenue to the east, Academy Street to the south, and Kincaid Avenue to the west, as shown in Figure 1. Current redevelopment plans call for approximately 232 multi-family units to be constructed within a multi-level building. Impacts to the City's sewer collection and treatment system and water distribution system were evaluated using hydraulic models developed as part of the 2018 Draft Sanitary Sewer Comprehensive Plan (SSCP) and Water System Plan (WSP) Update, both currently at the complete draft state. The analyses considered both existing and 20-year (2038) simulated conditions.




P:\Mapping\Maps_Generated\Sumner\17-10500.00\00414.1\maps\Fig 1 Vicinity Map 8.5x11.mxd 10/25/2018 ctolentino

GIS Data: City of Sumner & Pierce County.
This map is a geographic representation based on information available.
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CITY OF SUMNER WASHINGTON

# Vicinity Map

Red Apple Redevelopment Analysis
City of Sumner

Figure 1

# 2. Sanitary Sewer Collection System Analysis

The City's sanitary sewer collection system model was built with InfoSWMM software using GIS and as-built information provided by the City. The model was calibrated using flow meter and pump runtime data at the wastewater treatment plant (WWTP) and various pump stations (PS).

Capacity criteria from the SSCP was used to determine if the development would cause any downstream deficiencies. The design capacity of gravity mains is defined as 100 percent depth (1.0 d/D ratio, where "d" is the flow depth and "D" is the pipe diameter) during peak hour flow conditions. The maximum design capacity of force mains is exceeded when flow velocities are greater than 8 feet per second. The firm capacity of a lift station is defined as the capacity of the lift station with the largest pump out of service, which is equivalent to a single pump running in a duplex pump station. When model simulation results exceed these design capacities in piping or in lift stations, they are identified as deficient. Infrastructure upgrades are then modeled to confirm and correct the deficiency.

The site may be served by the following three gravity collector lines:

- 10" sewer draining south through Mt. Circle Pump Station (SSCP designated "Basin 8")
- 10" gravity in Kincaid Avenue draining north into the Gravity Basin ("Basin 0")
- 10" gravity in Alder Avenue draining north into the Gravity Basin ("Basin 0")

Sanitary sewer flows were estimated using the projected number of units in the development, estimated population per unit provided by the City, and per capita flow rates from the SSCP. The total flows from the development are estimated in Table 1.

**Table 1**
**Red Apple Development Sanitary Sewer Flows**

| Units | Residents/Unit | Average Annual Flow/Person (gpm/person) | Average Annual Flow (gpm) |
|---|---|---|---|
| 232 | 2.64 | 68 | 29 |

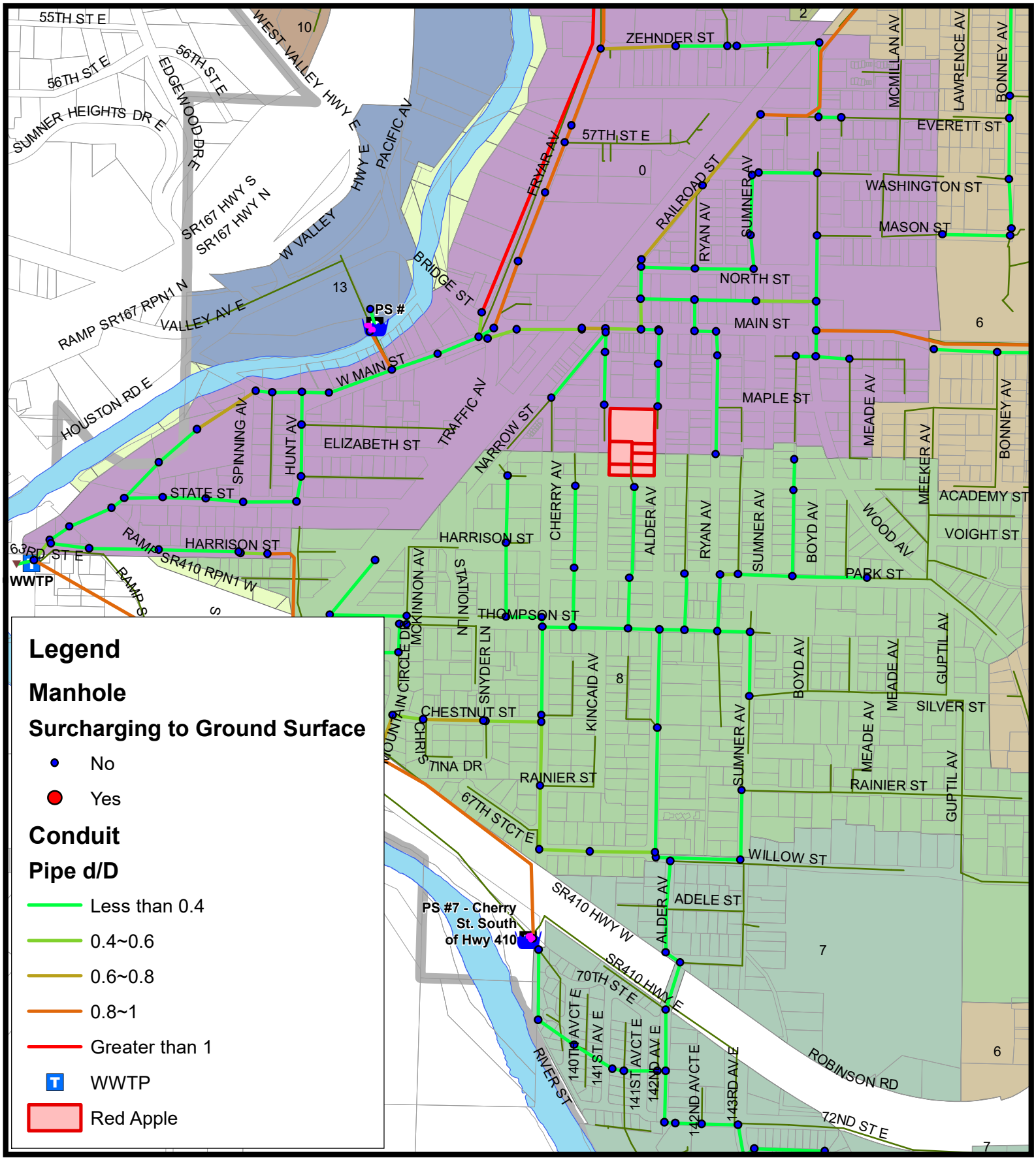
The total sanitary sewer flow is estimated to be 29 gallons per minute (gpm). This is a conservative estimate because multi-family units typically have fewer people per unit than single family units and lower per capita flow rates. Additional infiltration and inflow was not added to the model, as it was already included in the 20-year peak hour flow projections in the SSCP. The estimated sanitary sewer flow of 29 gpm was loaded into the model with a diurnal curve in each of the three gravity sewer collector lines. The results shown in Table 2 and Figure 2 indicate that all three sewers have sufficient capacity for this additional flow under both existing and 2038 system conditions. For the flow assumed to contribute to the Mt. Circle Pump Station, the pumping capacity and resultant force main velocity will remain the same, and the increased flow under peak hour conditions attributable to Red Apple will have negligible effects on increased pump run times and cycling.

**Table 2**
**2038 Sanitary Sewer System Conditions**

| | |
|---|---|
| **Criteria** | |
| Recommended d/D | < 1.0 |
| Recommended Force Main Velocity Criteria | 2-8 fps |
| Pump Station Capacity | Largest Pump Out of Service |
| **Results** | |
| Largest Downstream d/D | 0.6 |
| PS-8 Force Main Velocity | 5.4 fps |
| PS-8 Capacity Exceeded | No |

# 3. Water Distribution System Analysis

As with the sewer analysis, the water model developed and calibrated as part of the ongoing 2018 WSP Update was used to evaluate potential distribution system impacts resulting from the Red Apple redevelopment. This model was built with InfoWater software, using GIS and as-built information provided by the City. Calibration was achieved by using the results of recent hydrant flow testing performed by the local fire district.



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# 2038 Peak Hour Sewer Flow Red Apple Market

Development Anaylsis
City of Sumner

Figure 2

October 2018

Water demands were estimated using the projected number of units in the development and demand per ERU from the 2018 WSP Update and are summarized in Table 3. The total flows from the development were applied to a single junction node at the development.

**Table 3**
**Red Apple Development Water Demand**

| Year | 0.3 Average Day Demand (gpd/ERU) | 0.3 Average Day Demand (gpm) | Total Maximum Day Demand (gpd/ERU) | Maximum Day Demand (gpm) | Peak Hour Demand (gpd/ERU) | Total Peak Hour Demand (gpm) |
|---|---|---|---|---|---|---|
| 2018 | 56 | 9 | 352 | 57 | 556 | 90 |
| 2038 | 56 | 9 | 362 | 58 | 578 | 93 |

Water system evaluation under existing (2018) and 2038 demand conditions are summarized in Tables 4 and 5. For each year, the distribution system was evaluated under different average and peak conditions to determine the following:

- Thirty percent (30%) of Average Day Demand (ADD), simulating a low demand condition with reservoirs full to determine if any areas of high pressure develop within the system because of the development (typically only occurring if new water main extensions were constructed to a development that was at a new and comparatively lower elevation than the surrounding area).
- Peak Hour Demand (PDD), to determine if required pressures above 30 psi can be maintained throughout the system with the addition of the development, as well as keeping system velocities under a non-fire scenario below a recommended 8 feet per second (ft/s).
- Maximum Day Demand (MDD) plus Fire Flow, to determine if required pressures above 20 psi can be maintained throughout the system with the addition of a fire at the development (required fire flow rate as determined by the development land use), as well as keeping system velocities under the fire scenario below a recommended 10 ft/s.

| Table 4<br>Existing System Conditions | | | |
|---|---|---|---|
| | **Condition 1** | **Condition 2** | **Condition 3** |
| System Demand | .3 ADD | PHD | MDD + Fire Flow |
| Required Pressure Criteria | < 100 psi | > 30 PSI | Required fire flow with a minimum residual and system pressure above 20 psi |
| Required Development Fire Flow | N/A | N/A | 1500 gpm for 2 hours |
| Recommended Velocity Criteria | N/A | < 8 ft/s | < 10 ft/s |
| WAC 246-290-230 Reference | Section 8.1.7 | Section 8.1.5 | Section 8.1.5 |
| Source Status | All wells off | All wells off | All wells off |
| Reservoir Levels | Full | Bottom of Equalization | Bottom of Fire |
| Viewpoint BPS Status | ON | ON | ON |
| **Results** | | | |
| Pressure at Development | 71 psi | 56 psi | The residual pressure at the flowing hydrant is 51 psi with 410 gpm available fire flow |
| System Pressure | < 100 psi | > 30 psi | > 20 psi |
| Intake Pressure at Viewpoint BPS | 12.3 psi | 12.3 psi | 9.8 psi |
| Available Fire Flow | - | - | 410 gpm |
| System Velocity | 0..32 ft/s | 6.3 ft/s | 10 ft/s |
| Velocity at 1,500 gpm Fire Flow | - | - | 21.9 ft/s |
| Deficiencies | None | None | Yes |

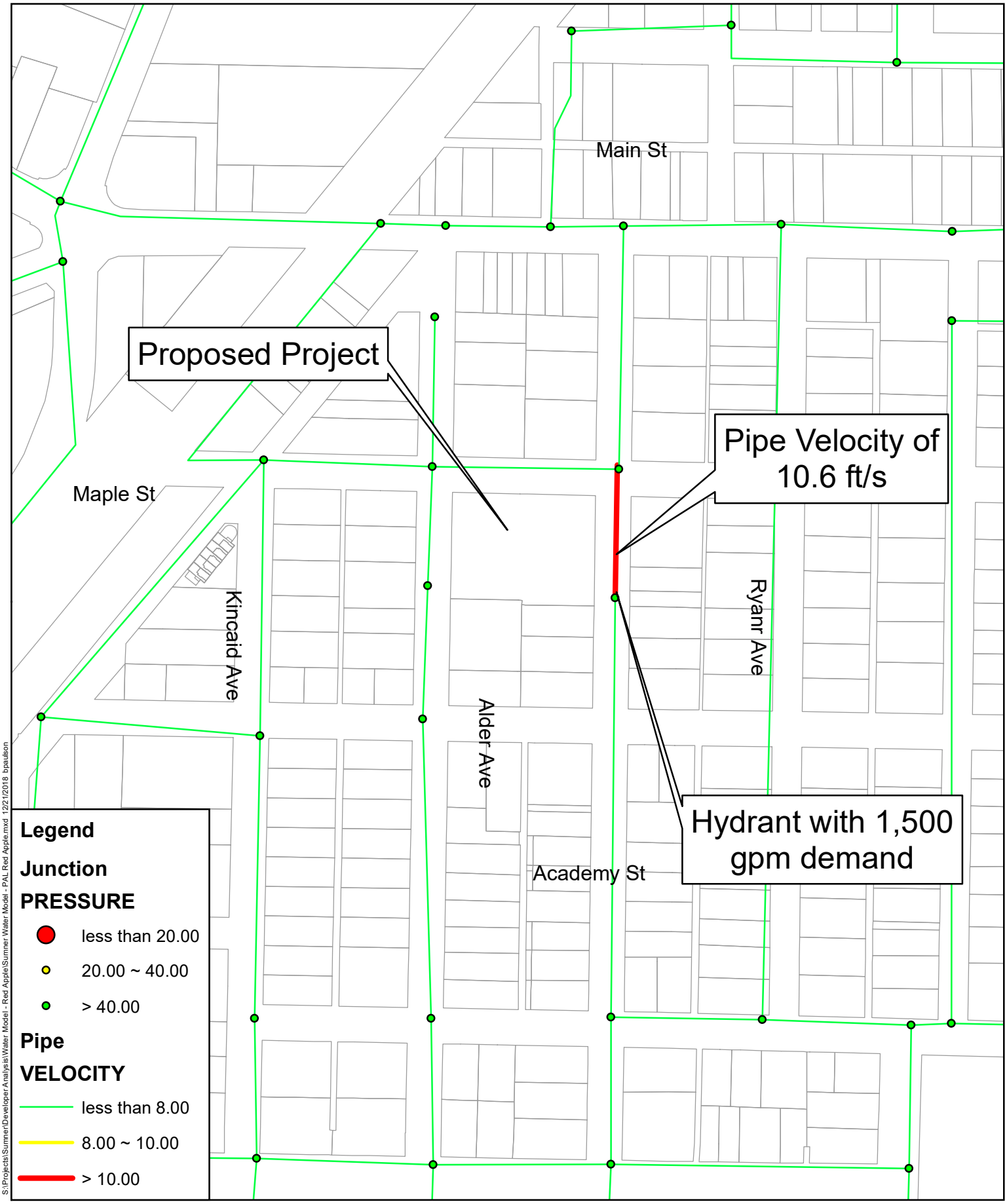
| Table 5<br>2038 System Conditions | | | |
|---|---|---|---|
| | **Condition 1** | **Condition 2** | **Condition 3** |
| System Demand | .3 ADD | PHD | MDD + Fire Flow |
| Required Pressure Criteria | < 100 psi | > 30 PSI | Required fire flow with a minimum residual and system pressure above 20 psi |
| Required Development Fire Flow | N/A | N/A | 1500 gpm for 2 hours |
| Recommended Velocity Criteria | N/A | < 8 ft/s | < 10 ft/s |
| WAC 246-290-230 Reference | Section 8.1.7 | Section 8.1.5 | Section 8.1.5 |
| Source Status | All wells off | All wells off | All wells off |
| Reservoir Levels | Full | Bottom of Equalization | Bottom of Fire |
| Viewpoint BPS Status | ON | ON | ON |
| **Results** | | | |
| Pressure at Development | 72 psi (max) | 69 psi (min) | The residual pressure at the flowing hydrant is 51 psi with 410 gpm available fire flow |
| System Pressure | < 100 psi | > 30 psi | > 20 psi |
| Intake Pressure at Viewpoint BPS | 12.3 psi | 12.3 psi | 10.2 psi |
| Available Fire Flow | - | - | 410 gpm |
| System Velocity | 0.94 ft/s | 7.5 ft/s | 10 ft/s |
| Velocity at 1,500 gpm Fire Flow | - | - | 21.9 ft/s |
| Deficiencies | None | None | Yes |

The existing and 2038 scenarios meet all ADD and PHD requirements, but do not meet fire flow requirements due to the high velocities in the 6-inch pipe (250-feet) noted in Figure 3 and the 3-inch pipe (425-feet) noted in Figure 4. Additionally, adequate pressure to the suction side of the Viewpoint BPS remains adequate for normal pump operation. Additionally, adequate pressure to the suction side of the Viewpoint BPS remains adequate for normal pump operation. Under the MDD plus fire flow scenario, the required 1,500 gpm fire can be provided to the development while maintaining system and residual pressures above 20 psi at the hydrant located on Alder Ave. However, the analysis indicated that velocities within the existing 6-inch water main adjacent to the development would exceed the recommended 10 ft/s when supplying the fire from a single hydrant. Velocity and pressure requirements at the proposed hydrant on Kincaid Ave are not met due to the 3-inch water main. Due to the size and demand of the development, the ability to provide fire flow from one hydrant on both sides of the development is recommended.

# 4. Development Analysis Summary and Required Offsite Improvements

The impacts of this development result in no necessary offsite improvements required to the sanitary sewer collection system. Because of high resultant velocities within the water distribution system under fire flow conditions, it is recommended that the existing 6-inch water main on Alder Avenue, between Maple St and Academy St, and the existing 3-inch water main on Kincaid Ave, between Maple St and Academy St, be upgraded through replacement with a new 8-inch water main. A conceptual level opinion of probable project cost (OPPC) for the improvements is attached to this technical memorandum. The City may prefer to completely replace the 6-inch and 4-inch water mains on Alder and Kincaid from Main to Thompson Streets (approximately 1,600 feet on Alder Ave, and 1,550 feet on Kincaid St). The cost of such an expanded scope would benefit the City through retirement of older cast iron and AC pipe and completion of looping between larger existing water main sizes. It is not included within the attached OPPC, however, as the extended replacement would not be required due to Red Apple redevelopment impacts.

Recommended water infrastructure improvements D1 and D2 total an estimated $480,000.

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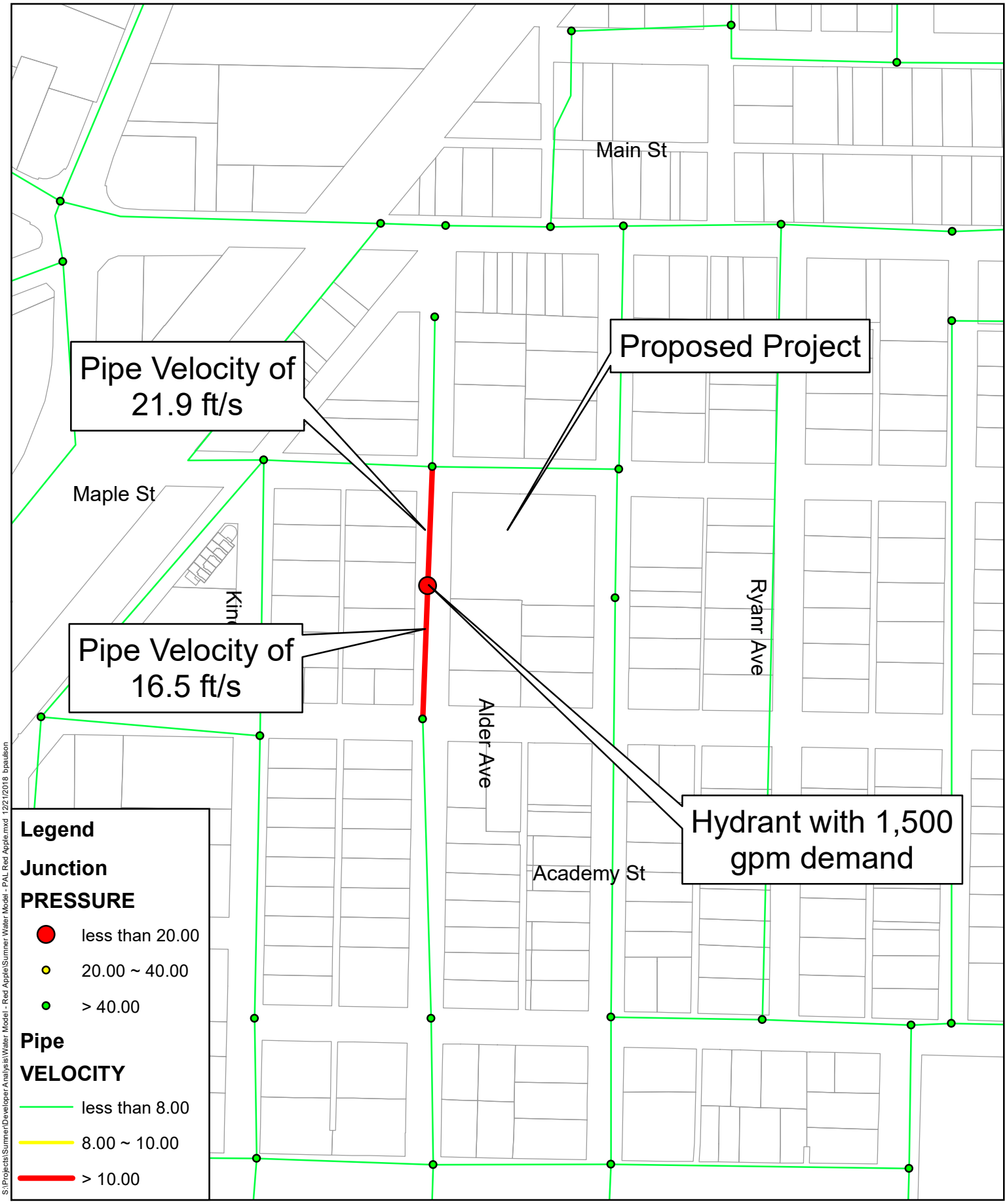
**2038 MDD: Red Apple Market**
**1,500 gpm Fire Flow**
Development Analysis
City of Sumner
December 2018

Figure
**3**

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**2038 MDD: Red Apple Market**
**1,500 gpm Fire Flow - New Hydrant**
Development Analysis
City of Sumner
December 2018

Figure
**4**

# ATTACHMENT 1

## Opinion of Probable Project Cost

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D1 - Red Apple Market Development - Alder Ave between Maple St and Academy St**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $10,000 | 1 | LS | $10,000 |
| 2 | Removal of Structures & Obstructions | $1,000 | 1 | LS | $1,000 |
| 3 | Temporary Erosion & Sediment Control | $2,000 | 1 | LS | $2,000 |
| 4 | Utility Relocation | $2,000 | 1 | LS | $2,000 |
| 5 | Traffic Control | $2,000 | 1 | LS | $2,000 |
| 6 | Cleanup/General Restoration | $2,000 | 1 | LS | $2,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 500 | LF | $1,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 450 | LF | $45,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 3 | EA | $18,000 |
| 12 | Import Trench Backfill | $55 | 40 | TN | $3,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 56 | TN | $2,000 |
| 14 | Crushed Surfacing Top Course | $40 | 43 | TN | $2,000 |
| 15 | Excavation Support System | $3 | 450 | LF | $2,000 |
| 16 | HMA | $95 | 142 | TN | $14,000 |
| | Subtotal | | | | $121,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $12,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $133,000 |
| | Construction Contingency | 35% | | | $46,550 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $180,000 |
| | | | | | |
| | Planning | 5% | | | $9,000 |
| | Design and Permitting | 15% | | | $27,000 |
| | Services During Construction | 15% | | | $27,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $63,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $240,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D2 - Red Apple Market Development - Kincaid St between Maple St and Academy St**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $10,000 | 1 | LS | $10,000 |
| 2 | Removal of Structures & Obstructions | $1,000 | 1 | LS | $1,000 |
| 3 | Temporary Erosion & Sediment Control | $2,000 | 1 | LS | $2,000 |
| 4 | Utility Relocation | $2,000 | 1 | LS | $2,000 |
| 5 | Traffic Control | $2,000 | 1 | LS | $2,000 |
| 6 | Cleanup/General Restoration | $2,000 | 1 | LS | $2,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 850 | LF | $2,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 425 | LF | $43,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 3 | EA | $18,000 |
| 12 | Import Trench Backfill | $55 | 68 | TN | $4,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 95 | TN | $4,000 |
| 14 | Crushed Surfacing Top Course | $40 | 73 | TN | $3,000 |
| 15 | Excavation Support System | $3 | 425 | LF | $2,000 |
| 16 | HMA | $95 | 81 | TN | $8,000 |
| | Subtotal | | | | $118,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $11,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $129,000 |
| | Construction Contingency | 35% | | | $45,150 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $175,000 |
| | | | | | |
| | Planning | 5% | | | $9,000 |
| | Design and Permitting | 15% | | | $27,000 |
| | Services During Construction | 15% | | | $27,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $63,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $240,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
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4. Permitting costs are assumed based on project location and complexity.
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# TECHNICAL MEMORANDUM

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**To:** Jason VanGilder, P.E.

