

## 10 CAPITAL IMPROVEMENT PLAN (CIP)

This chapter describes the methods used in developing the District’s Capital Improvement Plan (CIP).

### 10.1 Major CIP Project Development

Major CIP projects include construction of major infrastructure such as new reservoirs, new transmission pipelines, new booster stations, etc. They do not include system maintenance, such as yearly pipe replacement projects. Major CIP projects are developed based on two elements:

- **WSP System Analysis:** As described in Chapter 6, the District’s source, storage, and distribution facilities were analyzed to determine whether they have sufficient capacity to meet current and future demands. When deficiencies were identified, major CIP projects were developed to rectify the deficiencies.
- **District CIP:** District staff had previously identified several projects, which were included in the 2007 Water System Plan. In addition, staff meets on a yearly basis to develop major projects that would benefit the system.

The list of major CIP projects for the next 20 years is summarized in Table 10-1, and the project locations are shown in Figures 10-1 through 10-4. The table includes projects related to (a) new reservoirs that were identified as a result of the storage analysis, (b) new transmission pipelines that are planned to provide redundancy and additional capacity as a result of the hydraulic analysis, (c) new pipelines that will be used to strengthen the District’s system in rural areas, (d) booster stations to increase flow to specific pressure zones, and (e) fiber optic lines to build the secure communication network for District facilities. Also included in the major CIP projects are battery replacements for the District’s radio-read water meters, software, water treatment plant projects, and the yearly vehicle and equipment replacement program that is needed to keep vehicles and equipment in reliable condition.

In addition to the projects that are planned as part of the District’s System Analysis or previous CIP, there are some “future” projects that are identified for potential completion with the hope that outside funding is available in the form of state or federal loans or grants, private funding from developers, or through the Local Utility District (LUD) process. These projects are identified in this Water System Plan so that the projects are open to potential funding sources in the event that they are completed within the current planning period.

Brief descriptions of each major project are provided below.

### 10.1.1 Pipeline Projects

**P-1, Fir Island Road Pipeline:** This project is located on Fir Island Road from Skagit City Road to Maupin Road. The project will replace existing 3-, 4-, and 6-inch plastic, AC, and PVC pipes to help improve system pressures and flows on Fir Island. The existing pipes are undersized and numerous leaks have resulted in increasing maintenance costs. This pipeline will eventually connect to a future pipeline crossing of the North Fork of the Skagit River and the existing water line on Best Road to complete a distribution loop for this area that will help increase system reliability and performance.

**P-2, Josh Wilson Road Improvements:** This project is located on Josh Wilson Road in rural Skagit County, west of the intersection of Josh Wilson Road and Higgins Airport Way. The project will extend the 18-inch-diameter pipeline west to Farm to Market Road, and continue west with a new 12-inch-diameter water line to connect with the existing 12-inch-diameter pipeline. The new water lines will help system hydraulics and improve the flows to Bay View Ridge so that the existing Bay View standpipe can be taken out of service. The standpipe has deferred maintenance and needs a seismic upgrade as well as lining and coating replacements.

**P-3, North 30th Street and Digby Road Pipeline:** This project is located on North 30th Street and on Digby Road in Mount Vernon. The pipeline on North 30th Street will be a new 18-inch-diameter dedicated tank inlet line from the Judy Reservoir to Mount Vernon transmission pipeline to the new Division Street tank. The dedicated inlet will allow for all of the water in the 322-foot HGL pressure zone to flow through the new tank, thereby reducing the water age that could result from such a large tank. The pipeline on Digby Road will be a new 12-inch-diameter pipeline that will feed water from the new Division Street booster pump station to the 560-foot HGL pressure zone.

**P-4, Transmission Line, Judy Reservoir to Mount Vernon