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**Subject:** Sumner Town Center Water and Sewer Analysis

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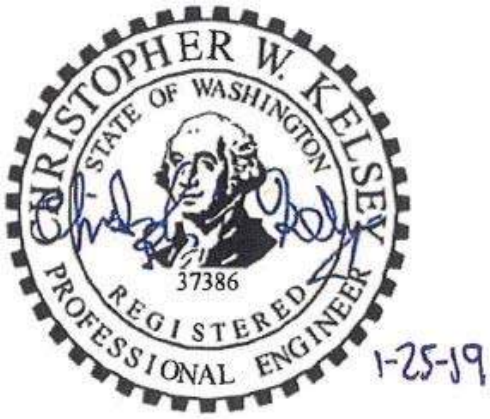


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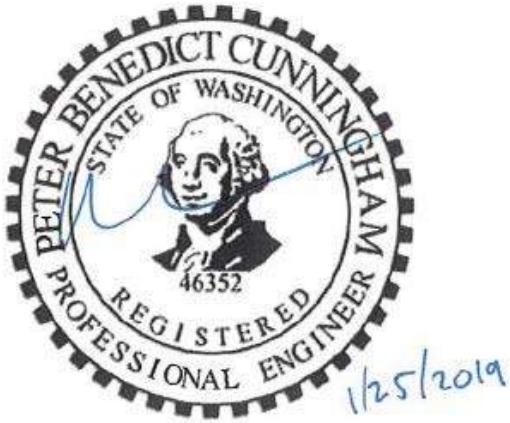
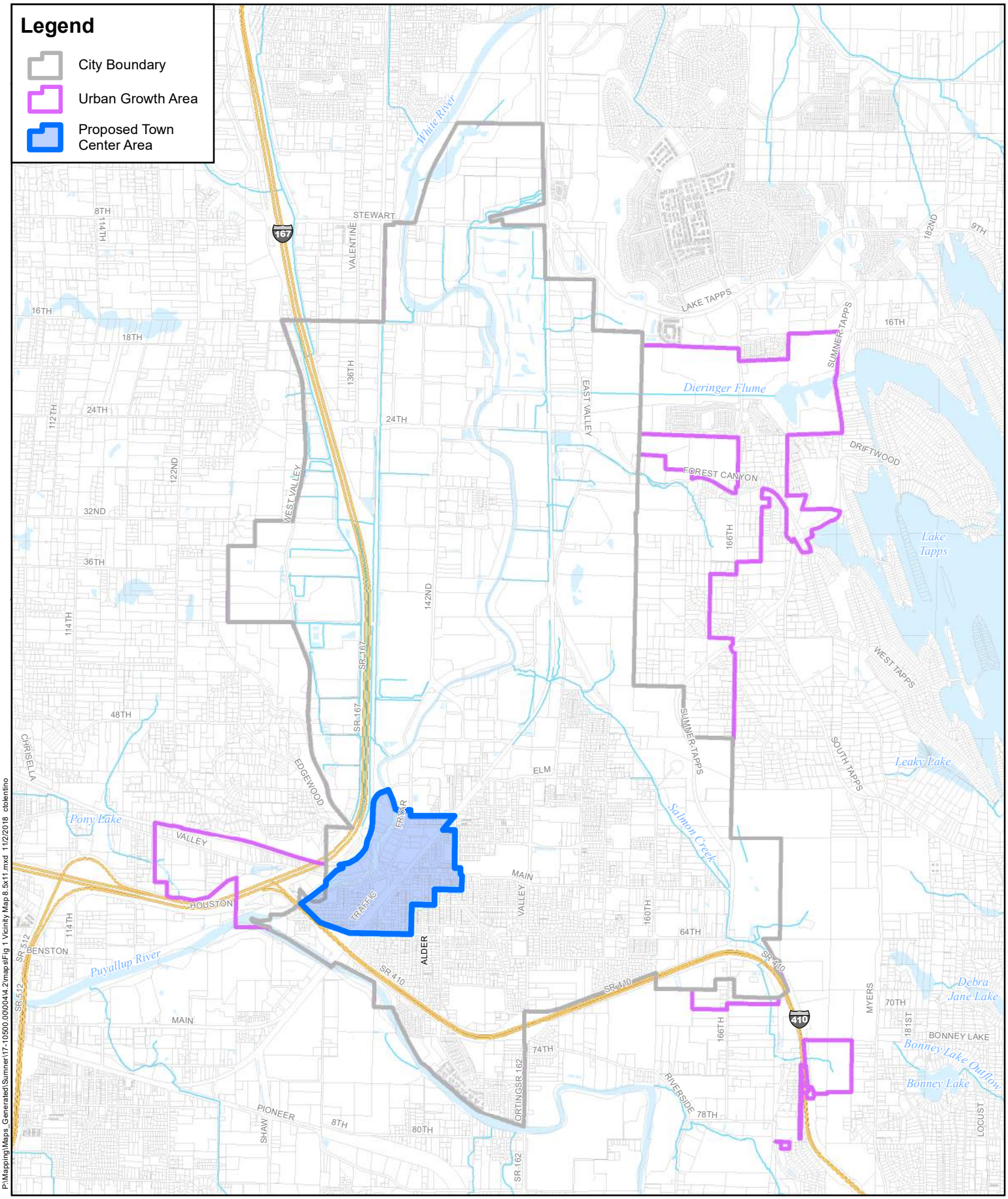



Peter Benedict Cunningham, PE
BHC Consultants, LLC

## 1. Background

The City of Sumner (City) contracted with BHC Consultants, LLC (BHC) to evaluate the impact of rezoning the City's Town Center on their water and sewer utilities. The Town Center area is shown in Figure 1. Analysis in this document is based on Alternative 1 Density Option A of the Town Center Draft Supplemental Environmental Impact Statement, which is the City's Preferred Alternative. Alternative 1 would adopt the Town Center Plan Update, form-based code, and planned action ordinance. It would provide:

- The largest acreage of commercial and mixed use designated areas, where buildings of 4 to 6 stories would be permitted.
- Addition of gathering areas, promotion of multimodal travel, new landscaping, and pedestrian amenities.
- Density ranges from 12-25 dwelling units per acre up to 112 units per acre.




P:\Mapping\Maps_Generated\Sumner\17-10500.00\0044.2\map\sFig 1 Vicinity Map 8.5x11.mxd 11/2/2018 ctolentino

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CITY OF SUMNER WASHINGTON

# Vicinity Map

Town Center Redevelopment Analysis
City of Sumner

Figure 1

- An estimated net capacity of 2,308 dwelling units and 460 jobs, or a net increase of 1,970 units and 52 jobs above those estimated in the City's 2015 Comprehensive Plan Update.

Impacts to the City's sewer collection and treatment system and water distribution system were evaluated using hydraulic models developed as part of the 2018 Draft Sanitary Sewer Comprehensive Plan (SSCP) and Water System Plan (WSP) Update, both currently at the complete draft state. The analyses considered both existing (2018) and 20-year (2038) simulated conditions.

## 2. Sanitary Sewer Collection System Analysis

The City's sanitary sewer collection system model was built with InfoSWMM software using GIS and as-built information provided by the City. The model was calibrated using flow meter and pump runtime data at the wastewater treatment plant (WWTP) and various pump stations (PS).

Capacity criteria from the SSCP was used to determine if the development would cause any downstream deficiencies. The design capacity of gravity mains is defined as 100 percent depth (1.0 d/D ratio, where "d" is the flow depth and "D" is the pipe diameter) during peak hour flow conditions. The maximum design capacity of force mains is exceeded when flow velocities are greater than 8 feet per second. The firm capacity of a lift station is defined as the capacity of the lift station with the largest pump out of service, which is equivalent to a single pump running in a duplex pump station. When model simulation results exceed these design capacities in piping or in lift stations, they are identified as deficient. Infrastructure upgrades are then modeled to confirm and correct the deficiency.

Sanitary sewer flows were estimated using the net additional units and jobs from the rezone, estimated population per unit provided by the City, and per capita flow rates from the SSCP. These were added to the 2038 model scenario developed as part of the SSCP. Estimated flows are shown on Table 1.

| Table 1<br>Town Center Alternative 1 Density Option A Sanitary Sewer Flows | | | | | | |
|---|---|---|---|---|---|---|
| **Net Additional Units** | **Population/Unit** | **Net Additional Population** | **Average Annual Flow/Person (gpd/person)** | **Net Additional Employees** | **Average Annual Flow/Employee (gpd/employee)** | **Average Annual Flow (gpm)** |
| 1,970 | 2.64 | 5,201 | 68 | 52 | 23 | 246 |

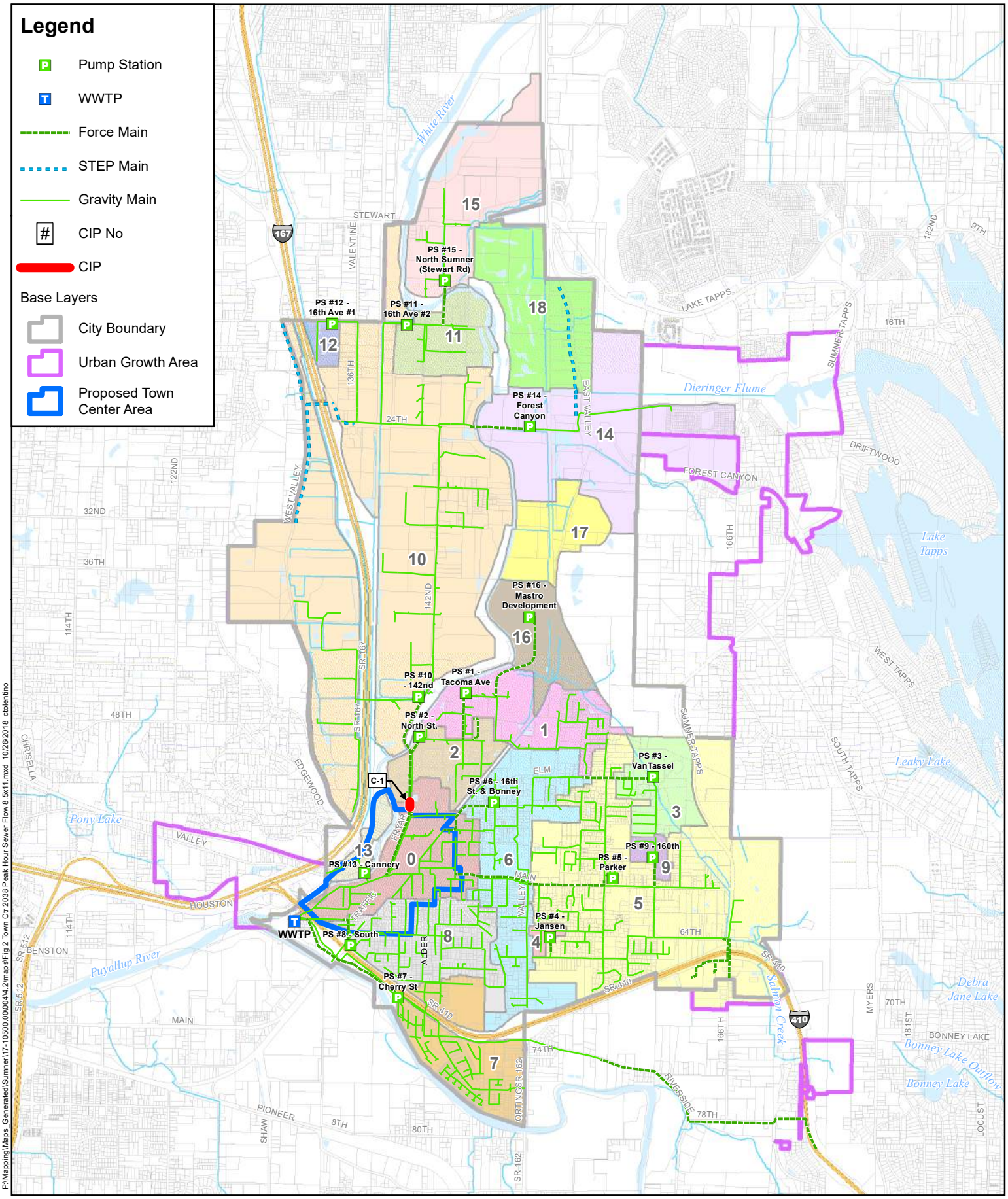
Additional infiltration and inflow (I/I) was not added into the model. Projected 20-year I/I was incorporated into the previous model and is based on contributing area. Because the contributing area is not changing, it was assumed that I/I would not change as a result of this rezone.

The total average annual flow was estimated to be 246 gpm. This was distributed to all manholes within the Town Center area using an automated tool in the model that distributes flows based on area and proximity to manholes to approximate geographic distribution of flows, and a diurnal curve was used to simulate hourly flow variation throughout the day. This method might somewhat overestimate flows in the upstream reaches of the Town Center, as the density is highest close to the sewer trunk in Main Street, but the model distribution assumes a uniform rate by area. An additional 13 gpm of average annual flow was estimated to go to Pump Station 13 (PS-13).

Two model scenarios were performed. The first was using the existing collection and conveyance system, which did not include any improvements to the collection and conveyance system. Results for this scenario indicated that the sewer in Fryar Avenue is undersized for the additional flows. This same pipe was identified in the SSCP as being under capacity for existing peak hour flows and is addressed by project C-1 in the Capital Improvements Program (CIP). C-1 would divert flows out of the sewer in Fryar Avenue by connecting Pump Station 10 to the Pump Station 2 force main. No additional capacity limitations were identified.

A second model run was performed with all of the improvements identified in the CIP to determine if the additional flows from Alternative 1 would require additional collection and conveyance improvements. The model results indicated that there will be sufficient capacity for the additional flows in the collection and conveyance system, assuming C-1 is implemented.

The results for both scenarios are summarized in Table 2 and shown in Figure 2.




P:\Mapping\Maps_Generated\Sumner\17-10500.00\0044.2\map's\Fig 2 Town Ctr 2038 Peak Hour Sewer Flow 8.5x11.mxd 10/26/2018 ctolentino

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# Town Center
# 2038 Peak Hour Sewer Flow

Town Center Redevelopment Analysis
City of Sumner

Figure 2

| Table 2<br>2038 Sanitary Sewer System Conditions | | |
|---|---|---|
| **Criteria** | | |
| Recommended d/D | < 1.0 | |
| Recommended Force Main Velocity Criteria | 2-8 fps | |
| Pump Station Capacity | Largest Pump Out of Service | |
| **Results** | | |
| Scenario | No CIP Improvements | With CIP Improvements |
| Largest Downstream d/D | 5.8 | 0.7 |
| PS-13 Force Main Velocity | 5.7 | 5.7 |
| PS-13 Capacity Exceeded | No | No |

# 3. Wastewater Treatment Plant Capacity Analysis

The additional flows were compared with the capacity of the wastewater treatment plant (WWTP). As summarized in Table 3, the additional Town Center flows result in an overall slight capacity deficiency to the City's allocated capacity at the WWTP under 2038 maximum month conditions. This would necessitate a negotiated modification to the City's Operating Agreement for the facility that is shared with Bonney Lake. It is estimated that approximately 4,370 of the 5,201 additional residents could be accommodated without exceeding the City's share of the WWTP capacity. Average annual, peak day, and peak hour flows are not included in the WWTP Operating Agreement but were included for comparison purposes.

| Table 3<br>WWTP Capacity Analysis | | | | |
|---|---|---|---|---|
| | **Average Annual Flow (mgd)** | **Maximum Month Flow (mgd)** | **Peak Day Flow (mgd)** | **Peak Hour Flow (mgd)** |
| Year 2038 SSCP | 1.53 | 2.32 | 4.32 | 5.49 |
| Additional Flows | 0.35 | 0.57(1) | 1.23(1) | 1.56(1) |
| Total 2038 | 1.88 | 2.89 | 5.55 | 7.05 |
| Sumner Allocated Capacity(2) | 1.74(2) | 2.8(2) | 6.02(2) | 7.64(2) |

Notes:

1) The maximum month, peak day, and peak hour additional flows were calculated using peaking factors from Table 6-7 of the SSCP. These peaking factors include I/I and are therefore conservative.
2) The maximum month flow of 2.80 mgd is the only specified capacity for Sumner stated within the WWTP Operating Agreement . Other values are interpolated using the peaking factors for flow established within Chapter 6, for purposes of illustrating hydraulic adequacy of the existing WWTP to meet future projections.

# 4. Water Distribution System Analysis

As with the sewer analysis, the water model developed and calibrated as part of the ongoing 2018 WSP Update was used to evaluate potential distribution system impacts resulting from the Town Center rezoning and growth projections. This model was built with InfoWater software, using GIS and as-built information provided by the City. Additional hydrants from the City's GIS data, provided during the master plan update, were added to the model. Calibration was achieved by using the results of recent hydrant flow testing performed by the local fire district.

Water demands were estimated using the projected number of units in the development and demand per ERU from the 2018 WSP Update and are summarized in Table 4. The total flows from the development were dispersed evenly to junction nodes located in the Town Center area.

**Table 4**
**Town Center Development Water Demand**

| Year | 0.3 Average Day Demand (gpd/ERU) | Total 0.3 Average Day Demand (gpm) | Maximum Day Demand (gpd/ERU) | Total Maximum Day Demand (gpm) | Peak Hour Demand (gpd/ERU) | Total Peak Hour Demand (gpm) |
|---|---|---|---|---|---|---|
| 2018 | 56 | 76 | 352 | 481 | 556 | 761 |
| 2038 | 56 | 76 | 362 | 495 | 578 | 791 |

Water system evaluation under existing (2018) and 2038 demand conditions are summarized in Table 5 and Table 6. For each year, the distribution system was evaluated under different average and peak conditions to determine the following:

- Thirty percent (30%) of Average Day Demand (ADD), simulating a low demand condition with reservoirs full to determine if any areas of high pressure develop within the system because of the development (typically only occurring if new water main extensions were constructed to a development that was at a new and comparatively lower elevation than the surrounding area).
- Peak Hour Demand (PDD), to determine if required pressures above 30 psi can be maintained throughout the system with the addition of the development, as well as keeping system velocities under a non-fire scenario below a recommended 8 feet per second (ft/s).

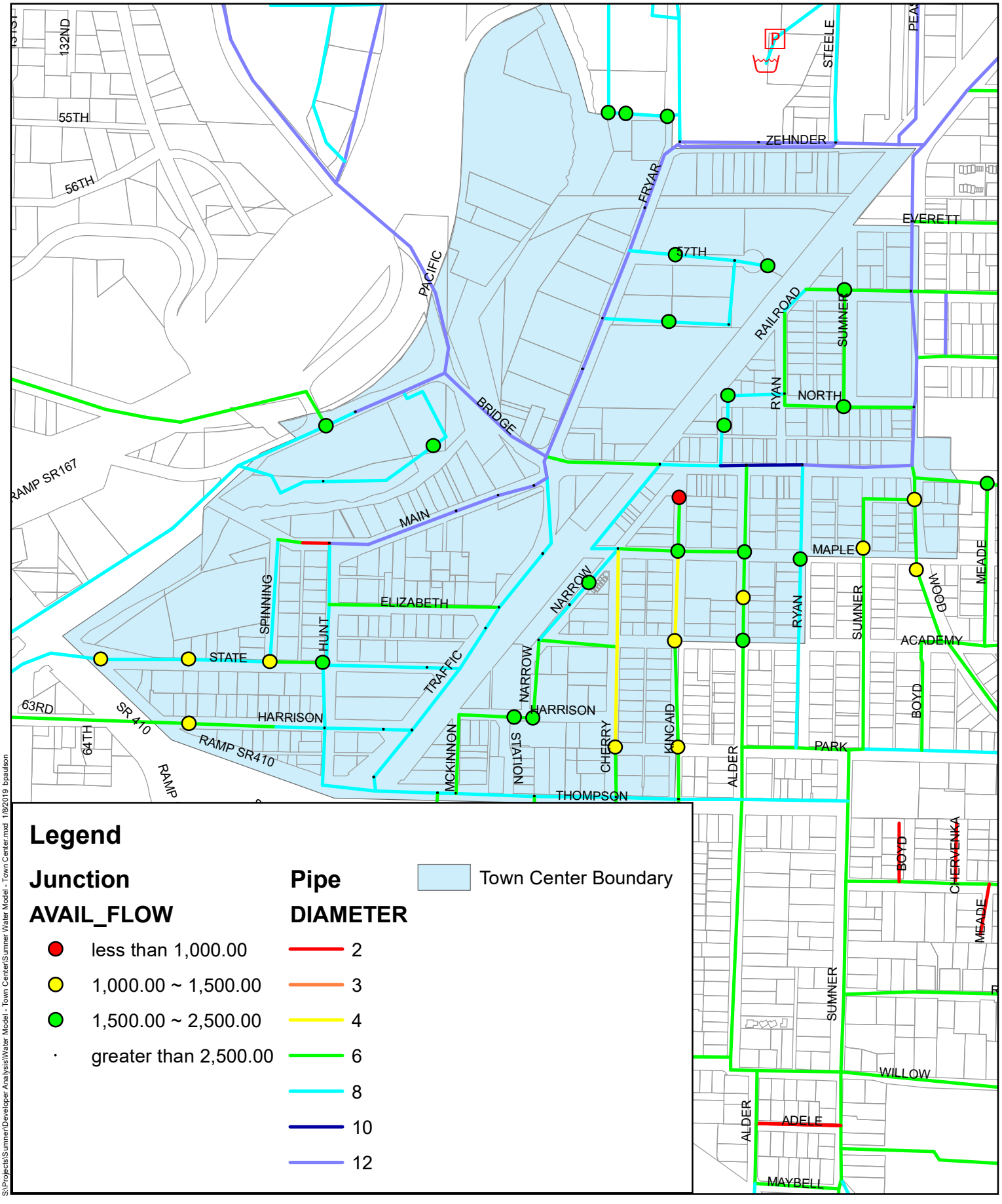
- Maximum Day Demand (MDD) plus Fire Flow, to determine if required pressures above 20 psi can be maintained throughout the system with the addition of a fire at the development, as well as keeping system velocities under the fire scenario below a recommended 10 ft/s. The fire flow rate requirement of 1,500 gpm for 2 hours is a minimum requirement stated in the 2018 WSP Update (required fire flow rate as determined by the development land use) and larger buildings could have an increased fire flow rate or be required to install automated sprinklers. The City and the local Fire Marshal determine fire flow requirements and additional model analysis may be required. Automatic sprinkler systems are required in buildings when the gross floor area exceeds 5,000 square feet or the building is 35 feet in height or three or more stories (refer to Sumner Municipal code, Chapter 15.24 for additional automatic sprinkler requirements).

| Table 5<br>Existing System Conditions | | | |
|---|---|---|---|
| | **Condition 1** | **Condition 2** | **Condition 3** |
| System Demand | .3 ADD | PHD | MDD + Fire Flow |
| Required Pressure Criteria | < 100 psi | > 30 PSI | Required fire flow with a minimum residual and system pressure above 20 psi |
| Required Development Fire Flow | N/A | N/A | 1500 gpm for 2 hours |
| Recommended Velocity Criteria | N/A | < 8 ft/s | < 10 ft/s |
| WAC 246-290-230 Reference | Section 8.1.7 | Section 8.1.5 | Section 8.1.5 |
| Source Status | All wells off | All wells off | All wells off |
| Reservoir Levels | Full | Bottom of Equalization | Bottom of Fire |
| Viewpoint BPS Status | ON | ON | ON |
| **Results** | | | |
| Pressure within the Development | 72 psi (max) | 67 psi (min) | The residual pressure at one flowing hydrant is 20 psi with a minimum 881 gpm available fire flow |
| System Pressure | < 100 psi | > 30 psi | > 20 psi |
| Intake Pressure at Viewpoint BPS | 12.3 psi | 12.3 psi | 9.8 psi |
| Minimum Available Fire Flow | - | - | 881 gpm |
| Maximum System Velocity | 0.56 ft/s | 6.3 ft/s | 10 ft/s |
| Maximum Velocity at 1,500 gpm Fire Flow | - | - | 17 ft/s |
| Deficiencies | None | None | Yes |

| Table 6<br>2038 System Conditions | | | |
|---|---|---|---|
| | **Condition 1** | **Condition 2** | **Condition 3** |
| System Demand | .3 ADD | PHD | MDD + Fire Flow |
| Required Pressure Criteria | < 100 psi | > 30 PSI | The residual pressure at one flowing hydrant is 20 psi with a minimum 350 gpm available fire flow |
| Required Development Fire Flow | N/A | N/A | 1500 gpm for 2 hours |
| Recommended Velocity Criteria | N/A | < 8 ft/s | < 10 ft/s |
| WAC 246-290-230 Reference | Section 8.1.7 | Section 8.1.5 | Section 8.1.5 |
| Source Status | All wells off | All wells off | All wells off |
| Reservoir Levels | Full | Bottom of Equalization | Bottom of Fire |
| Viewpoint BPS Status | ON | ON | ON |
| **Results** | | | |
| Pressure within Development | 73 psi (max) | 66 psi (min) | The residual pressure at the flowing hydrant is 20 psi with 881 gpm available fire flow |
| System Pressure | < 100 psi | > 30 psi | > 20 psi |
| Intake Pressure at Viewpoint BPS | 12.3 psi | 12.3 psi | 9.8 psi |
| Minimum Available Fire Flow | - | - | 881 gpm |
| Maximum System Velocity | 0.96 ft/s | 7.5 ft/s | 10 ft/s |
| Maximum Velocity at 1,500 gpm Fire Flow | - | - | 17 ft/s |
| Deficiencies | None | None | Yes |

The existing and 2038 scenarios meet all ADD and PHD requirements, but do not meet fire flow requirements due to high velocities in the smaller diameter existing distribution system pipes. Fire flow results are shown in Figure 3. Pressure to the suction side of the Viewpoint BPS remains adequate for normal pump operation. Under the MDD plus fire flow scenario, the required 1,500 gpm fire can be provided to the town center hydrants while maintaining system and residual pressures above 20 psi. However, the analysis indicated that velocities within many existing 3-inch, 4-inch, and 6-inch water mains adjacent to hydrants would exceed the recommended 10 ft/s when supplying the fire from a single hydrant. Pipes with high velocities are circled in Figure 4. The recommended improvements to address these deficiencies (with alphanumeric “D” labels in the figure) are described and presented in Table 7. Due to the size and demand of the development, fire flow demand at individual hydrants was not evaluated separately by splitting the demand to additional hydrants for requirements at or below 1,500 gpm.

The Sumner Methodist Church, located on Wood Ave at the Town Center boundary, has a fire flow requirement of 4,500 gpm. A fire flow requirement of 4,500 gpm is not possible on the existing 6-inch AC piping, even when split between hydrants. With the proposed distribution improvement D1, the fire flow is met when splitting the demand between three hydrants adjacent to the property. Due to the high fire flow requirement, it is recommended that building sprinklers be installed to reduce the required fire flow capacity. Alternatively, the proposed 12-inch pipe proposed under D1 could be extended to the existing 12-inch pipe on Meade McCumber Rd E and Valley Ave. This pipe extension would benefit the City through retirement of AC pipe and completion of looping between larger existing water main sizes.




## Legend

### Junction
**AVAIL_FLOW**

- less than 1,000.00
- 1,000.00 ~ 1,500.00
- 1,500.00 ~ 2,500.00
- greater than 2,500.00

### Pipe
**DIAMETER**

- 2
- 3
- 4
- 6
- 8
- 10
- 12

Town Center Boundary

S:\Projects\Sumner\Developer Analysis\Water Model - Town Center\Sumner Water Model - Town Center.mxd 1/8/2019 bpaulson

This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

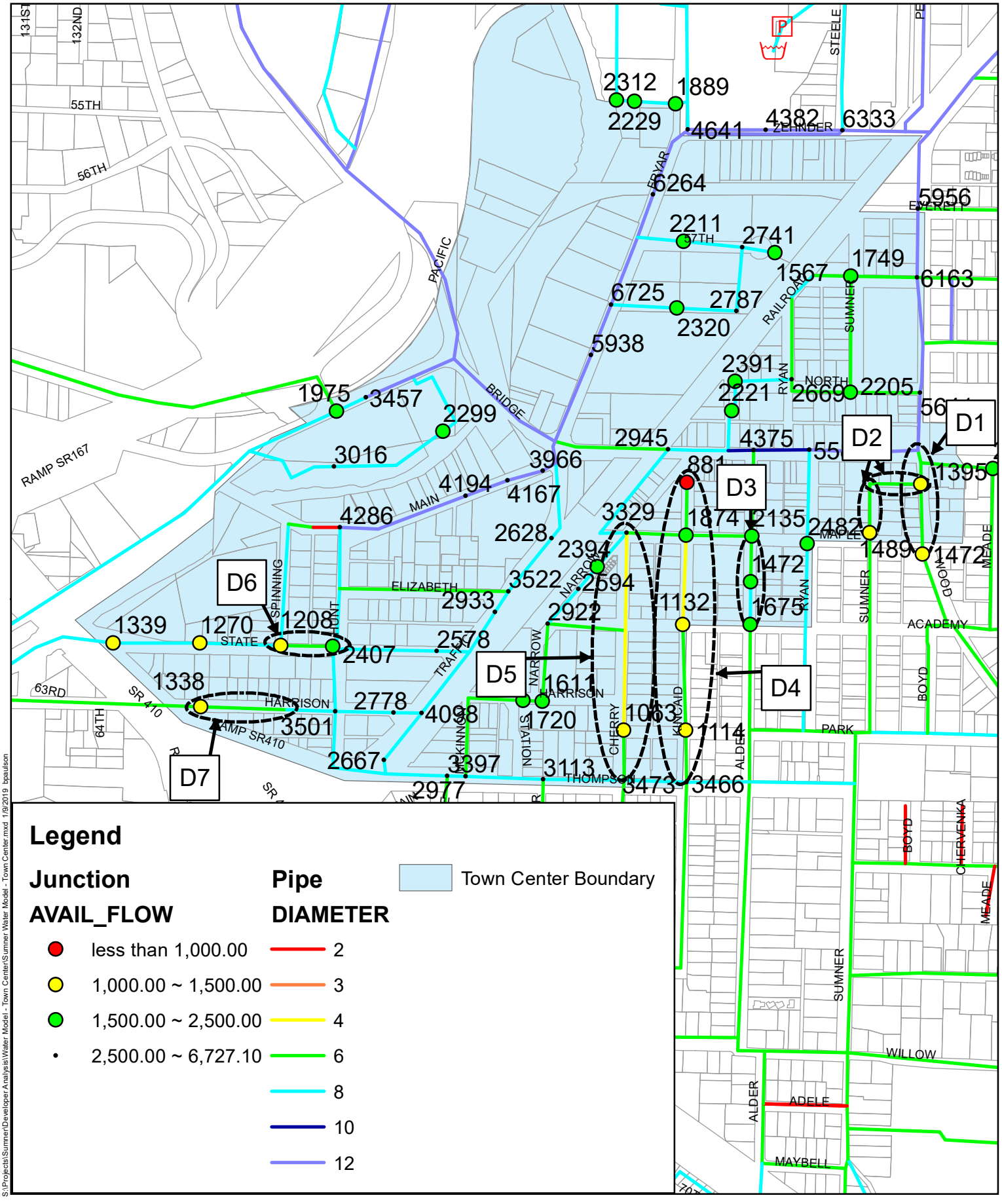
BHC CONSULTANTS

CITY OF SUMNER WASHINGTON

# 2038 MDD: Town Center Available Fire Flow

Development Analysis
City of Sumner
December 2018

Figure **3**




This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC CONSULTANTS

CITY OF SUMNER WASHINGTON

**2038 MDD: Town Center CIP Items**

Development Analysis
City of Sumner
December 2018

Figure **4**

S:\Projects\Sumner\Developer Analysis\Water Model - Town Center\Sumner Water Model - Town Center.mxd 1/9/2019 bpaulson

| Table 7<br>Capital Improvement Projects - Town Center Development | | | | | |
|---|---|---|---|---|---|
| **Project Number** | **Available Fire Flow** | **Required Fire Flow** | **Minimum Recommendation to Meet Requirements** | **Additional Recommendations (not included in Cost Estimate)** | **Opinion of Probable Project Cost (Minimum Requirement)** |
| D1 - Wood Ave<br>(Main St to Maple St) | 1,400 - 1,475 gpm | 1,500 gpm high density residential and commercial, 4,500 gpm heavy industrial and several existing building | Upgrade existing 6-inch AC pipe to 12-inch pipe (550-feet) | Extension of the proposed 12-inch pipe to the 12-inch pipe located on Meade McCumber Rd E and Valley Ave. (3,000-feet) | $300,000 |
| D2 - Sumner Avenue<br>(Maple St to Wood St via alleyway) | 1,485 gpm | 1,500 gpm high density residential and commercial | Upgrade existing 6-inch CI pipe to 8-inch pipe (450-feet) | Extend the pipe upgrade to include the existing 6-inch AC pipe from Maple St to Park St. (950-feet) | $220,000 |
| D3 - Red Apple<br>(Alder St, from Maple St to Academy St) | 1,460 gpm | 1,500 gpm high density residential and commercial | Upgrade existing 6-inch pipe to 8-inch pipe (450-feet). See Red Apple Market Development Technical Memorandum | Extend the pipe upgrade to include the 6-inch CI Pipe on Alder St from Main St to Thompson St with 8-inch pipe. (1,600-feet). | $220,000 |
| D4 - Kincaid Ave<br>(Main St to Thompson St) | 881 - 1,132 gpm | 1,500 gpm high density residential and commercial | Upgrade existing 6-inch CI and 4-inch CI pipe to 8-inch pipe (1,500-feet) | | $650,000 |
| D5 - Cherry Ave<br>(Maple St to Thompson Ave) | 1,063 gpm | 1,500 gpm high density residential and commercial | Upgrade existing 6-inch AC and 4-inch steel pipe to<br>8-inch pipe (1,200-feet) | | $520,000 |
| D6 - State St<br>(Spinning Ave to Hunt Street) | 1,208-1,339 gpm | 1,500 gpm high density residential and commercial, 1,000 gpm medium and low density residential | Upgrade existing 6-inch AC pipe to 8-inch pipe (250-feet) | | $170,000 |
| D7 - Harrison St<br>(West of Hunt St to Hydrant) | 1,338 gpm | 1,500 gpm high density residential and commercial, 1,000 gpm medium and low density residential | Upgrade existing 6-inch AC pipe to 8-inch pipe (650-feet) | Extend the pipe upgrade to 63rd St E and State St. (1,430-feet) | $290,000 |

# 5. Development Analysis Summary and Required Offsite Improvements

With the exception of the potential need to expedite SSCP CIP project C-1, no other offsite improvements are required to the sanitary sewer collection system as a result of this development. However, Sumner's capacity share of the WWTP might need to be renegotiated with Bonney Lake in the next 10 to 20 years as the Town Center approaches full buildout.

Because of high resultant velocities within the water distribution system under fire flow conditions, it is recommended that significant upgrades be made to the smaller diameter pipes listed in Table 7. A conceptual level opinion of probable project cost (OPCC) for these improvements is included attached to this memorandum. The OPPC reflects the portion of mainline upgrades needed to meet the fire flow requirements and replace aging infrastructure that will not support the increased demand. Aging infrastructure includes fire hydrants, small diameter pipes (less than 6-inches), and steel, asbestos concrete (AC), older ductile iron, and older cast iron pipes. Per City standard protocol when performing capital improvements that include aging infrastructure, all CIP items include upgrades to the entire City block.

The City may prefer to expand the scope of individual recommendations as suggested in Table 7. The cost of such an expanded scope would benefit the City through retirement of older cast iron, and AC, also resulting in completion of looping between larger existing water main sizes. These suggested additional lengths are not included within the attached OPPCs, however, as the extended replacement would not be required due to Town Center redevelopment impacts.

Cumulatively, recommended sewer ($90,000 OPPC for SSCP C-1) and water ($2,370,000 combined OPPC for required elements of recommended improvements D1 through D7) infrastructure investments attributable to the proposed Alternative 1 Town Center rezoning impacts total an estimated $2,460,000.

# ATTACHMENT 1

## Opinion of Probable Project Cost

**City of Sumner**
**Planning Level Opinion of Probable Project Costs**
**C - 1 PS-2 (North) Force Main Modifications**
**Prepared by: L. Miller**
**Reviewed by: P. Cunningham**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization / Demobilization | $3,300 | 1 | LS | $3,300 |
| 2 | Temporary Erosion & Sediment Control | $660 | 1 | LS | $660 |
| 3 | Traffic Control | $660 | 1 | LS | $660 |
| 4 | General Restoration | $660 | 1 | LS | $660 |
| 5 | Dewatering | $660 | 1 | LS | $660 |
| 6 | Temporary Sewer Bypass | $10,000 | 1 | LS | $10,000 |
| 7 | Connect to Force Main | $23,000 | 1 | LS | $23,000 |
| 8 | PS-10 Air/vac upgrades | $10,000 | 2 | LS | $20,000 |
| | Subtotal | | | | $39,000 |
| | Sales Tax | 9.3% | | | $4,000 |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $43,000 |
| | **Construction Contingency** | 35% | | | $15,050 |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $60,000 |

| | | |
|---|---|---|
| Planning | 5% | $3,000 |
| Design and Permitting | 15% | $9,000 |
| Services During Construction | 15% | $9,000 |
| **TOTAL OPINION OF PROBABLE ALLIED COST** | | $21,000 |
| **TOTAL OPINION OF PROBABLE PROJECT COST** | | $90,000 |

Notes
1. Import backfill assumed to be 50%
2. Foundation Gravel assumed to be 10%
3. Gen. Rest., Dewatering, Traffic Control, Erosion Control at 2% Construction Costs
4. Mobilization is assumed to be 10% of Construction
5. Pipe costs includes all fittings, pipe, bedding, excavation, haul, and pavement restoration
6. Costs are in 2017 dollars

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D1 Town Center Development - Wood Ave (Main St to Maple St)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $12,000 | 1 | LS | $12,000 |
| 2 | Removal of Structures & Obstructions | $2,000 | 1 | LS | $2,000 |
| 3 | Temporary Erosion & Sediment Control | $3,000 | 1 | LS | $3,000 |
| 4 | Utility Relocation | $3,000 | 1 | LS | $3,000 |
| 5 | Traffic Control | $3,000 | 1 | LS | $3,000 |
| 6 | Cleanup/General Restoration | $3,000 | 1 | LS | $3,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 1,100 | LF | $3,000 |
| 9 | 12-In DI Water Main, Valves, & Appurtenances | $115 | 550 | LF | $64,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 2 | EA | $12,000 |
| 12 | Import Trench Backfill | $55 | 102 | TN | $6,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 159 | TN | $6,000 |
| 14 | Crushed Surfacing Top Course | $40 | 94 | TN | $4,000 |
| 15 | Excavation Support System | $3 | 550 | LF | $2,000 |
| 16 | HMA | $95 | 104 | TN | $10,000 |
| | Subtotal | | | | $148,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $14,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $162,000 |
| | Construction Contingency | 35% | | | $56,700 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $219,000 |
| | | | | | |
| | Planning | 5% | | | $11,000 |
| | Design and Permitting | 15% | | | $33,000 |
| | Services During Construction | 15% | | | $33,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $77,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $300,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D2 Town Center Development - Sumner Avenue (Maple St to Wood St via alleyway)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $9,000 | 1 | LS | $9,000 |
| 2 | Removal of Structures & Obstructions | $1,000 | 1 | LS | $1,000 |
| 3 | Temporary Erosion & Sediment Control | $2,000 | 1 | LS | $2,000 |
| 4 | Utility Relocation | $2,000 | 1 | LS | $2,000 |
| 5 | Traffic Control | $2,000 | 1 | LS | $2,000 |
| 6 | Cleanup/General Restoration | $2,000 | 1 | LS | $2,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 900 | LF | $2,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 450 | LF | $45,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 1 | EA | $6,000 |
| 12 | Import Trench Backfill | $55 | 72 | TN | $4,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 101 | TN | $4,000 |
| 14 | Crushed Surfacing Top Course | $40 | 77 | TN | $4,000 |
| 15 | Excavation Support System | $3 | 450 | LF | $2,000 |
| 16 | HMA | $95 | 85 | TN | $9,000 |
| | Subtotal | | | | $109,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $11,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $120,000 |
| | Construction Contingency | 35% | | | $42,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $162,000 |
| | | | | | |
| | Planning | 5% | | | $9,000 |
| | Design and Permitting | 15% | | | $25,000 |
| | Services During Construction | 15% | | | $25,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $59,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $220,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D3 Town Center Development - Alder Ave (Maple St and Academy St -Red Apple)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $9,000 | 1 | LS | $9,000 |
| 2 | Removal of Structures & Obstructions | $1,000 | 1 | LS | $1,000 |
| 3 | Temporary Erosion & Sediment Control | $2,000 | 1 | LS | $2,000 |
| 4 | Utility Relocation | $2,000 | 1 | LS | $2,000 |
| 5 | Traffic Control | $2,000 | 1 | LS | $2,000 |
| 6 | Cleanup/General Restoration | $2,000 | 1 | LS | $2,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 500 | LF | $1,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 450 | LF | $45,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 3 | EA | $18,000 |
| 12 | Import Trench Backfill | $55 | 40 | TN | $3,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 56 | TN | $2,000 |
| 14 | Crushed Surfacing Top Course | $40 | 43 | TN | $2,000 |
| 15 | Excavation Support System | $3 | 450 | LF | $2,000 |
| 16 | HMA | $95 | 47 | TN | $5,000 |
| | Subtotal | | | | $111,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $11,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $122,000 |
| | Construction Contingency | 35% | | | $42,700 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $165,000 |
| | | | | | |
| | Planning | 5% | | | $9,000 |
| | Design and Permitting | 15% | | | $25,000 |
| | Services During Construction | 15% | | | $25,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $59,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $220,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D4 Town Center Development - Kincaid Ave ( Main St to Thompson St)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $26,000 | 1 | LS | $26,000 |
| 2 | Removal of Structures & Obstructions | $3,000 | 1 | LS | $3,000 |
| 3 | Temporary Erosion & Sediment Control | $6,000 | 1 | LS | $6,000 |
| 4 | Utility Relocation | $6,000 | 1 | LS | $6,000 |
| 5 | Traffic Control | $6,000 | 1 | LS | $6,000 |
| 6 | Cleanup/General Restoration | $6,000 | 1 | LS | $6,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 3,000 | LF | $6,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 1,500 | LF | $150,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 5 | EA | $29,000 |
| 12 | Import Trench Backfill | $55 | 241 | TN | $14,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 335 | TN | $12,000 |
| 14 | Crushed Surfacing Top Course | $40 | 257 | TN | $11,000 |
| 15 | Excavation Support System | $3 | 1,500 | LF | $5,000 |
| 16 | HMA | $95 | 285 | TN | $28,000 |
| | Subtotal | | | | $323,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $31,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $354,000 |
| | Construction Contingency | 35% | | | $123,900 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $478,000 |
| | | | | | |
| | Planning | 5% | | | $24,000 |
| | Design and Permitting | 15% | | | $72,000 |
| | Services During Construction | 15% | | | $72,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $168,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $650,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D5 Town Center Development - Cherry Ave (Mape St to Thompson St)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $21,000 | 1 | LS | $21,000 |
| 2 | Removal of Structures & Obstructions | $3,000 | 1 | LS | $3,000 |
| 3 | Temporary Erosion & Sediment Control | $5,000 | 1 | LS | $5,000 |
| 4 | Utility Relocation | $5,000 | 1 | LS | $5,000 |
| 5 | Traffic Control | $5,000 | 1 | LS | $5,000 |
| 6 | Cleanup/General Restoration | $5,000 | 1 | LS | $5,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 2,400 | LF | $5,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 1,200 | LF | $120,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 3 | EA | $18,000 |
| 12 | Import Trench Backfill | $55 | 193 | TN | $11,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 268 | TN | $10,000 |
| 14 | Crushed Surfacing Top Course | $40 | 206 | TN | $9,000 |
| 15 | Excavation Support System | $3 | 1,200 | LF | $4,000 |
| 16 | HMA | $95 | 228 | TN | $22,000 |
| | Subtotal | | | | $258,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $24,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $282,000 |
| | Construction Contingency | 35% | | | $98,700 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $381,000 |
| | | | | | |
| | Planning | 5% | | | $20,000 |
| | Design and Permitting | 15% | | | $58,000 |
| | Services During Construction | 15% | | | $58,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $136,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $520,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D6 Town Center Development - State St (West of Hunt Street to Spinning St)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $6,000 | 1 | LS | $6,000 |
| 2 | Removal of Structures & Obstructions | $1,000 | 1 | LS | $1,000 |
| 3 | Temporary Erosion & Sediment Control | $2,000 | 1 | LS | $2,000 |
| 4 | Utility Relocation | $2,000 | 1 | LS | $2,000 |
| 5 | Traffic Control | $2,000 | 1 | LS | $2,000 |
| 6 | Cleanup/General Restoration | $2,000 | 1 | LS | $2,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 500 | LF | $1,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 250 | LF | $25,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 2 | EA | $12,000 |
| 12 | Import Trench Backfill | $55 | 40 | TN | $3,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 56 | TN | $2,000 |
| 14 | Crushed Surfacing Top Course | $40 | 43 | TN | $2,000 |
| 15 | Excavation Support System | $3 | 250 | LF | $1,000 |
| 16 | HMA | $95 | 47 | TN | $5,000 |
| | SubC25:C31total | | | | $81,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $8,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $89,000 |
| | Construction Contingency | 35% | | | $31,150 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $121,000 |
| | | | | | |
| | Planning | 5% | | | $7,000 |
| | Design and Permitting | 15% | | | $19,000 |
| | Services During Construction | 15% | | | $19,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $45,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $170,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

**City of Sumner Developer Analysis**
**Planning Level Opinion of Probable Project Costs**
**D7 Town Center Development - Harrison St (West of Hunt St to Hydrant)**
**Prepared By: B. Paulson**
**Reviewed By: C. Kelsey**
**January 2019 - ENR CCI Index 12,008 (Seattle)**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | Mobilization | $12,000 | 1 | LS | $12,000 |
| 2 | Removal of Structures & Obstructions | $2,000 | 1 | LS | $2,000 |
| 3 | Temporary Erosion & Sediment Control | $3,000 | 1 | LS | $3,000 |
| 4 | Utility Relocation | $3,000 | 1 | LS | $3,000 |
| 5 | Traffic Control | $3,000 | 1 | LS | $3,000 |
| 6 | Cleanup/General Restoration | $3,000 | 1 | LS | $3,000 |
| 7 | Abandon Existing Water Main | $5,000 | 1 | LS | $5,000 |
| 8 | Sawcut Existing Pavement | $2 | 1,300 | LF | $3,000 |
| 9 | 8-In DI Water Main, Valves, & Appurtenances | $100 | 650 | LF | $65,000 |
| 10 | Cut-In(s) to Existing System/Tee and Valve Assembly | $5,000 | 2 | EA | $10,000 |
| 11 | Hydrant Assembly | $5,800 | 1 | EA | $6,000 |
| 12 | Import Trench Backfill | $55 | 105 | TN | $6,000 |
| 13 | Pipe Zone Bedding (CSBC) | $35 | 145 | TN | $6,000 |
| 14 | Crushed Surfacing Top Course | $40 | 111 | TN | $5,000 |
| 15 | Excavation Support System | $3 | 650 | LF | $2,000 |
| 16 | HMA | $95 | 123 | TN | $12,000 |
| | Subtotal | | | | $146,000 |
| | | | | | |
| | Sales Tax | 9.3% | | | $14,000 |
| | | | | | |
| | **OPINION OF PROBABLE CONSTRUCTION COST** | | | | $160,000 |
| | Construction Contingency | 35% | | | $56,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE CONSTRUCTION COST** | | | | $216,000 |
| | | | | | |
| | Planning | 5% | | | $11,000 |
| | Design and Permitting | 15% | | | $33,000 |
| | Services During Construction | 15% | | | $33,000 |
| | **TOTAL OPINION OF PROBABLE ALLIED COST** | | | | $77,000 |
| | | | | | |
| | **TOTAL OPINION OF PROBABLE PROJECT COST** | | | | $290,000 |

Notes & Assumptions:

1. Costs for water main include all piping, valves, fittings, bedding, excavation, dewatering, and haul/disposal of excavated soils.
2. HMA includes 3" HMA Trench Patch and does NOT include a HMA road width overlay.
3. Special restoration (streams, wetlands, private property, landscaping) not included.
4. Permitting costs are assumed based on project location and complexity.
5. Project costs related to the City's administrative and other efforts as well as outside agency permitting and other fees are not included in the above estimate.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

# Appendix L

# Contingency Operation Plans

CONTINGENCY PLAN

WATER SYSTEM PERSONNEL INJURY OR DISEASE

**Emergency Scenario: Due to injury or disease, most water system staff is unable to work.**

***NOTE:*** **This plan would be implemented on a short-term basis only. It is recommended to first try and obtain assistance from operators at the Wastewater Treatment Facility, if available, or water department personnel from a nearby municipality or water district. For a long term solution it is recommended to obtain help from other water department municipalities or water districts staff familiar with handling chlorine.**

*Wells* – South Well and Dieringer Well are programmed to turn on automatically with preset level of the south tank and north tank. If the West Well needs to be turned on, staff will need to turn well on manually at the pump house. Switch is located on electrical panel marked Hand-Off-Auto. Turn switch to Hand to manually start well.

*Telemetry* – Telemetry monitors flows and storage and is used to determine if wells are needed to be turned on.

*Spring Treatment Works* – Requires taking daily water samples. Routine maintenance may be delayed.

1. Sample Sites are as follows:

   A. Sumner Springs (4617 Parker Rd) – Sample site is by storage tank at watershed.
   B. County Springs (5221 160th Ave. E.) – Sample is taken by analyzer in chlorine building on pump side. You do not need to use colorimeter at this site. Take reading off analyzer.
   C. South Well (16404 78th Ave. E.) – Sample location is at NW corner off property at green sample station.
   D. Elhi Springs (17137 Hwy 410 across from Winery) – Sample is taken by analyzer in building; take reading from analyzer.
   E. Dieringer Well (1808 E. Valley Hwy.) – Take sample from faucet in well house.
   F. Sumner Viewpoint – Sample taken by analyzer at tank. Take reading from analyzer.

2. Check chlorine residual daily using chlorine colorimeter located in Truck #14 in a blue plastic box. Use the following instructions for taking chlorine samples:

   A. Fill a 10-mL cell to the 10-mL line with sample (the blank). Cap. ***Note:*** *Sample must be analyzed immediately and cannot be preserved for later analysis.* ***Note:*** *Be sure the instrument is in the low range mode.*
   B. Remove the instrument cap. ***Note:*** *For best results, zero the instrument and read the sample under the same lighting conditions.*

C. Place the blank in the cell holder, with the diamond mark facing you. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument). ***Note:*** *Wipe liquid off sample cells.*
D. Press: **ZERO** - The instrument will turn on and the display will show --- then 0.00. ***Note:*** *The instrument automatically shuts off after one minute and the last zero is stored in memory. Press* ***READ*** *to complete the analysis.*
E. Remove the cell from the cell holder.
F. Fill a 10-mL cell to the 10-mL line with sample.
G. Add the contents of one DPD Free Chlorine Powder Pillow to the sample cell (the prepared sample). Cap and shake gently for 20 seconds. ***Note:*** *Accuracy is not affected by undissolved powder.* ***Note:*** *Shaking dissipates bubbles which may form in samples with dissolved gases.*
H. Within 1 minute after adding DPD to the sample, place the prepared sample in the cell holder. ***Note:*** *A pink color will develop if chlorine is present.* ***Note:*** *Wipe liquid off sample cells or damage to the instrument may occur.*
I. Tightly cover the cell with the instrument cap (flat side should face the back of the instrument).
J. Press: **READ** - The instrument will show --- followed by the results in mg/L free chlorine. ***Note:*** *If the sample temporarily turns yellow after reagent addition, or shows over range (flashing 2.20), dilute a fresh sample and repeat the test.*

3. Sumner Springs, County Springs and South Well use gas chlorine for disinfection; all others use sodium hypochlorite (liquid chlorine) for disinfection.
4. Sumner and County Springs have between 1-5 150 lb cylinders; 1 cylinder will be online, 1 will be on standby and 1-3 will be extras chained to the wall. South Well has 1 cylinder online and does not have any extras. All other sites have one 50gal container of sodium hypochlorite online. If the cylinder online at each site is at or falls below 10 lbs and or if the sodium hypochlorite containers at the other sites are at or below 12gals, **obtain assistance from operators at the treatment plant or operators from other municipalities who are qualified and trained to handle chlorine to change cylinders or containers.** Gas chlorine cylinders can be purchased from and delivered by Jones Chemical @253-274-0104. 50gal Sodium Hypochlorite containers can be purchased from and delivered by Cascade Chemical @1-800-533-6334.
5. To keep 0.20mg/l free chlorine at the end of the water distribution system, residual ranges at all sample sites, except Elhi Springs, should be between 0.40mg/l – 0.50mg/l. If the residuals at the sites fall below 0.25mg/l or above 2.5mg/l **obtain assistance from operators at the treatment plant or other municipalities who are qualified and trained to make proper dosage adjustments to maintain the desired residuals between 0.40mg/l – 0.50mg/l.** Elhi Springs maintains between 1.65mg/l - 2.00mg/l residual at the sample site. If it falls below 1.50mg/l or above 3.00mg/l, **obtain assistance from operators at the treatment plant or other municipalities who are qualified and trained to make proper dosage adjustments to maintain the desired residual between 1.65mg/l – 2.00mg/l.**

# CONTINGENCY PLAN
# BOMB THREAT/SABOTAGE

**Scenario**

The City receives a threat of a bomb or sabotage to the water system.

This procedure assumes the location of device is unknown. Should a particular target be identified, initial efforts should be focused on that, though the remainder of the system should be reviewed to ensure that additional threats are not present.

*Response Strategy:*

1. *Engage law enforcement to "clear" all remote or unoccupied facilities prior to entry by staff.*
    a. *Provide law enforcement response with any information about suspicious usual activities observed.*
    b. *Make law enforcement aware of chemicals (chlorine, diesel fuel) stored at each site.*
    c. *Suggest law enforcement clear facilities in the following order:*
        i. *South Well*
        ii. *South Tank & Viewpoint Booster Station*
        iii. *Viewpoint Reservoir*
        iv. *Central Well*
        v. *Pacific Intertie*
        vi. *Dieringer Well*
        vii. *North Tank*
        viii. *Sumner Springs*
        ix. *County Springs*
        x. *West Well*
        xi. *Elhi Springs*

*2. Operations staff should locate valves within the distribution system necessary to isolate each supply source & reservoirs. Do not close valves unless situations dictate and/or directed by incident command.*

*3. As law enforcement clears facilities, make provisions to bring additional sources on line. (Pacific Intertie, inactive wells.)*

*4. If a bomb is found at a facility.*
    a. *Isolate that facility and activate other sources (when those facilities are cleared by law enforcement.)*
    b. *Begin Draining the reservoir if applicable.*
    c. *Remove chlorine cylinders*

# REPORTING BOMB THREATS

## Person Receiving Call

- Attempt to retain the caller long enough to obtain all pertinent information, such as where the bomb/sabotage is located, type of bomb/sabotage, and when it is set to go off.
- Listen carefully to the exact words of the message so that you can repeat the information clearly and accurately.
- Listen for background noises, voice accent, word pronunciation, voice pitch (high or low), male or female voice, child, or adult.
- Try to signal another person near you to call 911.
- Prepare a list of the following information:
  - Date and time of call.
  - Type of bomb/sabotage.
  - Location of bomb/sabotage.
  - Description of bomb/sabotage.
  - What caller actually said.
  - Sex of caller.
  - Estimated age of caller.
  - Type of voice (soft, loud, whisper, normal, drunk).
  - Background noises heard, if any.
  - Your name and location.
- Report the threat to the Police Department and the Director of Public Works.

## Operations Manager

- Notify local law enforcement agency having jurisdiction.
- Notify employees to search their areas for suspicious items.
- If a suspicious object or package is discovered at any time, whether or not a bomb threat call has been received, proceed as follows:
  - Do not move touch or disturb the object or package in any way.
  - Immediately notify the Public Works Director, Police, and Fire Departments.
- Clear all persons from the immediate area and notify the Fire Department of location and description of the suspicious object or package.
- Evaluate available information and make a decision on evacuation.
- When directed to evacuate, leave building and gather at designated assembly areas.
- Take coats, jackets, purses, and briefcases when leaving the work area.
- Lock cash drawers and other valuable items.

## REPORTING BOMB THREATS (Continued)

### Employees

- Being careful not to touch or disturb anything suspicious encountered, search own work areas for suspicious objects or packages as follows:
  - Desks
  - Wastebaskets
  - File Cabinets
  - Supply Room
  - Closets
  - Locked Doors
  - Underside of Horizontal Surfaces
- Turn off electrical machines or other noise making equipment.
- Search non-work areas in assigned area including:
  - Restrooms
  - Conference Rooms
  - Break Rooms
  - Store Rooms
  - Hallways, Stairways, and Lobbies
- Notify immediate supervisor of the results of the search.

## CONTINGENCY PLAN

## REGIONAL EARTHQUAKE

**Scenario**

The City is located in a seismically active region with the potential for extreme seismic events. Given that the extent of damage is unlikely to be known immediately following a large event, it is recommended that the following strategy be implemented following any significant earthquake.

Larger events are anticipated to have regional impacts, therefore there is the potential that outside resources will be unavailable in the immediate aftermath.

Extreme events may disrupt power and transportation networks limiting the ability to acquire basic supplies for several days. Construction materials and pipes could be weeks away.

*Response Strategy:*

1. *Determine the integrity of the distribution network.*
    a. *Monitor tank levels from SCADA system for rapidly draining flows. The Sumner Springs tank has a seismic isolation valve designed to close on sudden high flows.*
    b. *Isolate portions of the system with main breaks capable of depressurizing the system. If necessary, isolate reservoirs and supply sources necessary to preserve a reserve supply of water.*
2. *Assess operability of well sources. If possible, bring additional supply sources on line to maintain system pressure. Start disinfection processes only if it is possible to do quickly.*
    a. *Suggested Sequence to start additional supply sources: Central, Dieringer, South.*
3. *Assess operability of reservoirs & springs.*
    a. *Suggested sequence: South Tank & Booster Pump Station, Viewpoint,*

*NOTE: Access roads to hillside facilities may be blocked or unsafe. If SCADA and visual observations indicate reservoirs and springs are either functional but unreachable OR have catastrophic failure; prioritize triage on the distribution system over physical inspection of the tanks and spring sources.*

4. *Provide an overall assessment of the system to the incident command/ emergency responders.*
    a. *Has a system depressurization occurred?*
    b. *Is the water safe for potable use?*
    c. *In what areas can fire flow be provided? How much water is likely to be available?*
    d. *What resources are needed to expand fire flow availability?*
5. *Once fire flow capabilities are established, prioritize assessing and providing disinfection.*
    a. *Assess chlorine cylinders*
    b. *Provide sodium hypochlorite disinfection through metering pumps if necessary.*

## Contingency Plan

## Major Power Outage

**Scenario**

Major regional power outage could occur in conjunction with earthquake, windstorm, or other disasters.

The ability of the spring sources to operate on gravity along with the provision of emergency generators at Sumner Springs and the Central Well give the water system the ability to operate at a high level of service without utility power for an extended time.

The inability to predict the duration of utility power outages requires this strategy to be implemented upon any power outage

*Response Strategy:*

1. *Mobilize standby operations at the Viewpoint Booster Pump Station.*
2. *Verify standby emergency generators throughout the system are operating as anticipated.*
3. *Operations monitoring*
    a. *Monitor fuel usage rates*
4. *Extended Outage Operations*
    a. *Provided that system demand can be met with spring sources, prioritize utilizing fuel for the viewpoint booster pump station. Powering chlorinators at Spring Sources is likely more vital than operating the Central Well.*

## Contingency Plan

## Flooding Washouts

**Scenario**

100-year flood in the Puyallup and White Rivers. Heavy rains cause washouts of roads and embankments.

Given the inability to predict how extreme flood levels will rise to, it is recommended that this strategy be implemented when the staff becomes aware of an impending flood event.

*Response Strategy:*

1. *Pre-emptive and initializing operations*
    a. *Verify the viewpoint booster station is set up for emergency operation*
    b. *Verify generators are fueled and chlorine supplies are suitable for extended operation.*
    c. *Close the valves isolating the water main on the 8th Street/ Stewart Road bridge. Open the Pacific Intertie to maintain positive pressure in the north end of the system west of the White River.*
2. *In case of a hillside failure causing catastrophic failure of Spring Sources.*
    a. *Isolate the failed infrastructure from the remaining portions of the distribution system.*
    b. *Assess the need for issuing drinking water advisories and implementing the water shortage response plan.*
    c. *Sandbag around the central well to allow the facility to operate as an emergency source of supply*
    d. *Assess the capability of the South Well to be brought on line if necessary.*
3. *High system demands are likely to be the result of water main breaks. The breaks are likely to be associated with mudslides.*
    a. *Find and isolate breaks from the remainder of the system until they can be repaired.*

## Contingency Plan

## Hazardous Spill

**Scenario**

A hazardous chemical spill occurs in the watershed, and one or more spring sources become contaminated. This could occur from a chemical truck overturning on the Sumner-Tapps Highway, but other scenarios could occur.

*Response Strategy:*

1. *Assess the ability to take immediate action to stop or contain the spill.*
    a. *To the extent possible, prevent the chemicals from spreading into drinking water supplies, waterbodies, or watersheds.*
2. *Provide notification to proper authorities of a spill.*
    a. *Emergency Responders*
    b. *Public Works Director*
    c. *Department of Health, Department of Ecology, Pierce County Board of Health.*
3. *Assess the need for issuing a public drinking water advisory and/or water shortage response plan.*
4. *Isolate portions of the distribution system that are likely to be contaminated.*
5. *If necessary, activate alternative supply sources to meet system demands.*
6. *Conduct water testing to determine the extent of contamination.*
7. *Establish appropriate disinfection and/or treatment processes where feasible.*

## Contingency Plan

## Extended Drought

**Scenario**

Extended drought conditions could impact the availability of water supply while simultaneously leading to higher water demands on the system.

Given the inability to predict the duration or severity of a drought, it is recommended that this strategy be implemented as staff becomes aware of reduced source production rates, extreme system demand, extended periods of low rainfall, or when reservoir levels do not refill over 48hr periods.

*Response Strategy:*

1. *Verify source and storage facilities are functional and operating properly.*
2. *Closely monitor the system*
    a. *Monitor tank heights, source production rates, aquifer levels, and chemical supplies*
    b. *Review recorded data for any indication that leaks might be present in the system.*
3. *Curtail the use of water for internal operations where possible.*
    a. *Parks, street sweeping, WWTP operations, and sewer collections are internal departments that may be able to reduce water usage on a voluntary basis for the duration of a drought event.*
4. *Assess the potential to bring additional supply sources on line such as the west well or the Pacific intertie.*
5. *Implement the Water Shortage Response Plan.*

## Contingency Plan

## Water System Personnel Injury

**Emergency Scenario**

Water system staff are unavailable for an extended period of time. This could be attributable to injury or illness. This scenario could encompass organized work stoppages.

*Response Strategy:*

1. *Ensure City's field operations staff are cross trained and certified on the water system operation to the extent possible.*
2. *Secure alternative qualified personnel where possible.*
    a. *Consider reaching out to other agencies within the PC Water Cooperative or other City's signatory to the WAWARN agreement.*
    b. *Contract operation of the system may be possible through private entities.*
3. *As appropriate communicate with Department of Health any issues related to the provision of qualified operations staff for the plant.*
4. *Evaluate the routine maintenance and or monitoring efforts that are able to be delayed to accommodate reduced staffing levels.*

## Contingency Plan

## Mechanical Failure

**Scenario**

The system experiences a disruption in service due to a substantial equipment or facility failure.

The redundancy within the system's supply sources and storage facilities along with the relatively few mechanical components necessary to operate the spring sources, makes this scenario unlikely to substantially impact the level of service provided by the utility.

*Response Strategy:*

1. *Evaluate the system's ability to provide adequate levels of service without the failed equipment.*
    a. *Contact the Public Works Director.*
    b. *Bring additional supply sources online or open the intertie with Pacific as necessary.*
    c. *Implement the water shortage response plan if necessary.*
2. *Assess the options for repairing or replacing the failed components. Undertake the appropriate course of action.*
    a. *If necessary, consider the formal declaration of an emergency. This may prove helpful in procuring assistance in a more timely manner.*
    b. *Consider if the failed component or impact attributable to the failure are covered under an insurance policy.*

## Contingency Plan

## Sub-Zero Weather

**Scenario**

An extended deep freeze could have impacts to the water systems level of service.

Breaks in pipes subject to freezing are likely. It is likely similar conditions will be occurring regionally. It is unclear what effect extreme cold temperatures could have on flow quantities from spring sources.

The extent and duration of the cold weather event may not be apparent at the start of the event, therefore it is recommended to begin implementing these strategies on routine basis as cold weather events occur.

*Response Strategy:*

1. *Preemptive Actions*
    a. *Evaluate fuel and chemical supplies*
    b. *Verify heaters at various facilities are operational.*
    c. *System demand is likely to be very low apart from breaks due to frozen pipes.*
        i. *Wells operation is not likely to be necessary. The Central well could be utilized should another source become incapacitated.*
    d. *Ensure that staff has adequate provisions for cold weather operations.*
2. *Prepare for emergency operations at the Viewpoint Booster Pump Station in case power supplies are interrupted.*
3. *System monitoring*
    a. *Review the system for leaks due to frozen pipes.*
    b. *Pipes anticipated to be susceptible to freezing should have hose bibs cracked opened to allow some flow in order to reduce the likelihood of freezing.*
    c. *Staff should monitor ARV valves to ensure continued operation.*
4. *Thaw Recovery*
    a. *System demand should be expected to increase during the thaw as pipes that cracked when frozen begin to thaw.*
    b. *Thawed ground may also be muddy causing access issues.*

## Contingency Plan

## Watershed Fire

**Scenario**

A fire within the watershed could threaten spring taps, collection works, chlorination facilities, and storage tanks. Fire containment could be difficult given the inaccessibility of the terrain.

*Response Strategy:*

1. *Immediate operations should be coordinated with First Responders.*
    a. *Inform first responders of the water shed limits. Advise firefighting operations that as a primary source of drinking water, chemicals having the potential to contaminate drinking water should be avoided.*
    b. *Inform first responders of the chemicals stored on site including diesel fuel and chlorine gas.*
2. *Operations staff should locate valves within the distribution system necessary to isolate any supply sources & reservoirs potentially affected. Do not close valves unless situations dictate.*
    a. *Tanks should be kept full to provide insulating capacity within the tanks.*
3. *Activate other sources as necessary to meet system demands inclusive of firefighting demands.*
    a. *In addition to the Central and South Well, consider activating the Pacific Intertie and the West Well.*
4. *Monitor water quality. Water may be highly turbid.*
    a. *Contact Department of Health and the Pierce County Health Department.*
    b. *Assess the need for issuing a public drinking water advisory and/or initiate the Water Shortage Response Plan.*
    c. *Isolate the distribution system from sources with poor water quality.*

## Contingency Plan

## Windstorm

**Scenario**

Windstorms have the potential to impact water system service levels. Primary impacts are likely from debris making access roads to spring sources inaccessible or falling trees damaging facilities.

The severity and duration of windstorms are difficult to predict in advance therefore the response strategy should be implemented as a routine precaution when windstorms are encountered.

*Response Strategy:*

1. *Pre-emptive and initializing operations*
    a. *Verify the viewpoint booster station is set up for emergency operation*
    b. *Verify generators are fueled and chlorine supplies are suitable for extended operation.*
2. *In case of a hillside becomes impassible monitor spring sources for catastrophic failure from the SCADA network. If a catastrophic failure appears to have occurred implement the following:*
    a. *Isolate the failed infrastructure from the remaining portions of the distribution system.*
    b. *Assess the need for issuing drinking water advisories and implementing the water shortage response plan.*
    c. *Activate well sources as necessary to meet system demands.*

## Contingency Plan

## Vandalism

**Scenario**

Vandalism is intended to cover the range of actions that could be associated with unauthorized intrusion into the water facilities. Envisioned actions could include:

- Vagrants looking to camp in obscure locations
- Theft of equipment of supplies
- Nuisance intrusion for under-age drinking in secluded locations
- Threats against facilities such as painting "I poisoned your water" on a reservoir.
- A terrorist attack intending to cause maximum harm and/or undermine public confidence.

Given the difficulty in distinguishing between various threats, all threats or suspicious behavior are to be taken seriously and assumed credible by system operators.

*Response Strategy:*

***NOTE: Operator safety should be paramount in responding to intrusion or vandalism. This is particularly important in addressing issues within the watersheds and in facilities that are not routinely occupied.***

1. *Law enforcement personnel should be contacted immediately to address any suspicious activity or unauthorized intrusions.*
    a. *Operators should coordinate with law enforcement personnel to ensure crime scenes are not disturbed.*
    b. *When an intrusion is identified, operators should check adjacent facilities for signs of suspicious activity.*
2. *Indications of an attack against the drinking water system are to be presumed credible until proven otherwise.*
    a. *Contact regulatory authorities promptly for guidance.*
    b. *Contact law enforcement promptly.*
3. *Isolate any compromised infrastructure from the remainder of the distribution system.*
4. *Assess the need for issuing drinking water advisories.*
5. *Conduct water testing to ascertain the extent, if any, of system contamination.*
    a. *Records of system pH, disinfection levels, residual chlorine, and temperature should be reviewed to determine if trending patterns can provide additional information.*
6. *Activate alternative supply sources as necessary to meet system demands.*

## Contingency Plan

## Chlorine Gas Leak.

Standard Operating Procedures for handling Chlorine gas are posted at each facility where chlorine gas is used. Operation of chorine gas equipment should only be done by operators trained to do so safely.

# Appendix M

# DOH Form 331-583

# Water Main Break Response Protocol for Chlorinated Systems

331-583 • 1/1/2017

Our water infrastructure continues to age faster than it is replaced, resulting in ever-aging water distribution systems. Water main breaks remain a major issue for water utilities despite improved asset management and financial planning. By some estimates, over 700 water mains break in the United States every day and need repair. Water utilities repair these types of breaks quickly and without interruption in water service or risk to water quality. Some breaks, like those that make the news, can affect water service to many people and businesses and present a significant risk to public health.

The water industry recognizes the need to classify water main breaks in terms of public health significance. We established four categories of water main breaks to standardize communication and response efforts in Washington State. These categories describe public health risk across the spectrum of water main failure impacts to utility operations. They are consistent with the Water Research Foundation study—Effective Microbial Control Strategies for Main Breaks and Depressurization (Kirmeyer et al. 2014).

The attached tables describe the recommended response, communication, and repair procedures for each type of water main break. We recommend water utilities incorporate these protocols into their standard operating procedures. The guidance for responding to each type of break is consistent with the requirements of WAC 246-290-451(1).

## For more information

Our publications are online at http://www.doh.wa.gov/drinkingwater.

Contact our nearest regional office from 8 a.m. to 5 p.m. Monday through Friday. If you have an after-hours emergency, call (877) 481-4901.

Eastern Region, Spokane Valley (509) 329-2100 Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima counties.

Northwest Region, Kent (253) 395-6750 Island, King, Pierce, San Juan, Skagit, Snohomish, and Whatcom counties.

Southwest Region, Tumwater (360) 236-3030 Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Kitsap, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum counties.

Washington State Department of Health

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

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## Main Break Categories

| Type I Break | Type II Break | Type III Break | Type IV Break |
|---|---|---|---|
| Positive pressure maintained through completion of repair. | Controlled pipe repair with limited depressurization during pipe segment shutdown. | Uncontrolled loss of pressure at break site or depressurization elsewhere in the system. | Catastrophic main break or water loss event resulting in the complete loss of water service. |
| Pressure maintained in pipe during repair. | Pressure maintained at break site until pipe is exposed and trench dewatered. Shutdown limited to immediate valved off area. No loss of pressure elsewhere. | Pressure loss at break site while pipe is still buried or submerged and/or pressure loss elsewhere in the system. | Extensive water loss compared to system capacity, with no pressure/no water. Storage loss leaves limited flushing capacity. |
| Contamination is unlikely. | Limited possibility of contamination. | Significant possibility of contamination. | Contamination likely or certain. |

| **Type I Main Break Response** |
|---|
| Assess environmental impacts and respond accordingly. |
| Call Washington 811. |
| Excavate to below break. Maintain pit water level below break. |
| Disinfect repair parts and repair site by swab/spray with 1% chlorine solution. |
| Complete repair with pipe still pressurized. |
| Restore residual disinfectant level at break to background levels by flushing. |
| Boil Water Advisory (BWA) and bacteriological sampling not needed. |

| **Type II Main Break Response** |
|---|
| Assess environmental impacts and respond accordingly. |
| Call Washington 811. |
| Excavate to below break. Maintain pit water level below break. |
| Isolate/shut off customer services in affected area. |
| Provide customer notification using door hanger, personal contact, email, or reverse 911. |
| Follow established utility procedures to perform controlled shutdown of broken pipe segment. |
| Disinfect repair parts and repair site by swab/spray with 1% chlorine solution. If pipe replacement, disinfect from both ends by swabbing. |
| Complete repair. |
| Conduct low velocity flush to displace water in affected piping. Discharge to waste. |
| Flush to restore residual disinfectant level at the break to background levels. |
| Advise customers to flush plumbing when water service returns. Verify service is restored to all isolated customers. |
| If utility shuts off customer services in affected area and positive pressure is maintained throughout the system prior to depressurizing the break site, a boil water advisory is not needed. |
| Collect bacteriological/heterotrophic plate count samples to validate repair procedures. The utility may restore service before getting results. |

| Type III Main Break Response |
|---|
| Assess environmental impacts and respond accordingly. |
| Call Washington 811. |
| Provide generic water main break notification and customer response steps on utility's website or directly to customers by door hanger, personal contact, email, or reverse 911 as soon as possible. |
| Review cross connection control program status, particularly compliance with premise isolation of high health hazards and assess risk of back siphon/backflow accordingly. |
| Call DOH and local health jurisdiction. Decide appropriate public notification message and methods. |
| Issue a boil water advisory and update the utility's website to show impacted area(s). |
| Evaluate firefighting capacity and sanitation impacts and communicate with appropriate entities. |
| Isolate/shut off customer services at the break site (if practical). |
| Disinfect repair parts and repair site—swab/spray with 1% chlorine solution. If pipe replacement, disinfect from both ends by swabbing. |
| Complete repair. |
| Complete post-repair disinfection of the distribution system, applying AWWA Standard C651 Section 4.11.3.3, Water Research Foundation Project 4307, or other applicable standard for guidance on disinfectant levels, if:<br>• Pressure is lost at the break before dewatering the trench and isolating the break.<br>• The break results in loss of pressure at points beyond break site, depending on degree of risk associated with extent, duration, and type of services affected. |
| Conduct a scour flush (at least three feet/second) to remove break-related sediment. This may not be practical for pipes greater than a 12-inch diameter. Flush at maximum practical flow rate until at least three pipe volumes are displaced and flush water runs clear. |
| Conduct a low velocity flush throughout area(s) subject to low pressures to displace water and restore background chlorine residual. |
| Restore residual disinfectant level at the break to background levels. |
| Check residual disinfectant level throughout the distribution system. |
| Advise customers to flush household plumbing when water service returns. |
| Collect bacteriological samples to verify effectiveness of response and provide basis for lifting the boil water advisory. The number of samples should reflect the impacted service population and service area. |
| Rescind BWA based on water quality monitoring results. |
| **Type IV Main Break Response**<br>A Type IV break is a Type III break, with significant impact on system-wide performance. Follow Type III response plus the following. |
| Assess utility capacity to deal with event and seek aid as soon as possible. |
| Notify local fire authority of current and expected status of storage volume and system pressure. |
| Depletion of stored water may affect flushing capacity following repairs, delaying full restoration of water service and lifting the BWA. |
| Utility may need to include conservation messages with BWA notification. |
| Continually assess storage, source, and distribution capacity as related to post-repair flushing needs. |

# Appendix N

# SEPA Checklist

# CITY OF SUMNER
# ENVIRONMENTAL CHECKLIST

***Purpose of checklist:***

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

***Instructions for applicants*:**

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

***Use of checklist for nonproject proposals:***

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." in addition, complete the supplemental sheet for nonproject actions (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively

## A. BACKGROUND

1. Name of proposed project, if applicable:
   **City of Sumner - 2018 General Sewer Plan Update**

2. Name of applicant:
   **City of Sumner Public Works Department**

3. Address and phone number of applicant and contact person:
   **City of Sumner Public Works Department**
   **1104 Maple Street, Suite 260**
   **Sumner, WA 98390**
   **(253) 299-5700**
   ***Contact:*** **Jason VanGilder, P.E.**

4. Date checklist prepared:
   **April 2018**

5. Agency requesting checklist:
   **Washington State Department of Ecology**

6. Proposed timing or schedule (including phasing, if applicable):
   **The anticipated date for adoption of the 2018 General Sewer Plan Update (Plan) by the Sumner City Council is the second half of 2018.**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
   **This is a non-project action adopting the Plan. In addition to the City's Plan and the Capital Improvement Plan (CIP), incremental sewer facilities may be constructed in conjunction with private development, as they occur. The CIP is discussed in Chapter 10 of the Plan.**

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
   **No environmental information has been prepared to date. Environmental information will be developed and compiled during design and construction of each individual project as required by the Sumner Municipal Code.**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
   **Property owners and developers have, and are expected to apply for, approval of development that will require sewer service. These developments are not addressed specifically in the Plan. The Plan provides for necessary sewer collection, conveyance, and treatment improvements necessary to support such development in accordance with the Comprehensive Plan and development code. All project-level improvements will be subject to environmental review at the time of their application. No pending proposal will affect this non-project action.**

10. List any government approvals or permits that will be needed for your proposal, if known.
    **The Plan must be approved by the Washington State Department of Ecology. Review by other jurisdictions and agencies include Pierce County and the City of Sumner City Council.**

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those

answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

**As needed for for demonstrating compliance with the Growth Management Act (GMA), this proposal involves adoption of amendments to the 2000 City of Sumner Sanitary Sewer Comprehensive Plan Ammendment. The amendments identify three categories of action:**

**<u>Programmatic</u> – Updating the Plan to address a revised 20-year population forecast for the City's Urban Growth Area (UGA). This will enable the City to address future needs for sewer service within the defined UGA.**

**<u>Capital Projects</u> – Updating the list of specific capital projects that are necessary to implement the Plan. These will be included in the Comprehensive Plan Capital Improvement Program Element. Subsequent project-level environmental review will be conducted at the time these projects are proposed for implementation.**

**<u>Operation, Maintenance& Repair</u> – Day-to-day and periodic projects necessary to maintain the current and future sewer system in working order are described in the Plan as further addressed in the sewer utility operations and maintenance standards and procedures.**

**Projects proposed in the next 20 years are discussed in detail in Chatper 10 of the Plan.**

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

    **The service area covered by the 2018 General Sewer Plan includes area within the current City of Sumner municipal limits and portions of the designated UGA. Sumner is located in northern Pierce County, specifically T20N R4E, T20N R5E, and T19N R5E. The City borders the east end of North Puyallup.**

## B. ENVIRONMENTAL ELEMENTS

### 1. Earth

a. General description of the site
(circle one): **Flat**, rolling, hilly, steep slopes, mountainous, other _____

**The City of Sumner topography is predominantly flat in the valley, with slopes ranging from 0 to 5 percent. The City sewer service area includes the Forest Canyon development and other areas on the east and west hillsides. Some portions of the service area have slopes ranging from 10 to 20 percent.**

b. What is the steepest slope on the site (approximate percent slope)?
**Approximately 100 percent on the east and west slopes. This non-project action will not impact slopes generally, and any project proposed under this ordinance will be reviewed separately for SEPA compliance where required**

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.
**The valley floor is primarily made up of Puyallup, Sultan, Puget, Snohomish, and Briscott soil types. These soils are well suited for agriculture. The hillsides and upland soils are predominantly of the Alderwood series. These soils are moderately draining. Everett, Kapowsin, and Kitsap soil types are also present in the upland areas. These soils range from poorly to excelssively draining.**

**Soils and soil types are not generally impacted by this non-project action. An extensive discussion of the soils and their properties can be found in the NRCS *Pierce County Washington Soil Survey* (July, 1955).**

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
**Evidence of past slides can be seen on the hillsides above the East and West Valley Highways. Both hillsides have a history of unstable soils. Unstable soils and steep slopes will not be impacted by this non-project action. Separate site-specific review will determine impacts to soils and slopes and SEPA compliance.**

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.
**No filling or grading is proposed as part of this non-project action. New sewer lines may be backfilled with either native or imported fill material. Fill or grading related to site-specific proposals under this ordinance will be reviewed separately for SEPA compliance.**

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
**No clearing or construction is proposed as part of this non-project action. The risk of erosion as a result of clearing or construction is higher on the hillsides due to the steeper slopes.**

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?
**No construction is proposed as part of this non-project action. Construction of all capital projects would create an undetermined amount of impervious area.**

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
**No specific measures are proposed as part of this non-project action. Each project will be evaluated as part of site-specific project review for compliance with SEPA and implementation of best management practices in conformance with the Sumner Municipal Code.**

## 2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.
**This non-project action will have no impact on air quality. Air quality will be evaluated as**

**part of site-specific project review and SEPA analysis. Petroleum fumes and dust from construction equipment may be emitted during construction activities for the capital projects. There will be minimal emissions from completed projects.**

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
**This non-project action will have no impact on air quality. Air quality will be evaluated as part of site-specific project review and SEPA analysis.**

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
**Slashing and burning cleared vegetation will be prohibited. Fugitive dust will be controlled by implementing best management practices such as sprinkler trucks, jute matting, and hydroseeding.**

3. **Water**

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
**Lake Tapps and Hidden Lake are located just over one mile from the eastern border of the City. The Puyallup River runs through the City from the north to the southeast end. Other surface water bodies include the Salmon Creek, White River, Van Ogles Creek, and Milwaukee Ditch. Salmon Creek and Milwaukee Ditch are tributary to the White River. Wetlands are interspersed throughout the service area. Impacts on surface water bodies will be evaluated as part of site-specific project review and SEPA analysis.**

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
**This non-project action will not require any work over, in, or adjacent to these waters. Impacts on surface water bodies will be evaluated as part of site-specific project review and SEPA analysis.**

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
**This non-project action will not require any filling or dredging. Impacts as a result of filling or dredging will be evaluated as part of site-specific project review and SEPA analysis. Disturbance to wetlands as a result of capital project construction will be mitigated per the applicable regulations.**

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.
**This non-project action will not require any surface water withdrawals or diversions. The proposed permit, policy, and ordinances will provide additional protection for all water bodies. Impacts of this type will be evaluated as part of site-specific project review and SEPA analysis.**

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
**Some areas of the City are identified as lying within the 100-year flood plain (as defined in the 2017 FEMA Flood Maps for Pierce County). This non-project action does not**

**impact flood areas specifically. Any proposal involving flood areas will comply with Chapter 15.52, *Flood Damage Prevention,* of the Sumner Municipal Code and will be evaluated as part of site-specific review and SEPA analysis.**

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
**This non-project action will not require discharge of materials to surface waters Impacts of this type will be evaluated as part of site-specific project review and SEPA analysis.**

**The non-project action does describe the processes whereby treated effluent from the City's Waste Water Treatment Plant is discharged to surface water as permitted by the Department of Ecology under an existing NPDES Permit.**

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.
**No.**

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
**This non-project action will not require any discharge of waste material to groundwater.**

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.
**Stormwater runoff from construction sites will be controlled to prevent erosion and fines migration offsite. Runoff from impervious areas created as a result of improvement construction will be controlled as required by the Sumner Municipal Code.**

2) Could waste materials enter ground or surface waters? If so, generally describe.
**This non-project action will not impact ground or surface waters and the goals to minimize the effects of discharge of waste materials. Possible contamination of ground or surface waters with waste materials will be evaluated as part of site-specific project review and SEPA analysis.**

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.
**This non-project action will not have a effect on drainage patterns. Possible impacts to drainage patterns will be evaluated as part of site-specific project review and SEPA analysis.**

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

**This non-project action will not have a effect on surface, ground or runoff waters. Possible impacts to surface, ground, and runoff water will be evaluated as part of site-specific project review and SEPA analysis. Best management practices will be implemented and maintaind for construction of capital projects.**

4. **Plants**

a. Check the types of vegetation found on the site:

- ✔ deciduous tree: alder, maple, aspen, other
- ✔ evergreen tree: fir, cedar, pine, other
- ✔ shrubs
- ✔ grass
- ✔ pasture
- ✔ crop or grain
- ✔ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- ✔ water plants: water lily, eelgrass, milfoil, other
- ____ Orchards, vineyards or other permanent crops.
- ✔ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?
**Construction of capital projects may require minor clearing and grubbing of native and second-growth forest, grasslands, and urban landscaping. Vegetation removal and enhancement will be evaluated as part of site-specific project review and SEPA analysis.**

c. List threatened and endangered species known to be on or near the site.
**This non-project action will have no impact on threatened or endangered species. Species will be evaluated as part of site-specific project review and SEPA analysis.**

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
**This non-project action does not propose any landscaping. Landscaping for capital projects will be evaluated as part of site-specific project review and SEPA analysis.**

e. List all noxious weeds and invasive species known to be on or near the site.
**This non-project action will have no impact on noxious weeds and invasive species. Flora will be evaluated as part of site-specific project review and SEPA analysis.**

5. **Animals**

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: **hawk, heron,** eagle, **songbirds,** other
mammals: **deer,** bear, elk, **beaver, other: rodents**
fish: bass, **salmon**, **trout**, herring, shellfish, other

b. List any threatened and endangered species known to be on or near the site.
**Salmon species including Puget Sound Shinook and bull trout are anticipated to be near the sites of some capital projects. Effects of proposals on wildlife will be evaluated as**

**part of site-specific project review and SEPA analysis.**

c. Is the site part of a migration route? If so, explain.
**The Puyallup and White Rivers are a migration route for Pacific Northwest salmon species and part of the Pacific Flyway for migratory birds. Effects on wildlife will be evaluated as part of site-specific project review and SEPA analysis.**

d. Proposed measures to preserve or enhance wildlife, if any:
**Disturbed areas as a result of construction of capital projects will be restored to natural state to the extent practical. Effects of site-specific project proposals on wildlife will be evaluated as part of the site-specific project review and SEPA analysis.**

e. List any invasive animal species known to be on or near the site.
**Invasive animal species on or near construction sites for capital projects will be evaluated as part of site-specific project review and SEPA analysis.**

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
**Energy will be used to run pumps and treatment processes at completed projects. Energy consumption will be evaluated as part of site-specific project review and SEPA analysis and in accordance with the Washington State Energy Code which the City has adopted.**

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.
**It is anticipated that capital projects will have no effect on solar access. Solar access will be evaluated as part of site-specific project review and SEPA analysis.**

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:
**Energy conservation features will be evaluated further as part of site-specific project review and SEPA analysis.**

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.
**This non-project action will not cause threats of environmental health hazards. Environmental health hazards will be evaluated as part of site-specific project review and SEPA analysis.**

1) Describe any known or possible contamination at the site from present or past uses.
**Effects of individual proposals on contamination sites will be evaluated as part of site-specific project review and SEPA analysis.**

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas

transmission pipelines located within the project area and in the vicinity.
**Effects of individual proposals on existing hazardous chemicals/conditions that might effect project development and design will be evaluated as part of site-specific project review and SEPA analysis.**

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.
**This non-project action will not involve any hazardous chemicals. Individual proposals will be evaluated for toxic or hazardous chemicals as part of site-specific project review and SEPA analysis.**

4) Describe special emergency services that might be required.
**No special emergency measures will be required as part of this non-project action.**

5) Proposed measures to reduce or control environmental health hazards, if any:
**No measures to reduce or control environmental health hazards are necessary as part of this non-project action.**

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?
**Noise levels in the City are regulated under Chapter 8.14 *(Noise Control)* of the Sumner Municipal Code. Construction equipment for use on capital projects will create noise. This non-project action will not be affected by noise levels.**

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.
**Construction activities for capital projects will generally occur between 8 a.m. and 5 p.m., Monday through Friday, except on holidays. This non-project action will have no effect on noise levels. Noise impacts of individual proposals will be evaluated as part of site-specific project review and SEPA analysis.**

3) Proposed measures to reduce or control noise impacts, if any:
**Construction equipment operational noise will be confined to normal working hours. No long-term noise increases are anticipated at the completed improvement sites.**

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.
**General land-use classifications within the City's Sewer Service Area include residential, commercial, industrial, civil/parks, and agricultural. Impacts of individual proposals on current land uses on nearby or adjacent properties will be evaluated as part of site-specific project review and SEPA analysis.**

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not

been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
**Yes, various sites within the Sewer Service Area are utilized for agricultural purposes. Individual proposals will be evaluated for the site's previous land use as part of site-specific project review and SEPA analysis.**

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:
**This non-project action will have no effect on, nor would be effected by, surrounding working farm or forest land normal business operations. The impact of surrounding working farm or forest land normal business operations to individual proposals will be evaluated as part of site-specific project review and SEPA analysis.**

c. Describe any structures on the site.
**Various residential, commercial, industrial, and civil buildings exist within the Sewer Service Area. Any future proposed development activity will be evaluated as part of site-specific project review and SEPA analysis.**

d. Will any structures be demolished? If so, what?
**It is not anticipated that any capital project requires structures to be demolished. Any future proposed demolition will be evaluated as part of site-specific project review and SEPA analysis.**

e. What is the current zoning classification of the site?
**Current zoning is described in the 2015 Sumner Comprehensive Plan Update, on file at the City of Sumner Public Works Department and available on the City's website.**

f. What is the current comprehensive plan designation of the site?
**Current land use designations within the Water Service Area are described in the 2015 Sumner Comprehensive Plan Update, on file at the City of Sumner Public Works Department and available on the City's website.**

g. If applicable, what is the current shoreline master program designation of the site?
**Urban, Conservancy, and Natural.**

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.
**Environmentally sensitive areas in Sumner include wetlands, steep slopes, and flood plains. These areas are inventoried in the City's Comprehensive Plan and are regulated under Sumner Municipal Code Titale 16, Division III, *Natural Resource Lands and Critical Areas*. Environmentally sensitive areas will be evaluated as part of site-specific project review and SEPA analysis.**

i. Approximately how many people would reside or work in the completed project?
**Not applicable to this non-project action.**

j. Approximately how many people would the completed project displace?
**Not applicable to this non-project action. It is anticipated that completed capital projects would not displace any people.**

k. Proposed measures to avoid or reduce displacement impacts, if any:
**Sewer main replacement and extension projects will be completed in existing right-of-way whenever possible. Pump station improvements will be completed on City-owned property.**

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
**The GMA requires concurrence of plans. The General Sewer Plan was developed to coincide with the recommendations and land-use projections specified in the City of Sumner and Pierce County Comprehensive Plans.**

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:
**Capital projects that may impact nearby agricultural and forest lands of long-term commercial significance will be evaluated as part of a site-specific project review and SEPA analysis.**

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
**Not applicable to this non-project action; none are anticipated for the capital projects listed in the General Sewer Plan.**

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
**No units will be eliminated by the non-project action; none are anticipated for the capital projects listed in the General Sewer Plan.**

c. Proposed measures to reduce or control housing impacts, if any:
**Proposed facilities for the capital projects will be located in existing right-of-way or City-owned property as much as possible.**

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?
**This non-project action has no effect on building and structure height.**

b. What views in the immediate vicinity would be altered or obstructed?
**This non-project action will have no impact on views. Views will be evaluated as part of site-specific project review and SEPA analysis. It is not anticipated that the capital projects will have an impact on views.**

c. Proposed measures to reduce or control aesthetic impacts, if any:
**New structures will be finish painted to blend into the surroundings. Landscaping will be installed at each site as required by the Sumner Municipal Code.**

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
**This non-project action will not produce any light and/or glare. Light and glare will be evaluated as part of site-specific project review and SEPA analysis.**

b. Could light or glare from the finished project be a safety hazard or interfere with views?
**This non-project action will not produce any light and/or glare. Light and glare will be evaluated as part of site-specific project review and SEPA analysis.**

c. What existing off-site sources of light or glare may affect your proposal?
**This non-project action will not be affected by any off-site source of light or glare. Off-site sources of light and glare will be evaluated as part of site-specific project review and SEPA analysis.**

d. Proposed measures to reduce or control light and glare impacts, if any:
**Site lighting will be shielded and focused to on-site areas for the capital projects.**

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?
**Recreation in the City is inventoried in the Sumner Parks and Recreation Plan. Activities include fishing, biking, canoeing, playgrounds, and rafting.**

b. Would the proposed project displace any existing recreational uses? If so, describe.
**This non-project action will not displace any existing recreational uses. Capital projects are not anticipated to displace any existing recreational uses.**

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
**None are anticipated to be necessary.**

13. **Historic and cultural preservation**

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.
**There are several historic homes within the City's Sewer Service Area. Archeological and historic resources are recorded at the State of Washington Department of Archeology and Historic Preservation.**

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.
**The Muckleshoot and Puyallup Indian Tribes place great cultural significance on the fishery resource provided by the White and Puyallup Rivers, and tributaries thereof.**

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

**Not applicable to this non-project action. Capital projects requiring assessment of potential impacts to cultural and historic resources will be evaluated as part of site-specific project review and SEPA analysis.**

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
**In the event any archaeologically significant artifacts are found during construction of the proposed improvements, all work will be suspended until an investigation and evaluation of the site can be completed by archaeologists to ensure that artifacts are protected and preserved. Impacts to fisheries will be avoided whenever possible.**

14. **Transportation**

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.
**Major highways located within the City's Sewer Service Area include SR 167, SR 410, SR 162, and East and West Valley Highways. Arterials and neighborhood streets are shown on maps presented in the Water System Plan. Location of, and access to, public streets and highways will be evaluated as part of site-specific project review and SEPA analysis.**

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?
**The City is served by Sound Transit. Sound Transit operates a commuter system comprised of public buses, and commuter trains.**

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?
**It is not anticipated that the capital projects will create additional parking spaces. It is not anticipated that the projects will eliminate parking spaces, either.**

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).
**This non-project action will not create the need for any new or improved streets. Transportation facilities will be evaluated as part of site-specific project review and SEPA analysis. Capital projects requiring installation of improvements within the existing right-of-way will be resurfaced to preconstruction conditions.**

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
**It is not anticipated that the capital projects will require any of the listed forms of transportation. The various modes of transportation will be evaluated as part of site-specific project review and SEPA analysis.**

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?
**Completed capital projects are not anticipated to have a direct impact on vehicular trips.**

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.
**Completed capital projects are not anticipated to have a direct impact on, or be affected by, the movement of agricultural and forest products on roads or streets in the area. Movement of agricultural and forest products on roads or streets in the area will be evaluated as part of site-specific project review and SEPA analysis.**

h. Proposed measures to reduce or control transportation impacts, if any:
**None.**

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.
**This non-project action will not result in an increased need for public services. The need for public services will be evaluated as part of site-specific project review and SEPA analysis.**

b. Proposed measures to reduce or control direct impacts on public services, if any.
**Appropriate rates and system development charges will be assessed to fund the ongoing operation and maintenance and capital expenditures of the facility improvements.**

16. **Utilities**

a. Circle utilities currently available at the site:
**electricity**, **natural gas**, **water**, **refuse service**, **telephone**, **sanitary sewer**, **septic system**, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.
**The provision of specific utilities for individual proposals will be evaluated as part of site-specific project review and SEPA analysis.**

## C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Jason Van Gilder

Name of signee: Jason Van Gilder, P.E.

Position and Agency/Organization: Associate City Engineer, City of Sumner
Public Works Department

Date Submitted: April 23, 2018 (Revised December 18, 2018)

## D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   **Discharges of treated effluent to water bodies is projected to increase due to population growth. It is anticipated that construction of capital projects will increase dust and petroleum emissions. Noise levels will increase during construction hours. Improper handling or storage of chemicals used in the processing of sanitary sewerage may result in a spill.**

   Proposed measures to avoid or reduce such increases are:

   **Effects on discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise will be reviewed as part of site-specific review and SEPA analysis.**

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   **This non-project action will have no effects to plants, animals, fish or marine life. Construction of capital projects may temporarily remove or displace native vegetation and wildlife; all specific effects to plant, animal, fish and other marine life will be evaluated as part of site-specific project review and SEPA analysis.**

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

   **Effects of individual proposals on wildlife and marine life will be reviewed as part of site-specific review, and SEPA analysis.**

3. How would the proposal be likely to deplete energy or natural resources?

   **Projected increase in flows due to population growth will take somewhat more energy to convey and treat.**

   Proposed measures to protect or conserve energy and natural resources are:

   **Minimizing the number of pump stations by maximizing use of gravity mains will reduce the energy needed to pump raw sewage. Construction of individual projects is reviewed under the 2012 International Energy Code/Washington State Energy Code, adopted under Chapter 15.20 of the Sumner Municipal Code.**

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

   **Environmentally sensitive areas may be temporarily disturbed during construction of capital projects. Completed projects are not anticipated to adversely affect**

**environmentally sensitive areas. Effects of individual proposals on environmentally sensitive areas or other protected areas will be reviewed as part of site-specific review, and SEPA analysis.**

Proposed measures to protect such resources or to avoid or reduce impacts are:
**Impacts of individual proposals on environmentally sensitive areas or other protected areas will be reviewed as part of site-specific review, and SEPA analysis.**

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?
**This non-project action will not affect land or shoreline use. Construction of the capital projects will not affect land and shoreline use.**

Proposed measures to avoid or reduce shoreline and land use impacts are:
**Impacts of individual proposals on land or shoreline use will be reviewed as part of site-specific review, and SEPA analysis.**

6. How would the proposal be likely to increase demands on transportation or public services and utilities?
**This non-project action will have no effect on the demand for transportation or public service and utilities. Some of the completed capital projects will require electricity and water.**

Proposed measures to reduce or respond to such demand(s) are:
**None. Projects approved under this ordinance are subject to review by the City Planning Department and Public Works Department.**

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.
**The General Sewer Plan is compatible with the Sumner Comprehensive Plan, Sumner Water System Plan, Sumner Stormwater Plan, and all applicable Sumner ordinances and codes. It is not anticipated that the capital projects will conflict with local state, or federal laws or requirements for the protection of the environment.**

CITY OF SUMNER WASHINGTON

1104 MAPLE STREET, SUMNER WA 98390
COMMUNITY DEVELOPMENT DEPARTMENT
253-299-5520

# DETERMINATION OF NON-SIGNIFICANCE

**Project Name:** **CITY OF SUMNER SANITARY SEWER COMPRENSIVE PLAN UPDATE and CITY OF SUMNER COMPREHENSIVE WATER SYSTEM PLAN UPDATE**

**Project Number:** Sewer Plan: PLN-2018-0029 Water Plan: PLN-2018-0030

**Location:** City-wide, Sumner, WA 98390

**Description of Proposal:** Update both the Sanitary Sewer Plan and the Water System Plan to address a revised 20-year population forecast; update the status of operations and maintenance programs used in maintaining the city-wide systems; and update each Plan's list of capital projects needed to implement the Plan. Specific projects will subsequently be included in the City's Comprehensive Plan Capital Improvement Program Element. (Project level environmental reviews to be conducted separately at the time a project is implemented.)

**Applicant:** Jason VanGilder, P.E., CITY OF SUMNER

**Lead Agency:** City of Sumner

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request. **Documents are available on the City of Sumner website at www.sumnerwa.gov.**

___ There is no comment period for this DNS.

___ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

_X_ This DNS is issued under 197-11-340 (2); the lead agency will not act on this proposal for 14 days from the published date below.

**Responsible Official:** Ryan Windish **Position/Title:** Community Development Director
**Address:** 1104 Maple Street Suite 250, Sumner, WA 98390 **Phone:** (253) 299- 5524

**Signature:** _____ **Date:** December 17, 2018

Ryan Windish **Date Published: 12/26/18**

**Questions or comments contact:** Ann Siegenthaler, Assoc. Planner: annsi@sumnerwa.gov

# Appendix O

# Plan Distribution List, Comments, and Approval

CITY OF
SUMNER
WASHINGTON

1104 MAPLE STREET, SUMNER WA 98390
COMMUNITY DEVELOPMENT DEPARTMENT
253-299-5520

June 30, 2020

Chris Kelsey, P.E., PMP
BHC Consultants, LLC
950 Pacific Avenue
Tacoma, WA 98402

Dear Mr. Kelsey,

Thank you for including me in the review process for the City of Sumner's updated Water System Plan. I have reviewed the latest draft of the plan excerpts provided by Jason Van Gilder, Associate Engineer, and I find that the draft plan is consistent with the City of Sumner Comprehensive Plan regarding population projections, goals, policies and levels of service.

If you have further questions, please don't hesitate to call me at 253.299.5524 or via email at ryanw@sumnerwa.gov.

Sincerely,

Ryan Windish, AICP
Community Development Director

Cc: Jason Van Gilder, PE, Associate Engineer

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

# Local Government Consistency Determination Form

Water System Name: City of Sumner PWS ID: 851207

Planning/Engineering Document Title: Water System Plan Plan Date: March 2019

Local Government with Jurisdiction Conducting Review: Pierce County Planning & Public Works

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

| Local Government Consistency Statement | For use by water system: Identify the page(s) in submittal | For use by local government: Yes or Not Applicable |
|---|---|---|
| a) The water system service area is consistent with the adopted land use and zoning within the service area. | Section 1.3.4 To 1.3.5 | Yes |
| b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology. | Section 3.8; Pages 3-10 to 3-13 | Yes |
| c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances. | Chapter 2; Pages 2-1 to 2-2 | Yes |
| d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area. | Sec. 1.3.5; Pages 1-10 to 1-11 | Yes |
| e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans. | Section 1.5; Pages 1-11 to 1-24 | Yes |

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature

4/29/2019
Date

Vaughan Cary, Planner, Pierce County
Printed Name, Title, & Jurisdiction

## Consistency Review Guidance

### *For Use by Local Governments and Municipal Water Suppliers*

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

**A) Documenting Consistency:** The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

**B) Documenting an Inconsistency:** Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

**C) Documenting a Lack of Local Review for Consistency:** Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

CITY OF AUBURN WASHINGTON

Nancy Backus, Mayor

25 West Main Street * Auburn WA 98001-4998 * www.auburnwa.gov * 253-931-3000

April 16, 2019



Jason Van Gilder, Associate City Engineer
City of Sumner
Public Works Department
1104 Maple Street, Suite 260
Sumner, WA 98390

RE: City of Sumner Water System Plan

Dear Mr. Van Gilder:

Thank you for allowing the City of Auburn to review and comment on your Water System Plan. Your plan appears to be very good. Auburn does not have any comments.

Enclosed is the completed Local Government Consistency Review Checklist you requested.

Sincerely,

Susan Fenhaus, PE
Water Utility Engineer
Public Works Department

SF/as

Enclosure

Washington State Department of Health

# Local Government Consistency Determination Form

Water System Name: City of Sumner PWS ID: 851207

Planning/Engineering Document Title: Water System Plan Plan Date: March 2019

Local Government with Jurisdiction Conducting Review: City of Auburn

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

| Local Government Consistency Statement | For use by water system: Identify the page(s) in submittal | For use by local government: Yes or Not Applicable |
|---|---|---|
| a) The water system service area is consistent with the adopted land use and zoning within the service area. | Section 1.3.4 to 1.3.5 | Not applicable |
| b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology. | Section 3.8; Pages 3-10 to 3-13 | Not Applicable |
| c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances. | Chapter 2; Pages 2-1 to 2-2 | Not applicable |
| d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area. | Sec. 1.3.5; Pages 1-10 to 1-11 | Not applicable |
| e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans. | Section 1.5; Pages 1-11 to 1-24 | Not Applicable |

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Susan L Fenhaus 4-16-19

Signature Date

Susan Fenhaus Water Utility Engineer City of Auburn

Printed Name, Title, & Jurisdiction

TACOMA WATER

3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

May 13, 2019

City of Sumner
Attention: Jason Van Gilder
1104 Maple Street
Sumner, WA 98390

RE: City of Sumner's Water System Plan

Mr. Van Gilder:

Enclosed please find the signed Local Government Consistency Determination Form for the City of Sumner.

Please contact me at 253-502-8199 with questions.

Sincerely,

Heather L. Pennington
Deputy Superintendent
Tacoma Water

Washington State Department of Health

# Local Government Consistency Determination Form

Water System Name: City of Sumner PWS ID: 851207

Planning/Engineering Document Title: Water System Plan Plan Date: March 2019

Local Government with Jurisdiction Conducting Review: Tacoma Public Utilities

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

| Local Government Consistency Statement | For use by water system: Identify the page(s) in submittal | For use by local government: Yes or Not Applicable |
|---|---|---|
| a) The water system service area is consistent with the adopted land use and zoning within the service area. | Section 1.3.4 to 1.3.5 | Yes |
| b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology. | Section 3.8; Pages 3-10 to 3-13 | Yes |
| c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances. | Chapter 2; Pages 2-1 to 2-2 | Yes |
| d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area. | Sec. 1.3.5; Pages 1-10 to 1-11 | Yes |
| e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans. | Section 1.5; Pages 1-11 to 1-24 | Yes |

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

[signature] 5-10-2019

Signature Date

Heather L. Pennington, Deputy Superintendent

Printed Name, Title, & Jurisdiction

Tacoma Water

Washington State Department of Health

# Local Government Consistency Determination Form

Water System Name: City of Sumner PWS ID: 851207

Planning/Engineering Document Title: Water System Plan Plan Date: March 2019

Local Government with Jurisdiction Conducting Review: City of Edgewood

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

| Local Government Consistency Statement | For use by water system: Identify the page(s) in submittal | For use by local government: Yes or Not Applicable |
|---|---|---|
| a) The water system service area is consistent with the adopted land use and zoning within the service area. | Section 1.3.4 to 1.3.5 | YES |
| b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology. | Section 3.8; Pages 3-10 to 3-13 | YES |
| c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances. | Chapter 2; Pages 2-1 to 2-2 | YES |
| d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area. | Sec. 1.3.5; Pages 1-10 to 1-11 | YES |
| e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans. | Section 1.5; Pages 1-11 to 1-24 | YES |

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature 3/28/19
Date

JEREMY METZGER, PUBLIC WORKS DIRECTOR, CITY OF EDGEWOOD
Printed Name, Title, & Jurisdiction

| Pierce County WSP Review Requirement Guidelines<br>**Water System:** City of Sumner **Date:** 3/20/19 | | | |
|---|---|---|---|
| **CWSP Requirements** | **Y/N** | **Pg #** | **Comments** |
| Consistent with local growth management plans and development policies | Y | 1.3.4 & 1.3.5 | The WSP should not contain information or policies that are inconsistent with the CWSP or Pierce County Comprehensive Plan policies |
| Recognize all applicable water resource plans, water quality plans, and water pollution plans that have been adopted by units of local government | Y | 1.3, 1.4, & 1.5 | Discuss any relevant plans including the Coordinated Water System Plan (CWSP), Comprehensive Plan, community plans, basin plans, watershed plans, etc. |
| Contain accurate retail service area boundaries. (i.e. Does it match what Pierce County has in GIS and Standard Service Agreement?)<br>➢ Service area matches what Pierce County has in GIS and Standard Service Agreement (SSA).<br>➢ Contains a service area map that reflects a boundary around the retail service area as well as other areas where the system supplies water and adjacent water purveyors.<br><br>Are there signed Standard Service Agreements that accurately reflect service area boundaries? | Y | Fig 1-7<br><br>Appx A<br><br>Fig 1-2 | • Include copy of Standard Service Agreement (SSA) in WSP (see SSA).<br>• If a change in service area is proposed, then a new SSA will be required.<br>• Include a reference to all water service and water service area agreements, and copies of these documents (as well as any associated Exhibits) in the WSP (typically located in an Appendix). Examples include the signed SSA that the County maintains, any agreements between purveyors for interties and wholesale water, emergency service, etc.<br>• If we have an SSA that you do not have, then this will be mentioned in the comment letter and a copy provided.<br>• Include a service area map that reflects a boundary around the CWSP/retail service area as well as other areas where the system supplies water and adjacent water purveyors. WSA boundaries shall follow parcel boundaries and be located down the centerline of all roads.<br>• Include a copy of the proposed water service area boundary in an electronic format. The data can be either a GIS shapefile or a CAD file. If it is a CAD file, the service area needs to be designated by polylines, not hatching, which can then be imported as layer into GIS. All data needs to be in the projected coordinates system: NAD_1983_HARN_StatePlane_Washington_South_FIPS_4602_Feet |
| Address land use - zoning (and since Municipal Water Law, identification of any county-known future plans for large water usage to occur within their service area). | Y | Chap 3<br><br>1.5.7<br><br>Fig 1-5 & Fig 1-6 | • Include a discussion of the County's Comprehensive Plan if any portion of the water service area is located within unincorporated Pierce County.<br>• Include a copy of the land use/zoning map that shows the utilities service area.<br>• If a portion of the water service area is within unincorporated Pierce County, the WSP land use |

| Pierce County WSP Review Requirement Guidelines<br>**Water System:** City of Sumner **Date:** 3/20/19 | | | |
|---|---|---|---|
| **CWSP Requirements** | **Y/N** | **Pg #** | **Comments** |
| Per WAC 246-290-100(b) "Basic planning data including (ii) projected land use, future population, and water demand for consecutive six-year and final twenty year planning period within the WSA." | Y | 1.3.5<br>3.2 | information must match the County's zoning and the Urban Growth Area (UGA) line (if applicable). Provide enough detail in the WSP text to indicate the types of allowable uses in each zone and the associated residential densities. Discuss the County's provisions for Accessory Dwelling Units.<br>• Include a discussion of the existing land uses. This information may be obtained from the Pierce County Assessors data, which assigns each parcel a code for existing land use (e.g. vacant, single family, mobile homes, multi-family, commercial, etc.). Use this information to help describe the existing conditions within the water service area.<br>• Address any known proposed zoning changes that will occur within the next six year time period. For example, if the jurisdiction is planning to expand their urban growth area (UGA) in the next few years then provide this information in the WSP. This would include details on what the proposed zoning would be within the UGA expansion area and associated allowable uses and residential densities.<br>• See example of Existing Land Use and Zoning Information. |
| Is there an approved Water Franchise Agreement for areas where work is proposed in County rights-of-way?<br>Ordinance No 2015-50 | Y | | • Include a discussion about the current County Franchise Agreement.<br>• The Franchise Agreement area must be large enough to cover the entire water service area.<br>• If an expansion of the water service area is proposed then a new Franchise Agreement will be required for this area if larger. Not Applicable. |
| Contain utility policies of service and service extension ordinances for cities and towns. | Y | Appx B | Include the utility service policies and cities and towns must include service extension ordinances. |
| Include demand forecast and growth projections. | Y | Chapter 3 | In the section on future land use, growth and demand include:<br>• Population growth forecasts for the next 6 years (for each year) and 20 years.<br>◊ Take into consideration population forecasts generated/adopted by local governments. These include projected population as identified by Puget Sound Regional Council, Pierce County Countywide Planning Policies, Pierce County Comprehensive Plan, and the CWSP. |

| Pierce County WSP Review Requirement Guidelines<br>**Water System:** City of Sumner **Date:** 3/20/19 | | | |
|---|---|---|---|
| **CWSP Requirements** | **Y/N** | **Pg #** | **Comments** |
| | Y | Table 5-2 | ◊ Contact Dan Cardwell, PALS, dcardwe@co.pierce.wa.us, if you have any questions regarding population growth projections.<br>• An analysis of the amount of buildable land within the service area based on existing land use and zoning (to determine amount of vacant and underdeveloped or redevelopable properties). This analysis should consider subdivision potential per the parcels zoning and the potential for Accessory Dwelling Units (ADUs). See attached Buildable Lands Analysis Guidance.<br>• A map of existing customers, pending customers (i.e. those who have been issued a Water Availability Letter who have not yet connected), and future customers.<br>• A graph that visually depicts the projected growth over the 6yr/20yr timeframe and the max number of ERUs able to serve based on the limiting factors (both water rights and infrastructure). Include a clear discussion of limiting factors and, if limiting factors will impact ability to serve projected growth, what corrective measures are anticipated (e.g. obtain more water rights or build a new storage tank). |
| Wellhead Protection Program consistent with local provisions for such programs | Y | 5.8 to 5.10 | Include information and mapping on Wellhead Protection Areas. |
| Emergency Response Program | Y | 10.4 | WSP should include information on emergency response measures (see Water System Emergency Plan Checklist). |
| Meet the CWSP Design and Construction Standard requirements including adopted local fire protection standards (i.e. levels of fire flow to meet Pierce County code for entire service area in PCC 17C) | Y | 2.1.3 | Include brief discussion of compliance with Pierce County Codes (PCC) 19D.130, 17C.60.160 and 165. |
| Capital improvements needed to provide LOS in each land use designation. For additional water service, the WSP shall include planned capital facilities necessary to provide increased service. | Y | Chapter 8 | Include a list of proposed capital improvements necessary to meet growth projections and funding options to pay for improvements. Purveyors are to design their systems to provide a level of service adequate for the expected land use of the area over the following 20-year time period. |
| An inventory of potential sources and uses for reclaimed | Y | 5.7 | At a minimum address the following:<br>Potential Sources |

| Pierce County WSP Review Requirement Guidelines<br>**Water System:** City of Sumner **Date:** 3/20/19 | | | |
|---|---|---|---|
| **CWSP Requirements** | **Y/N** | **Pg #** | **Comments** |
| water. | | | • Fish Hatcheries<br>• Stormwater Impoundments<br>• Sewage Treatment Plant Effluent<br>• Industrial and Commercial Process and Cooling Water<br><br><u>Potential Uses or Users</u><br>• Industries<br>• Nurseries<br>• Golf Courses and other Landscape Irrigators<br>• Artificial Recharge of Aquifers<br>• Parks and Parkways<br>• Agricultural Irrigation<br>• Flushing of Sanitary Sewers<br>• Fire Protection<br>• Street Cleaning, Dust Control, and other Washing Applications |
| Existing and proposed interties. | Y | 4.14 | Identify existing and proposed interties on the water system map. |
| Water District changes to the district legal boundary. | N/A | N/A | • Include information about any proposed expansions in a Water Districts legal boundaries and a map that compares the legal district boundary to the water service area.<br>• Water District boundary changes must be sent to the Boundary Review Board and County Council per State law. |

*Revised 12-15-13*

n:\long range planning\cwsp\forms\wsp requirement guidelines_purveyor handout_revised_12-15-13.doc

# Project Status Report
## 2018 Water and Sewer Plan Updates

Presented by:

- Associate City Engineer, Jason Van Gilder, P.E.
- Chris Kelsey, P.E., BHC Project Manager

CITY OF SUMNER WASHINGTON

# Project Schedule

## Water and Sewer Plan Parallel Tracks

| | April 2017 – May 2018 | June 2018 – August 2018 | September 2018 | October 2018 – November 2018 |
|---|---|---|---|---|
| **Work Efforts** | • Development of Draft Plans<br>• Complete Draft Financial Chapters | • Regulatory Reviews (~90 days)<br>• Adjacent Utility Reviews (~30 days)<br>• SEPA Determination/Public Review (~ 30 days) | • Address DOE/DOH Review Comments<br>• Incorporate Utility Consistency Statement and SEPA documentation<br>• Produce Final Plans | • Produce/ Distribute Final Plan Hardcopies<br>• Transmit/Store Plan and Project Files |
| **Required Documentation** | • Chapter Text<br>• Executive Summary<br>• Appendices | • DOE/DOH Review Comments<br>• Adjacent Utility Concurrence/ Consistency Statements<br>• Completion of SEPA | • Resubmitted Plans for Regulatory Approval<br>• Council Formal Acceptance of the Plans for Approval | • Regulatory Approval Letters |
| **Council Action** | | • Public Hearing | • Council Formal Acceptance of the Plans for Approval | • Adopt Rates to Implement Plan |

CITY OF SUMNER WASHINGTON

# **Comprehensive Sewer Plan**
## Population and Employment Projections

- Existing Population from Office of Financial Management (OFM)
- Existing Employment from Puget Sound Regional Council (PSRC)
- Sumner only projections for collection system

CITY OF
SUMNER
WASHINGTON

# Comprehensive Sewer Plan

| Table 3-1 Sewer Basin Population and Employment Projections by Year (Sumner only) | | | | | | |
|---|---|---|---|---|---|---|
| Sewer Basin[1] | 2018 | | 2024 | | 2038 | |
| | Residential Population | Total Employment | Residential Population | Total Employment | Residential Population | Total Employment |
| 0 | 994 | 1,761 | 1,178 | 1,965 | 1,330 | 2,195 |
| 1 | 402 | 1,873 | 420 | 2,184 | 472 | 2,530 |
| 2 | 34 | 734 | 34 | 866 | 35 | 936 |
| 3 | 330 | 23 | 350 | 23 | 402 | 31 |
| 4 | 93 | 0 | 98 | 0 | 134 | 0 |
| 5 | 3,727 | 1,911 | 4,207 | 2,086 | 4,889 | 2,508 |
| 6 | 1,310 | 835 | 1,383 | 1,019 | 1,526 | 1,181 |
| 7 | 1,334 | 179 | 1,375 | 179 | 1,440 | 193 |
| 8 | 1,402 | 266 | 1,493 | 266 | 1,723 | 289 |
| 9 | 179 | 18 | 186 | 18 | 194 | 23 |
| 10 | 171 | 6,203 | 179 | 7,339 | 189 | 7,721 |
| 11 | 34 | 721 | 34 | 846 | 34 | 962 |
| 12 | 3 | 56 | 3 | 67 | 3 | 74 |
| 13 | 52 | 0 | 76 | 0 | 80 | 0 |
| 14 | 518 | 203 | 585 | 290 | 626 | 346 |
| 15 | 9 | 1,026 | 28 | 1,613 | 38 | 1,874 |
| 16 | 11 | 30 | 12 | 32 | 12 | 37 |
| 17 | 6 | 0 | 7 | 0 | 7 | 0 |
| 18 | 11 | 90 | 11 | 124 | 11 | 148 |
| Totals | 10,620 | 15,931 | 11,658 | 18,917 | 13,146 | 21,046 |

Notes:
1) Sewer basin delineations are described in Chapter 5.

CITY OF SUMNER WASHINGTON

# Comprehensive Sewer Plan

**Table 6-8 Projected Wastewater Flows**

| Year | Sewered Residential Population | Residential Flow (gpcd) | Employment Population | Employment Flow (gpcd) | Average Annual Flow (mgd) | Infiltration and Inflow (gpd/ acre) | Sewered Area[1] (acres) | Maximum Month Flow (mgd) | Peak Day Flow (mgd) | Peak Hour Flow[2] (mgd) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 10,251 | 68 | 15,931 | 23 | 1.06 | 641 | 4,089 | 1.59 | 3.68 | 4.67 |
| 2024 | 11,658 | 68 | 18,917 | 23 | 1.23 | 641 | 4,254 | 1.86 | 3.93 | 5.00 |
| 2038 | 13,146 | 68 | 27,726 | 23 | 1.53 | 641 | 4,326 | 2.32 | 4.32 | 5.49 |

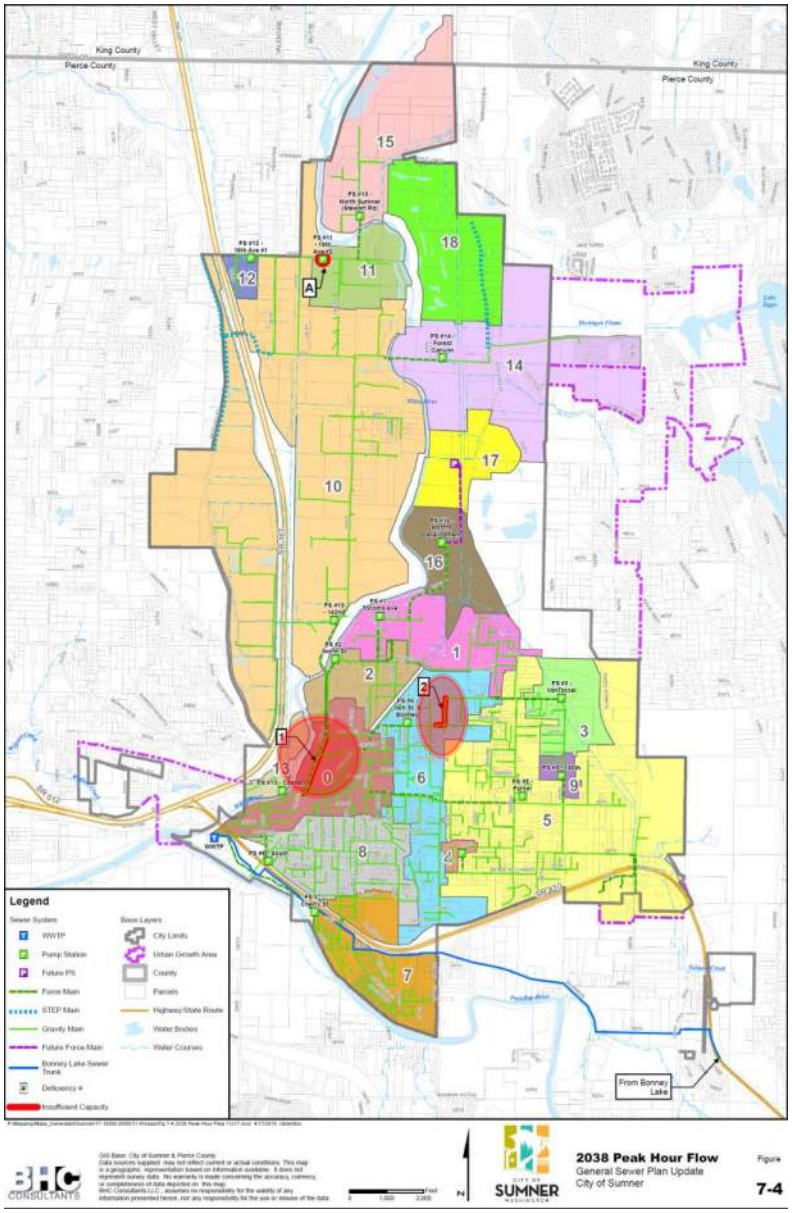
Notes:

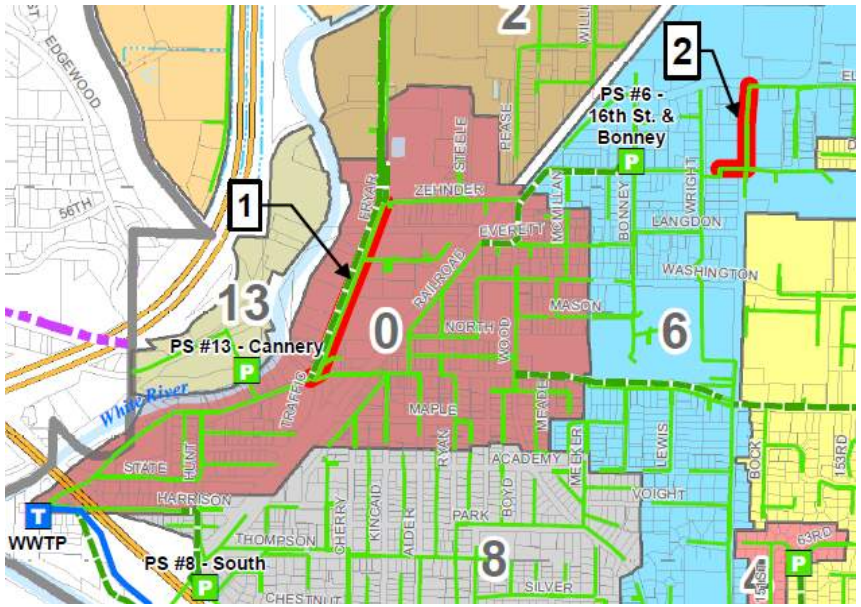
1) Sewered area is based on sewered parcels in 2016, and increases to the full sewered area of the City and UGA in proportion to the sewered residential population.
2) Peak hour flows in this table were calculated using a peak hour to peak day factor of 1.27.

CITY OF SUMNER WASHINGTON

# Comprehensive Sewer Plan

## Collection System Hydraulic Analysis




CITY OF SUMNER WASHINGTON

# Comprehensive Sewer Plan

## Collection System Condition Deficiencies

| Table 7-9 Pump Station Deficiencies | | |
|---|---|---|
| **Pump Station** | **Pump Station Deficiencies** | **Opinion of Probable Project Cost (2017 Dollars)** |
| **PS-1 Tacoma** | ▪ Replace reverse pressure backflow assembly with 1 ½" assembly and 2" supply line. Replace reverse pressure backflow box.<br>▪ Install bollards around pump station.<br>▪ Replumb vent to discharge to sewer rather than storm drain.<br>▪ Remove tree or relocate antenna.<br>▪ Replace MOSCAD radio with Allen Bradley PLC and Ethernet Radio. | $85,000 |
| **PS-2 North** | ▪ Improve ventilation system in dry well.<br>▪ Install flow meter.<br>▪ Stock replacement pump and valves at City shop because they can have long lead times.<br>▪ Install new engine generator.<br>▪ Move electrical equipment above grade and revise electrical distribution.<br>▪ Install connection and controls for new load bank to exercise new engine.<br>▪ Install safety grate in wet well hatch. | $548,000 |
| **PS-3 Van Tassel** | ▪ Install safety grate in wet well hatch.<br>▪ Change 230 Volt legacy voltage to 460 Volts. Upgrade control panel and pumps to accommodate this change.<br>▪ Replace MOSCAD radio with Allen Bradley PLC and Ethernet Radio.<br>▪ Cut back overgrown trees and shrubs. | $243,000 |

CITY OF SUMNER WASHINGTON

# Comprehensive Sewer Plan

## WWTP Capacity

| Table 8-1 Existing and Projected WWTP Sumner Influent Flows (in mgd) | | | | |
|---|---|---|---|---|
| | Average Annual Flow | Maximum Month Flow | Peak Day Flow | Peak Hour Flow |
| Existing | 1.06 | 1.71 | 3.67 | 4.66 |
| Year 2024 | 1.23 | 1.86 | 3.93 | 5.00 |
| Year 2038 | 1.53 | 2.32 | 4.32 | 5.49 |
| Sumner Allocated Capacity[1] | 1.74[1] | 2.80 | 6.02[1] | 7.64[1] |
| WWTP Rated Capacity[2] | 4.27 | 6.10 | 11.66 | 19.87 |

**Notes:**

1) The maximum month flow of 2.80 mgd is the only specified capacity for Sumner stated within the WWTP Operating Agreement. Other values are interpolated using the peaking factors for flow established within Chapter 6, for purposes of illustrating hydraulic adequacy of the existing WWTP to meet future projections.
2) The rated WWTP capacity numbers are taken from the City of Sumner Wastewater Treatment Facility Final Comprehensive Facility Plan Addendum No. 2 approved by Ecology. They have not been incorporated into the facility's NPDES permit yet but are anticipated to be adopted soon.

CITY OF SUMNER WASHINGTON

# Comprehensive Sewer Plan

## WWTP Capacity

**Table 8-2 Projected Domestic BOD and TSS Loadings (in lbs/day)**

| | Maximum Month BOD (Sumner only) | Maximum Month BOD (WWTP Total) | Maximum Month TSS (Sumner only) | Maximum Month TSS (WWTP Total) |
|---|---|---|---|---|
| Existing[(1)] | 2,881 | 6,130 | 3,280 | 6,694 |
| 2024[(2)] | 3,133 | 6,820 | 3,568 | 7,443 |
| 2038[(2)] | 3,909 | 8,620 | 4,450 | 9,400 |
| WWTP Rated Capacity[(3)] | | 10,900 | | 12,660 |

Notes:

1) Existing maximum month BOD and TSS influent loading for the WWTP (combined Sumner and Bonney Lake flows) represents the average of recorded maximum month values for 2015 through 2017. The Sumner only portion of these loadings is based on an approximate average recorded percentage of total loads of 47 and 49 percent for BOD and TSS, respectively, during the same period.
2) Future year loading projections for Sumner are estimated proportionally to projected maximum month flow increases for the City. Bonney Lake loading projections are estimated using a 45 percent increase in total population projected over a 20-year planning horizon, as interpolated for interim years from information found within the City's 2016 Water System Plan.
3) The rated WWTP capacity numbers are taken from the City of Sumner Wastewater Treatment Facility Final Comprehensive Facility Plan Addendum No. 2 approved by Ecology. They have not been incorporated into the facility's NPDES permit yet but are anticipated to be adopted soon.

CITY OF SUMNER WASHINGTON

**Comprehensive Sewer Plan**

Notable WWTP O&M Based Capital Needs

- Second centrifuge for dewatering
- Solids hauling vehicle replacement
- Portable wastewater pumping system
- General Needs (painting, roof replacement, SCADA System hardware upgrades)

CITY OF SUMNER WASHINGTON

**Comprehensive Sewer Plan**

Collection System O&M Program

- Employees/org chart/certifications
- Pipes and manholes
  - inspections (CCTV)
  - cleaning (jetting)
  - repair and rehabilitation
- Infiltration/Inflow reduction
- Pretreatment program to address significant industrial users (SIU's) and fats, oils, & grease (FOG) as required in the anticipated Ecology issued discharge permit
- Pump stations inspections/maintenance
- Staffing assessment

CITY OF SUMNER WASHINGTON

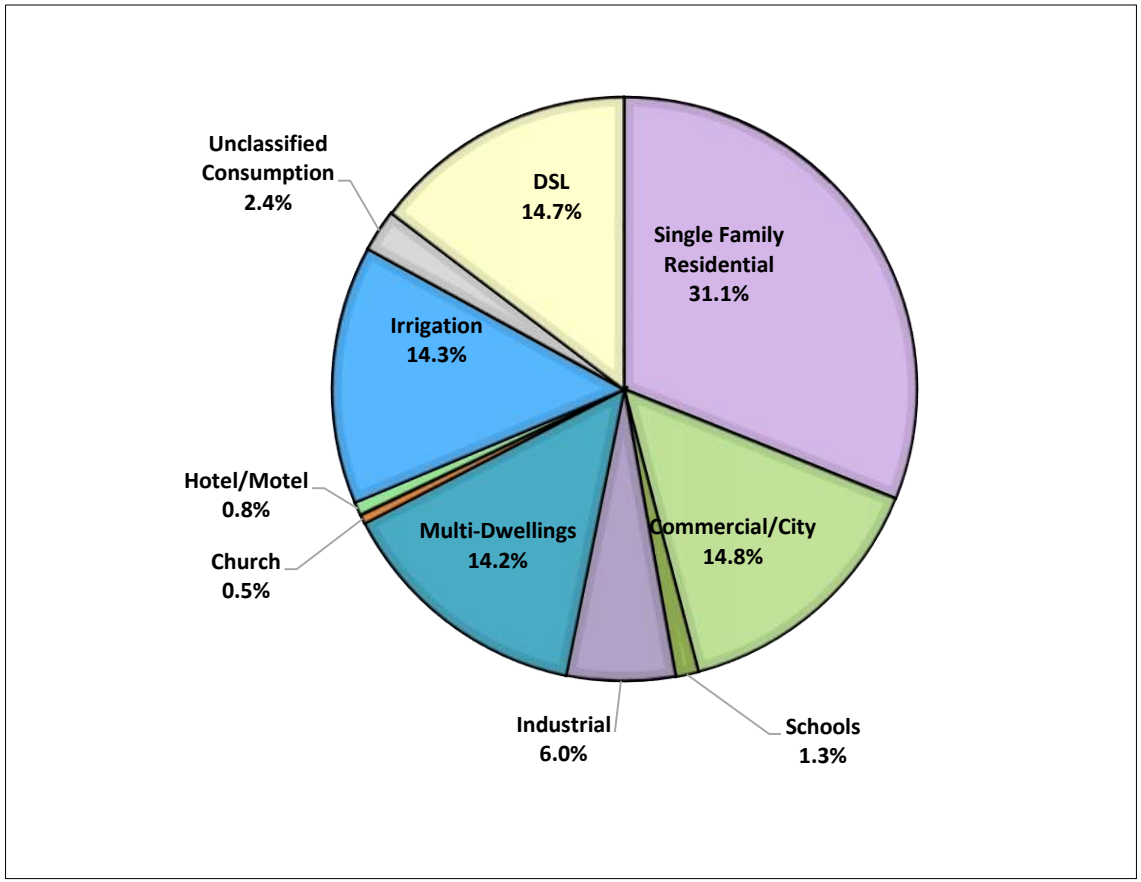
# Comprehensive Sewer Plan

## Capital Improvement Program

| Table 10-3 Opinion of Probable Project Costs, 6-Year CIP (2018-2024) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CIP No. | Project | Replacement | Upgrade | Expansion | Opinion of Probable Project Cost | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| C-1 | PS-2 Force Main Modifications | | | ☑ | $90,000[1] | $90,000 | - | - | - | - | - |
| C-2 | PS-2 Improvements | ☑ | ☑ | | $548,000[1] | $548,000 | - | - | - | - | - |
| C-3 | PS-10 Improvements | ☑ | ☑ | | $652,000[1] | - | $652,000 | - | - | - | - |
| C-4 | Pump Station Improvements | ☑ | ☑ | | $1,215,000[1] | $202,500 | $202,500 | $202,500 | $202,500 | $202,500 | $202,500 |
| C-5 | PS-8 AC Force Main Replacement | ☑ | ☑ | | $540,000[1] | - | - | $540,000 | - | - | - |
| C-6 | I/I Reduction and Rehabilitation | ☑ | | | $600,000[2] | $100,000 | $100,000 | $100,000 | $100,000 | $100,000 | $100,000 |
| C-7 | Centrifuge Replacement | ☑ | | | $1,200,000[2] | - | - | - | $1,200,000 | - | - |
| C-8 | WWTP O&M | ☑ | | | $1,200,000[2] | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 |
| C-9 | Solids Hauling Dump Trucks | ☑ | | | $500,000[2] | - | - | - | - | - | $500,000 |
| C-10 | Portable Screw Sucker Pump | ☑ | | | $65,000[2] | $65,000 | - | - | - | - | - |
| C-11 | Emergency Pipe Replacement | ☑ | | | $600,000[2] | $100,000 | $100,000 | $100,000 | $100,000 | $100,000 | $100,000 |
| C-12 | Pretreatment Program Implementation | | | | $200,000[2] | - | - | $200,000 | - | - | - |
| Total Opinion of Probable Project Cost | | | | | $7,410,000 | $1,305,500 | $1,254,500 | $1,342,500 | $1,802,500 | $602,500 | $1,102,500 |

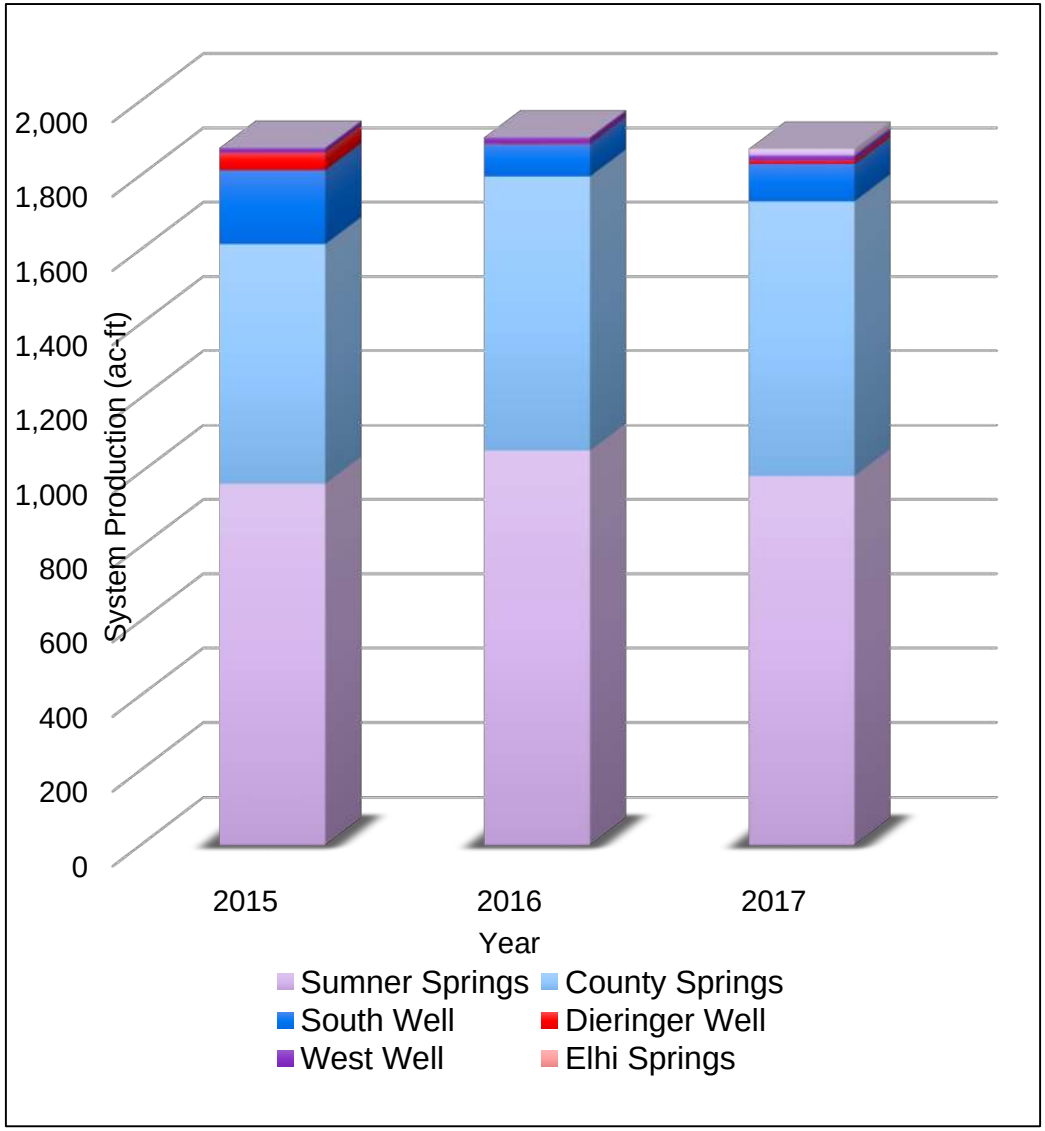
CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan




CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan




CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

| Table 3-2 City of Sumner Retail Water Service Area<br>Residential Population and Employment Projections | | | | |
|---|---|---|---|---|
| **Year** | **Population** | **Annual Population Growth (%)** | **Employment** | **Annual Job Growth (%)** |
| 2018 | 11,044 | -- | 16,563 | |
| 2024 | 11,793 | 1.1 | 17,712 | 1.2 |
| 2028 | 12,321 | 1.1 | 18,064 | 0.5 |
| 2038 | 13,343 | 0.8 | 19,096 | 0.6 |

- Same sources and methodologies used as sewer, different service areas

CITY OF
SUMNER
WASHINGTON

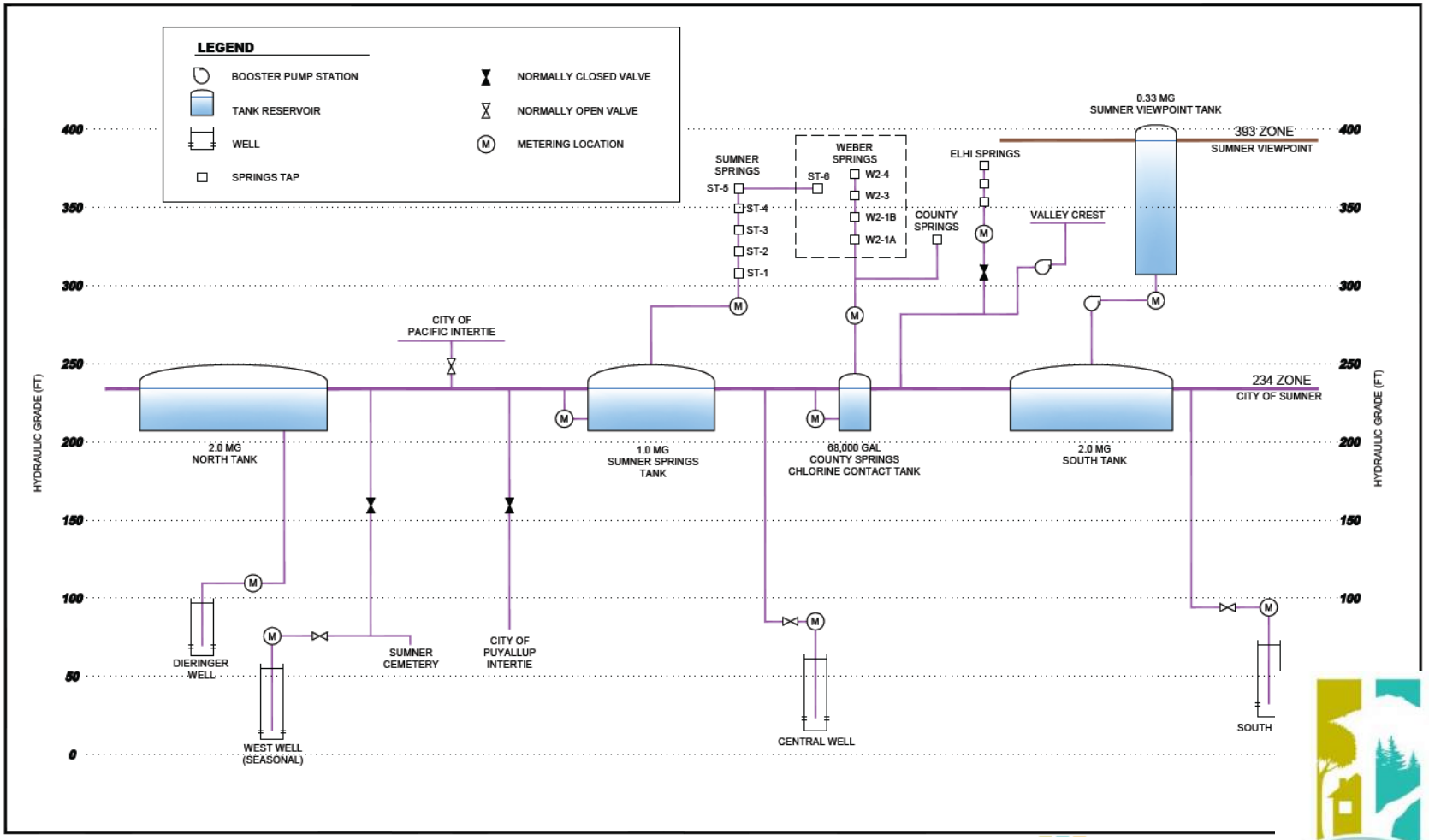
# Comprehensive Water Plan

| Table 3-12 Projected Max Day Demand and Peak Hour Demand with DSL | | | | |
|---|---|---|---|---|
| **Year** | **ADD (mgd)** | **MDD (mgd)** | **Off-Peak MDD (mgd)** | **PHD (mgd)** |
| **2018** | 1.77 | 3.36 | 2.16 | 5.42 |
| **2024** | 1.81 | 3.52 | 2.21 | 5.73 |
| **2028** | 1.87 | 3.64 | 2.27 | 5.92 |
| **2038** | 1.99 | 3.89 | 2.43 | 6.32 |
| | | | | |
| **2068** | 2.44 | 4.76 | 2.97 | 7.75 |

- Year 2068 projection made using methodologies independent of OFM/PSRC sources for purposes of supply/water rights planning

CITY OF
SUMNER
WASHINGTON

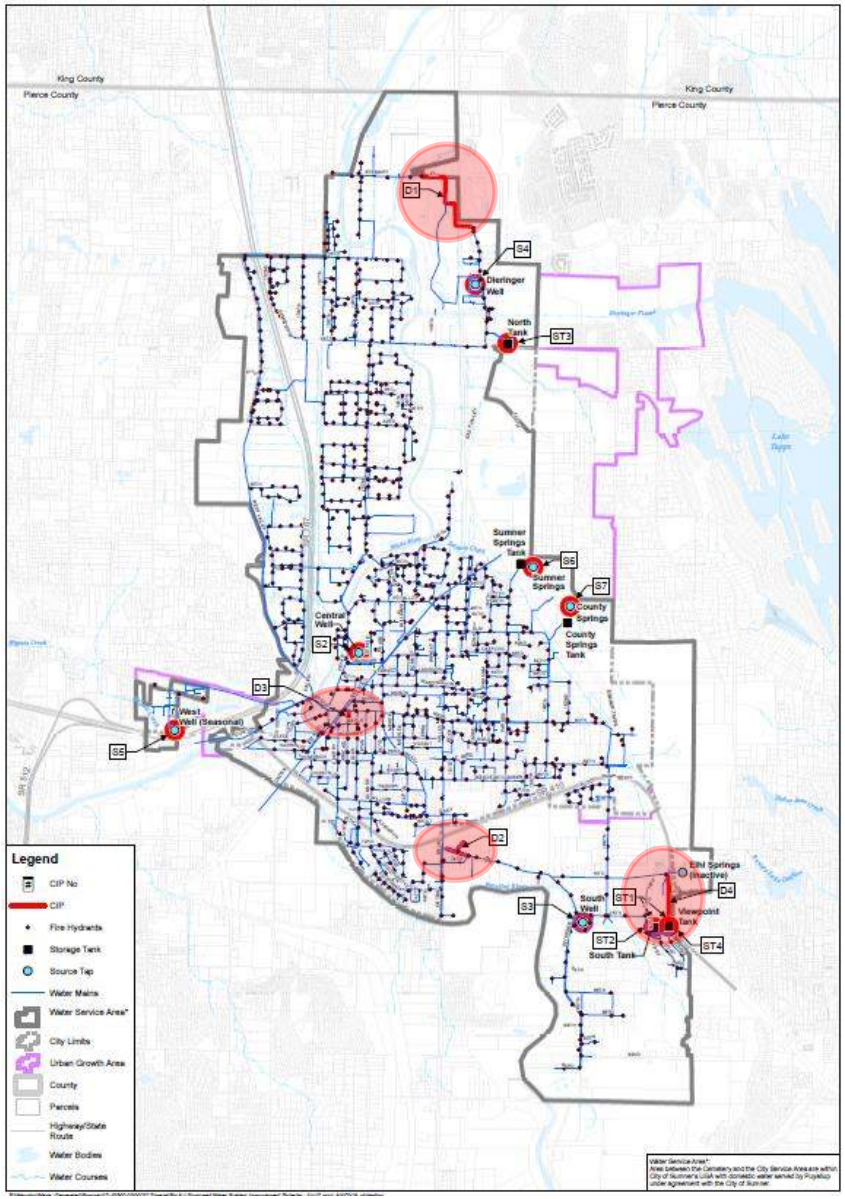
# Comprehensive Water Plan




CITY OF SUMNER
WASHINGTON

# Comprehensive Water Plan

## Distribution System Hydraulic Analysis

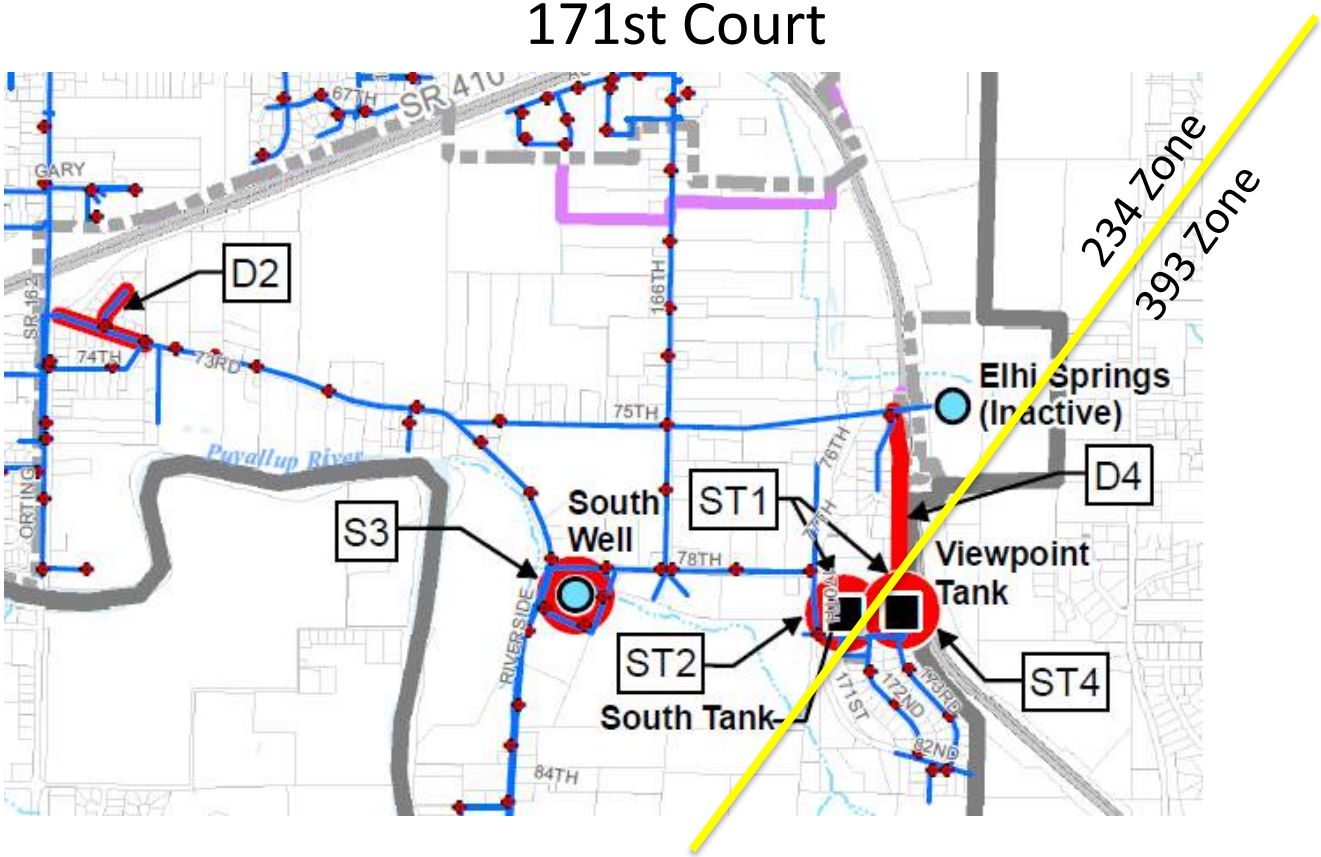



- 4 distribution system pipeline projects identified

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## 171st Court




- Homeowners Association with booster pumps to meet pressure
- Deficiency: Sumner obligation to supply fire flow at reasonable pressures
- System static pressure ~ 27 psi

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## Storage Analysis

**Table 5-6 Sumner 234 Zone Storage Analysis**

| | Existing | 2018 | 2024 | 2028 | 2038 |
|---|---|---|---|---|---|
| Average Day Demand (mgd) | 1.699 | 1.746 | 1.784 | 1.840 | 1.961 |
| Max Day Demand (mgd) | 2.976 | 3.299 | 3.461 | 3.580 | 3.816 |
| Operational Storage (MG) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Equalizing Storage (MG) [1] | 0.125 | 0.170 | 0.097 | 0.000 | 0.000 |
| Fire Suppression Storage (MG) | 1.080 | 1.080 | 1.080 | 1.080 | 1.080 |
| Standby Storage (MG) [1] | 1.209 | 1.414 | 0.482 | 0.000 | 0.000 |
| Standby Storage (MG) [2] | 1.435 | 1.877 | 1.918 | 1.978 | 2.108 |
| Total Required Storage (MG) [3] | 1.559 | 2.046 | 2.015 | 1.978 | 2.108 |
| Total Available Storage (MG) | 5.068 | 5.068 | 5.068 | 5.068 | 5.068 |
| (Deficit) or Surplus Storage (MG) | 3.509 | 3.022 | 3.053 | 3.090 | 2.960 |

**Table 5-7 Sumner Viewpoint 392 Zone Storage Analysis**

| | Existing | 2018 | 2024 | 2028 | 2038 |
|---|---|---|---|---|---|
| Average Day Demand (mgd) | 0.020 | 0.028 | 0.027 | 0.028 | 0.033 |
| Max Day Demand (mgd) | 0.035 | 0.063 | 0.060 | 0.061 | 0.071 |
| Operational Storage (MG) | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 |
| Equalizing Storage (MG) [1] | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 |
| Fire Suppression Storage (MG) | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 |
| Standby Storage (MG) [1] | 0.037 | 0.056 | 0.055 | 0.057 | 0.066 |
| Standby Storage (MG) [2] | 0.010 | 0.017 | 0.017 | 0.017 | 0.020 |
| Dead Storage (MG) | 0.136 | 0.136 | 0.136 | 0.136 | 0.136 |
| Total Required Storage (MG) [3] | 0.225 | 0.212 | 0.212 | 0.212 | 0.218 |
| Total Available Storage (MG) | 0.330 | 0.330 | 0.330 | 0.330 | 0.330 |
| (Deficit) or Surplus Storage (MG) | 0.105 | 0.118 | 0.118 | 0.118 | 0.112 |

- No storage capacity deficiencies identified

CITY OF SUMNER WASHINGTON

**Comprehensive Water Plan**

Source of Supply Analysis

## Source of Supply Scenarios Analyzed:

- **Scenario A**: Current water rights operating with the present operational constraints.
- **Scenario B**: Current water rights + Central Well water rights with present operational constraints.
- **Scenario C**: Current and Central Well Water rights with the expansion of the Central Well.
- **Scenario D**: Current and Central Well water rights with no operational constraints.

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## Source of Supply Analysis

| Table 5-2 Source Capacity Analysis by Scenario | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Projected MDD (mgd) | Projected Off-Peak MDD (mgd) | Projected Residential and Commercial ERU's[2] | Source Capacity Surplus (Deficiency) by Scenario (mgd) | | | | |
| | | | | A (Peak) | A (Off-Peak) | B | C | D |
| | | | | 3.59 | 3.59 | 4.60 | 6.11 | 10.93 |
| 2018 | 3.36 | 2.16 | 6,353 | 0.23 | 0.23 | 1.24 | 2.75 | 2.75 |
| 2024 | 3.52 | 2.21 | 6,798 | 0.07 | 0.07 | 1.08 | 2.59 | 2.59 |
| 2028 | 3.64 | 2.27 | 7,045 | -0.05 | -0.05 | 0.96 | 2.47 | 2.47 |
| 2038 | 3.89 | 2.43 | 7,578 | -0.30 | -0.30 | 0.71 | 2.22 | 2.22 |
| 2068[1] | 4.76 | 2.97 | 9,439 | -1.17 | -1.17 | -0.16 | 1.35 | 1.35 |

Notes:

1) 2068 MDD projection developed by the City and used for ongoing water rights negotiations with local agencies.
2) Residential and commercial ERU's were calculated by dividing the projected population for each planning year as shown in Chapter 3 by the population per ERU value of 2.75 residents per ERU and 7.69 employees per ERU, respectively. These values are 3-year averages from 2015 to 2017.

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## Viewpoint Supply/Booster Pump Station Analysis

| Table 5-12 Viewpoint BPS Analysis – Meet MDD | | | | | |
|---|---|---|---|---|---|
| | **Existing** | **2018** | **2024** | **2028** | **2038** |
| **Viewpoint MDD (gpm)** | 29.7 | 43.5 | 41.9 | 42.2 | 49.3 |
| **BPS Supply (gpm)** | 700.0 | 700.0 | 700.0 | 700.0 | 700.0 |
| **(Deficit) or Surplus Supply (gpm)** | 670.3 | 656.5 | 658.1 | 657.8 | 650.7 |

- Capacity exists to add in demands from 171st Court and the neighboring winery

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## Selected Critical Facility Condition Assessments

| Table 5-14 Recommended Improvements per Facility | |
|---|---|
| **Facility** | **Recommended Improvements** |
| **North Tank** | ▪ Replace interior ladder in tank<br>▪ Install PAX mixing system for added water quality while Dieringer Well is off<br>▪ Install emergency generator<br>▪ Recalibrate existing Cla-Val on tank supply pipe to operate as a shutoff valve for flow spikes |
| **Springs Tank** | ▪ Recoat exterior of tank |
| **County Tank** | ▪ Recoat exterior of tank |
| **South Tank** | ▪ Complete seismic retrofit of tank<br>▪ Install seismic valve on combined inlet/outlet pipe of tank as part of seismic retrofit project<br>▪ Repaint tank exterior as part of seismic retrofit project |
| **Viewpoint Tank** | ▪ Install detention pond downstream of tank drain<br>▪ Install seismic valve on tank outlet pipe |
| **Dieringer Well** | ▪ Install ball check valve on treatment supply<br>▪ Install intake and outtake louvers on existing building<br>▪ Install surge protectors for radio jumper line |
| **South Well** | ▪ New well building including replacement of radio and controls and building structure; existing mechanical and chemical addition items to remain<br>▪ Modify or replace existing metering vault for required pipe lengths upstream and downstream of magnetic flowmeter<br>▪ Install VFD to allow for throttled supply rate<br>▪ Include flexible fitting in discharge piping between the wellhouse and meter vault |

CITY OF SUMNER WASHINGTON

# Comprehensive Water Plan

## Capital Improvement Program

| Table 8-1 Capital Improvement Plan Schedule [1] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Number - Description | Total Cost Year | Year of Completion | | | | | | | | | | | |
| | 2018 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029-2038 |
| Seattle Construction Cost Index (Increases by 3.5% per year) | 10939 | 10939 | 11158 | 11381 | 11609 | 11841 | 12078 | 12320 | 12566 | 12817 | 13074 | 13335 | 13602 |
| **Distribution System Improvements** | | | | | | | | | | | | | |
| D1 - 8th Street East and East Valley Highway Loop | $1,290,000 | | $1,315,800 | | | | | | | | | | |
| D2 - Riverside Drive and 151st Avenue | $510,000 | $510,000 | | | | | | | | | | | |
| D3 - Main Street and Kincaid Avenue Loop | $110,000 | $110,000 | | | | | | | | | | | |
| D4 - Viewpoint Tank to 171st Avenue Court East | $1,040,000 | | | $1,090,000 | | | | | | | | | |
| D5 - Water Main Replacement Program | $3,125,000 | $125,000 | $0 | $300,000 | $0 | $300,000 | $0 | $300,000 | $0 | $300,000 | $0 | $300,000 | $1,500,000 |
| Subtotal | $6,075,000 | $745,000 | $1,315,800 | $1,390,000 | $0 | $300,000 | $0 | $300,000 | $0 | $300,000 | $0 | $300,000 | $1,500,000 |
| **Source Improvements** | | | | | | | | | | | | | |
| S1 - Additional Water Rights Acquisition | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | | | | | |
| S2 - Central Well Treatment Capacity Expansion | $2,630,000 | | | | | $1,423,000 | $1,452,000 | | | | | | |
| S3 - South Well Improvements | $770,000 | | | | $817,000 | | | | | | | | |
| S4 - Dieringer Well Improvements | $100,000 | | | | | | $110,000 | | | | | | |
| S5 - West Well Improvements | $16,000 | | | | | | $18,000 | | | | | | |
| S6 - Sumner Springs Improvements | $63,000 | | | | | | $70,000 | | | | | | |
| S7 - County Springs Improvements | $500,000 | | | | | $271,000 | $276,000 | | | | | | |
| Subtotal | $4,081,000 | $2,000 | $2,000 | $2,000 | $819,000 | $1,696,000 | $1,928,000 | $2,000 | $0 | $0 | $0 | $0 | $0 |
| **Storage Improvements** | | | | | | | | | | | | | |
| ST1 - Earthquake Control Valves and Foundation Improvements | $2,400,000 | $2,400,000 | | | | | | | | | | | |
| ST2 - Viewpoint BPS Improvements | $200,000 | | | | | | | $225,232 | | | | | |
| ST3 - North Tank Improvements | $400,000 | | | | $424,483 | | | | | | | | |
| ST4 - Viewpoint Tank Detention Pond | $550,000 | | | | | | | $619,389 | | | | | |
| Subtotal | $3,550,000 | $2,400,000 | $0 | $0 | $424,483 | $0 | $0 | $844,622 | $0 | $0 | $0 | $0 | $0 |
| **Operations and Maintenance Improvements** | | | | | | | | | | | | | |
| O&M1 - Hydrant and Isolation Valve Upgrades - 20 Years | $244,832 | $80,000 | $81,600 | $83,232 | | | | | | | | | |
| O&M2 - Source Meter Calibration | $111,400 | $5,000 | $5,100 | $5,300 | $5,400 | $5,500 | $5,600 | $5,700 | $5,800 | $5,900 | $6,000 | $6,100 | $50,000 |
| O&M3 - Increased Telemetry Maintenance | $34,000 | $34,000 | $34,700 | $35,400 | $36,100 | $36,900 | $37,600 | $38,300 | $39,100 | $39,900 | $40,700 | $41,500 | $340,000 |
| O&M4 - Water Use Efficiency Program/WLCAP | $182,000 | $16,000 | $16,000 | $13,000 | $13,000 | $12,000 | $12,000 | $9,000 | $9,000 | $10,000 | $10,000 | $62,000 | $14,000 |
| Subtotal | $572,232 | $135,000 | $137,400 | $136,932 | $54,500 | $54,400 | $55,200 | $53,000 | $53,900 | $55,800 | $56,700 | $109,600 | $404,000 |
| TOTAL WATER FUND | $14,278,232 | $3,282,000 | $1,455,200 | $1,528,932 | $1,297,983 | $2,050,400 | $1,983,200 | $1,199,622 | $53,900 | $355,800 | $56,700 | $409,600 | $1,904,000 |

Notes:
1) All OPCCs shown are in 2018 dollars. Project OPCCs not shown in the year 2018 are estimated in 2018 dollars and escalated by the percent increase in Construction Cost Index, assumed to increase at a rate of 2% per year.

CITY OF SUMNER WASHINGTON

# Project Schedule

## Water and Sewer Plan Parallel Tracks

| | April 2017 – May 2018 | June 2018 – August 2018 | September 2018 | October 2018 – November 2018 |
|---|---|---|---|---|
| **Work Efforts** | • Development of Draft Plans<br>• Complete Draft Financial Chapters | • Regulatory Reviews (~90 days)<br>• Adjacent Utility Reviews (~30 days)<br>• SEPA Determination/Public Review (~ 30 days) | • Address DOE/DOH Review Comments<br>• Incorporate Utility Consistency Statement and SEPA documentation<br>• Produce Final Plans | • Produce/ Distribute Final Plan Hardcopies<br>• Transmit/Store Plan and Project Files |
| **Required Documentation** | • Chapter Text<br>• Executive Summary<br>• Appendices | • DOE/DOH Review Comments<br>• Adjacent Utility Concurrence/ Consistency Statements<br>• Completion of SEPA | • Resubmitted Plans for Regulatory Approval<br>• Council Formal Acceptance of the Plans for Approval | • Regulatory Approval Letters |
| **Council Action** | | • Public Hearing | • Council Formal Acceptance of the Plans for Approval | • Adopt Rates to Implement Plan |

CITY OF SUMNER WASHINGTON

# SUMNER CITY COUNCIL

## Minutes – Special Study Session
## April 30, 2018

The Sumner City Council met in study session at 6:00pm with Mayor Bill Pugh presiding.

**Councilmembers present:** Councilmembers Barbara Bitetto, Curt Brown, Cindi Hochstatter, Melony Pederson, Earle Stuard, Patrick Reed, and Deputy Mayor Kathy Hayden. **Staff present:** Public Works Director Mike Dahlem, Community Development Ryan Windish, Interim City Attorney Andrea Marquez, Administrative Services Director Jason Wilson, Chief Financial Officer Kassandra Raymond, Police Chief Brad Moericke, Associate City Engineer Jason Van Gilder and City Administrator John Galle.

### SPECIAL STUDY SESSION BUSINESS

| |
|---|
| 1) Sumner Library Presentation |
| 2) Budget Presentation |
| 3) Draft 2018 Water System Plan and the Draft 2018 Sanitary Sewer Comprehensive Plan Versions |
| 4) Ordinance No. 2637 – Council Meeting Start Time |

### CITY ADMINISTRATOR REPORT

### AGENDA SETTING

1. Council Meeting Agenda Calendar
2. Council Committee Meeting Calendar

### EXECUTIVE SESSION

There was no Executive Session.

**ADJOURNMENT:** When there was no further business to come before the Council, Mayor Pugh adjourned the meeting at 8:20pm.

**ATTEST:**

Michelle Converse
City Clerk Michelle Converse, CMC

William L. Pugh
Mayor William L. Pugh

# Appendix P

# Coliform Monitoring Plan

**CITY OF SUMNER**
**COLIFORM MONITORING PLAN**
**SYSTEM ID #851207**

## A. SYSTEM INFORMATION

### POPULATION SERVED

Permanent residents on distribution system: 9800
Total number of metered connections: 3872

### SYSTEM SOURCES

The City of Sumner water system consists of four sets of springs and four wells.
The primary sources are the Sumner Springs, County Springs, Crystal Springs and Elhi Springs that provide water to all City of Sumner customers. Elhi Springs is primarily used in the summer months. The South Well, Central Well and Dieringer Well are used when customer demand exceeds springs production or if maintenance or repairs interfere with the normal supply from the primary sources. The West Well is for seasonal use and is used when customer demand exceeds spring production.

| DOH Source # | Source Name | Capacity GPM | Treatment |
|---|---|---|---|
| SO1 | Sumner Springs | 1100 | Gas Chlorination |
| SO2 | Crystal Springs | 182 | Gas Chlorination |
| SO3 | Elhi Springs | 90 | Sodium Hypochlorite |
| SO4 | County Springs | 867 | Gas Chlorination |
| SO5 | West Well | 500 | Sodium Hypochlorite |
| SO6 | South Well | 1000 | Gas Chlorination |
| SO7 | Dieringer Well | 250 | Sodium Hypochlorite |
| S09 | Central Well | 1050 | Sodium Hypochlorite |

### System Treatment:

Sumner Springs, County Springs, Crystal Springs and South Well disinfect the water with 100% gas chlorine. Elhi Springs, Dieringer Well and West Well disinfect the water with 12% sodium hypochlorite. Central Well disinfects the water with .8% sodium hypochlorite.

### System Storage:

| | | |
|---|---|---|
| Sumner Springs Tank | (Res. #1) | 1,000,000 gal |
| County Springs Tank | (Res. #2) | 66,000 gal |
| South Tank | (Res. #3) | 2,000,000 gal |
| North Tank | (Res. #4) | 2,000,000 gal |
| Sumner Viewpoint Tank* | (Res. #5) | 330,000 gal |
| | **Total Capacity** | **5,396,000 gal** |

**Pressure Zones:**

**Zone #1.** Sumner Springs, County Springs and Crystal Springs gravity flow into reservoirs #1 and #2. Reservoirs #3 & #4 are filled from the distribution system. All four reservoirs are on the same hydraulic grade line. South Well and Central Well pump directly into the distribution system when there is an inadequate water supply from primary sources. Dieringer Well pumps into reservoir #4.

**Zone #2.** Elhi Springs pumps directly into the distribution system. There is an inter-tie between zones #1 and #2 that is separated by a valve. The valve remains in the **"closed"** position until May or June of each year, or unless maintenance or repairs on primary sources are needed.

**Zone #3. ***Sumner Viewpoint reservoir #5 is supplied by the South Tank reservoir #3 via booster pump station and serves only the Sumner Viewpoint development. Sumner Viewpoint is at a higher hydraulic grade line than the rest of the Sumner water distribution system and is not connected back to the system.

## B. SAMPLING INFORMATION

The routine sampling requirement by DOH is ten samples per month. Samples are split into two groups and each group is taken on a biweekly basis. Sample site rotation is recommended by the DOH; therefore sample sites are rotated on a monthly basis. Should service area, sources or other conditions change which cause the selected sites to no longer represent the system adequately, the sites will be changed to better represent the system. Repeat samples are available upstream and downstream of all routine sample sites.
Routine and repeat sample sites are outlined below and shown on the attached map.

1. **Routine site – 4700 154th Ave Ct E sample station**
   Repeat upstream – 15406 47th St Ct E
   Repeat downstream – 4822 154th Ave Ct E **sample station**

2. **Routine site – 15304 Daffodil St Ct E sample station**
   Repeat upstream – 5303 Parker Rd **sample station**.
   Repeat downstream – 5231 151St Ave Ct E **sample station**.

3. **Routine site - Valley Ave sample station**
   Repeat upstream – 1600 blk Valley Ave
   Repeat downstream – 800 blk Valley Ave

4. **Routine site - Loyalty Park sample station**
   Repeat upstream – 700 blk. Sumner Ave.
   Repeat downstream – 400 blk. Sumner Ave.

5. **Routine site - 7473 Riverside Dr. sample station**
   Repeat upstream – 7400 blk Riverside Dr.
   Repeat downstream – 740 blk 154th Ave Ct E

6. **Routine site - 602 West Main sample station**
   Repeat upstream – 701 West Main
   Repeat downstream – 803 Hunt Ave.

7. **Routine site – 75th & Village Dr. sample station**
   Repeat upstream – 146th Ave E. **sample station**
   Repeat downstream – 7222 Village Dr **sample station**

8. **Routine site - 158th St sample station**
   Repeat upstream – 15600 blk 67th St Ct E
   Repeat downstream – 15900 blk 67th St Ct E.

9. **Routine site - 84th St & Riverside Dr. sample station**
   Repeat upstream – 16300 blk Riverside Dr.
   Repeat downstream – 8700 blk Riverside Dr.

10. **Routine site – White River Power Station sample station**
    Repeat upstream – Hydrant @ 24th St E & E. Valley
    Repeat downstream – 1808 E. Valley **sample station**

11. **Routine site – 1705 Wood Ave sample station**
    Repeat upstream – Hydrant @ 1700 blk Bonney Ave
    Repeat downstream – 1600 blk Wood Ave

12. **Routine site – 1800 140th Ave E sample station**
    Repeat upstream – Hydrant South
    Repeat downstream – Hydrant North

13. **Routine site – 6020 154th Ave Ct E sample station**
    Repeat upstream – Hydrant 15422 Main St
    Repeat downstream – Hydrant 6110 154th Ave Ct E

14. **Routine site – 4000 142nd Ave E sample station**
    Repeat upstream – 4711 142nd Ave E
    Repeat downstream – 3100 blk 142nd Ave E

15. **Routine site – 14304 75th St Ct E sample station**
    Repeat upstream – Hydrant – 14805 74th St Ct E
    Repeat downstream – Hydrant 7311 147th Ave E

16. **Routine site – 136th & 24th St E sample station**
    Repeat upstream – Hydrant 24th St E & 138th Ave
    Repeat downstream – Hydrant 16th St & 136th Ave

17. **Routine site – 3005 145th Ave Ct E sample station**
    Repeat upstream – Hydrant 2929 146th Ave E
    Repeat downstream – Hydrant 145th Ave Ct E & 29th St E

Routine and repeat sampling sites may change due to leaking faucets or other factors that may contaminate the sample during collection. Each of the monitoring points represents a significant source, storage, pressure zone, major arterial or supply point to another water purveyor for resale.

**Plan Preparation Information**:

Prepared February 21, 1992

Updated April 27, 2020 by:
Shaun Piper
City of Sumner Water Operations
(253) 299 - 5740

_____

_____
Date:

Reviewed by:
Mike Dahlem, Director of Public Works
(253) 299 - 5701

_____

_____
Date:

## CITY OF SUMNER
**Coliform Monitoring Schedule**

**First Quarter**

| Month | Week | Monitoring Location |
|---|---|---|
| **January** | Week 1 | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
| | | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
| | | |
| | | |
| | | |
| | Week 3 | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
| | | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
| | | |
| | | |

| Month | Week | Monitoring Location |
|---|---|---|
| **February** | Week 1 | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
| | | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
| | | |
| | | |
| | | |
| | Week 3 | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
| | | |
| | | |

| Month | Week | Monitoring Location |
|---|---|---|
| **March** | Week 1 | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
| | | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
| | | |
| | | |
| | | |
| | Week 3 | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
| | | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
| | | |
| | | |

**Second Quarter**

| Month | Week | Monitoring Location |
|---|---|---|
| **April** | Week 1 | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
| | | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
| | | |
| | | |
| | | |
| | Week 3 | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
| | | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
| | | 6. 602 West Main St. |
| | | |
| | | |
| | | |

| Month | Week | Monitoring Location |
|---|---|---|
| **May** | Week 1 | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
| | | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
| | | 11. 1705 Wood Ave. |
| | | |
| | | |
| | | |
| | Week 3 | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
| | | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
| | | 16. 136th Ave E. & 24th St E. |
| | | |
| | | |
| | | |

| Month | Week | Monitoring Location |
|---|---|---|
| **June** | Week 1 | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
| | | 4. Loyalty Park |
| | | |
| | | |
| | | |
| | Week 3 | 5. 7473 Riverside Dr. |
| | | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
| | | 9. 84th & Riverside Dr. |
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**Third Quarter**

| Month | Week | Monitoring Location |
|---|---|---|
| **July** | Week 1 | 10. White River Power Station |
| | | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
| | | 14. 4000 142nd Ave E. |
| | | |
| | | |
| | | |
| | Week 3 | 15. 14804 75th St. Ct. E. |
| | | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
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| | | |

| Month | Week | Monitoring Location |
|---|---|---|
| **August** | Week 1 | 3. 1200 blk Valley Ave. |
| | | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
| | | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
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| | | |
| | Week 3 | 8. 158th St. & 67th St. Ct. E. |
| | | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
| | | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
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| Month | Week | Monitoring Location |
|---|---|---|
| **September** | Week 1 | 13. 6020 154th Ave Ct E. |
| | | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
| | | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
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| | | |
| | | |
| | Week 3 | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
| | | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
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**Fourth Quarter**

| Month | Week | Monitoring Location |
|---|---|---|
| **October** | Week 1 | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
| | | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
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| | | |
| | Week 3 | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
| | | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
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| Month | Week | Monitoring Location |
|---|---|---|
| **November** | Week 1 | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
| | | 2. 15304 Daffodil St. Ct. E. |
| | | 3. 1200 blk Valley Ave. |
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| | Week 3 | 4. Loyalty Park |
| | | 5. 7473 Riverside Dr. |
| | | 6. 602 West Main St. |
| | | 7. 74th St Ct E & Village Dr. |
| | | 8. 158th St. & 67th St. Ct. E. |
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| Month | Week | Monitoring Location |
|---|---|---|
| **December** | Week 1 | 9. 84th & Riverside Dr. |
| | | 10. White River Power Station |
| | | 11. 1705 Wood Ave. |
| | | 12. 1800 140th Ave E. |
| | | 13. 6020 154th Ave Ct E. |
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| | Week 3 | 14. 4000 142nd Ave E. |
| | | 15. 14804 75th St. Ct. E. |
| | | 16. 136th Ave E. & 24th St E. |
| | | 17. 3005 145th Ave. Ct. E. |
| | | 1. 4700 154th Ave Ct. E. |
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**CITY OF SUMNER**
**Disinfectant Residual Monitoring**

**First Quarter**

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **January** | Week 1 | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
| | | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
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| | Week 3 | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
| | | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **February** | Week 1 | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
| | | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
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| | Week 3 | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **March** | Week 1 | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
| | | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
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| | Week 3 | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
| | | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

**First Quarter Average** **#DIV/0!**

**Second Quarter**

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **April** | Week 1 | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
| | | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
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| | Week 3 | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
| | | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
| | | 6. 602 West Main St. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **May** | Week 1 | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
| | | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
| | | 11. 1705 Wood Ave. | | |
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| | Week 3 | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
| | | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
| | | 16. 136th Ave E. & 24th St E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **June** | Week 1 | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
| | | 4. Loyalty Park | | |
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| | Week 3 | 5. 7473 Riverside Dr. | | |
| | | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
| | | 9. 84th & Riverside Dr. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

**Second Quarter Average** **#DIV/0!**

**Third Quarter**

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **July** | Week 1 | 10. White River Power Station | | |
| | | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
| | | 14. 4000 142nd Ave E. | | |
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| | Week 3 | 15. 14304 75th St. Ct. E. | | |
| | | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **August** | Week 1 | 3. 1200 blk Valley Ave. | | |
| | | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
| | | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
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| | Week 3 | 8. 158th St. & 67th St. Ct. E. | | |
| | | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
| | | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **September** | Week 1 | 13. 6020 154th Ave Ct E. | | |
| | | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
| | | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
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| | Week 3 | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
| | | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

**Third Quarter Average** **#DIV/0!**

**Fourth Quarter**

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **October** | Week 1 | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
| | | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
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| | | | | |
| | Week 3 | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
| | | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **November** | Week 1 | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
| | | 2. 15304 Daffodil St. Ct. E. | | |
| | | 3. 1200 blk Valley Ave. | | |
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| | Week 3 | 4. Loyalty Park | | |
| | | 5. 7473 Riverside Dr. | | |
| | | 6. 602 West Main St. | | |
| | | 7. 75th & Village Dr. | | |
| | | 8. 158th St. & 67th St. Ct. E. | | |
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| | | | **Monthly Average** | **#DIV/0!** |

| Month | Week | Monitoring Location | Monitoring Date | $Cl_2$ (mg/l) |
|---|---|---|---|---|
| **December** | Week 1 | 9. 84th & Riverside Dr. | | |
| | | 10. White River Power Station | | |
| | | 11. 1705 Wood Ave. | | |
| | | 12. 1800 140th Ave E. | | |
| | | 13. 6020 154th Ave Ct E. | | |
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| | Week 3 | 14. 4000 142nd Ave E. | | |
| | | 15. 14304 75th St. Ct. E. | | |
| | | 16. 136th Ave E. & 24th St E. | | |
| | | 17. 3005 145th Ave. Ct. E. | | |
| | | 1. 4700 154th Ave Ct. E. | | |
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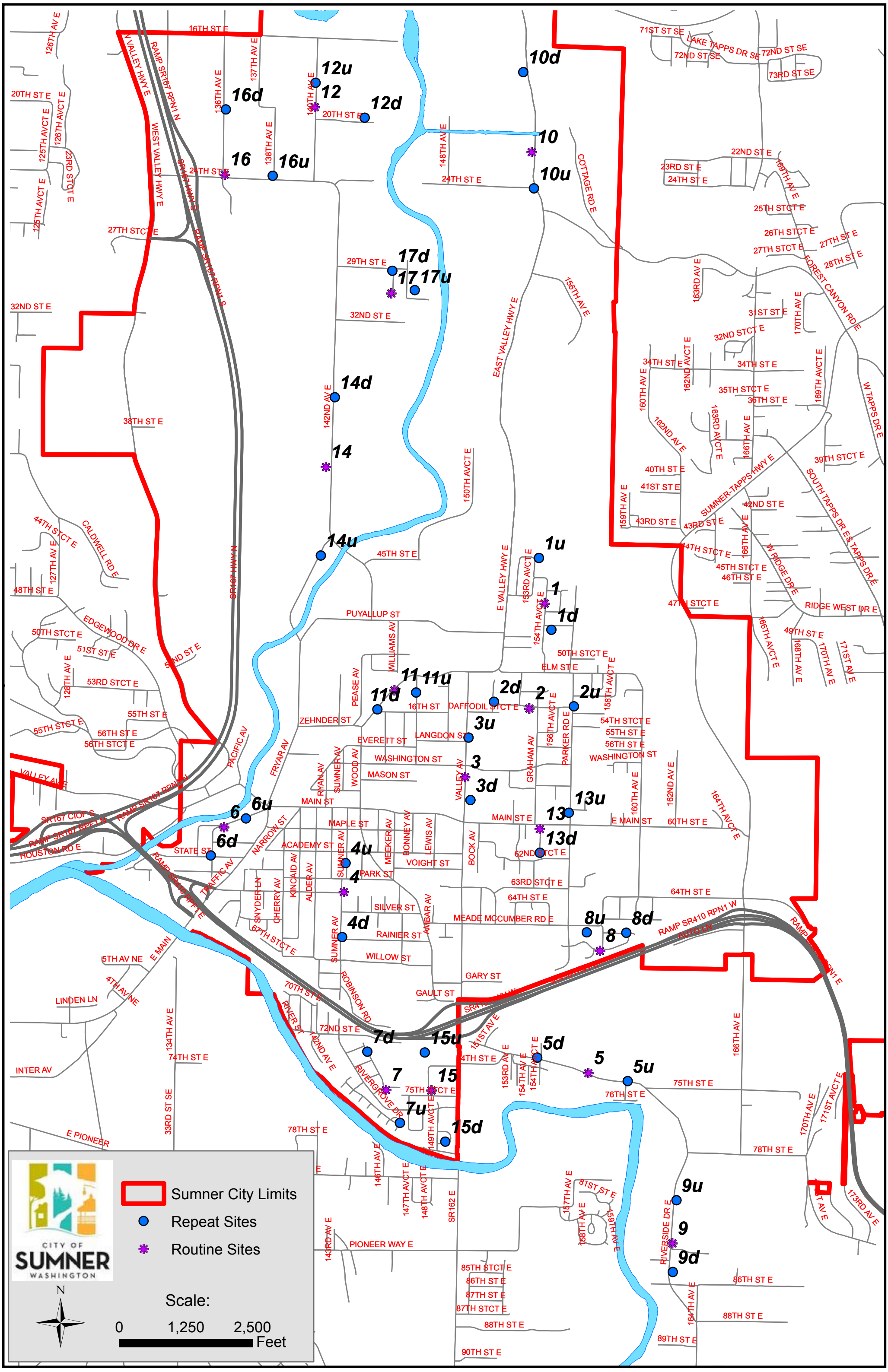
| | | | **Monthly Average** | **#DIV/0!** |

**Fourth Quarter Average** **#DIV/0!**

**RUNNING ANNUAL AVERAGE** **#DIV/0!**


16TH ST E
126TH AV E
20TH ST E
125TH AVCT E
126TH AVCT E
23RD ST CT E
125TH AVCT E
WEST VALLEY HWY E
RAMP SR167 RPN1 N
SR167 HWY S
RAMP SR167 RPN1 S
136TH AV E
137TH AV E
138TH AV E
142ND AV E
16d
12u
12
12d
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24TH ST E
27TH STCT E
32ND ST E
38TH ST E
29TH ST E
17d
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14u
45TH ST E
44TH STCT E
CALDWELL RD E
127TH AV E
48TH ST E
SR167 HWY N
EDGEWOOD DR E
50TH STCT E
51ST ST E
52ND ST E
128TH AV E
53RD STCT E
55TH ST E
55TH STCT E
56TH ST E
56TH STCT E
PACIFIC AV
FRYAR AV
VALLEY AV E
RAMP SR167 RPN1 N
SR167 CIOP S
RAMP SR167 RPE1 N
HOUSTON RD E
6
6u
6d
STATE ST
NARROW ST
TRAFFIC AV
RAMP SR410 RPE1 E
5TH AV NE
E MAIN
4TH AV NE
LINDEN LN
INTER AV
134TH AV E
74TH ST E
33RD ST SE
E PIONEER
ACADEMY ST
4u
4
PARK ST
SNYDER LN
CHERRY AV
KINCAID AV
ALDER AV
SUMNER AV
MEEKER AV
BONNEY AV
LEWIS AV
VOIGHT ST
BOCK AV
SILVER ST
4d
67TH STCT E
RAINIER ST
WILLOW ST
ROBINSON RD
GARY ST
GAULT ST
70TH ST E
72ND ST E
RIVER ST
142ND AV E
7d
15u
7
15
7u
15d
RIVERGROVE DR
75TH STCT E
74TH ST E
78TH ST E
146TH AV E
147TH AVCT E
148TH AVCT E
149TH AVCT E
SR162 E
143RD AV E
PIONEER WAY E
85TH STCT E
86TH ST E
87TH ST E
87TH STCT E
88TH ST E
90TH ST E
10d
148TH AV E
24TH ST E
10
10u
COTTAGE RD E
EAST VALLEY HWY E
156TH AV E
150TH AVCT E
11
11u
11d
16TH ST
PEASE AV
WILLIAMS AV
ZEHNDER ST
EVERETT ST
WASHINGTON ST
MASON ST
MAIN ST
RYAN AV
SUMNER AV
WOOD AV
2d
2
2u
DAFFODIL STCT E
3u
LANGDON ST
3
3d
VALLEY AV
GRAHAM AV
PARKER RD E
156TH AVCT E
158TH AVCT E
ELM ST E
50TH STCT E
153RD AVCT E
154TH AVCT E
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E VALLEY HWY E
MAPLE ST
MAIN ST E
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13d
62ND STCT E
63RD STCT E
64TH ST E
MEADE MCCUMBER RD E
8u
8
8d
RAMP SR410 RPN1 W
AUTO LN
22ND ST E
23RD ST E
24TH ST E
169TH AV E
25TH STCT E
26TH STCT E
27TH STCT E
27TH ST E
28TH ST E
FOREST CANYON RD E
163RD AV E
31ST ST E
32ND STCT E
170TH AV E
34TH ST E
162ND AVCT E
34TH ST E
160TH AV E
35TH STCT E
36TH ST E
169TH AVCT E
W TAPPS DR E
162ND AV E
163RD AVCT E
166TH AV E
39TH STCT E
40TH ST E
41ST ST E
159TH AV E
43RD ST E
42ND ST E
SUMNER-TAPPS HWY E
SOUTH TAPPS DR E
W RIDGE DR E
45TH STCT E
46TH ST E
47TH STCT E
RIDGE WEST DR E
166TH AVCT E
49TH ST E
168TH AV E
170TH AV E
171ST AV E
71ST ST SE
LAKE TAPPS DR SE
72ND ST SE
73RD ST SE
5d
5
5u
153RD AV E
154TH AV E
75TH ST E
76TH ST E
171ST AVCT E
9u
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9d
RIVERSIDE DR E
157TH AV E
158TH AV E
159TH AV E
81ST ST E
164TH AV E
86TH ST E
88TH ST E
89TH ST E
173RD AV E
Sumner City Limits
Repeat Sites
Routine Sites
CITY OF SUMNER WASHINGTON
N
Scale:
0
1,250
2,500
Feet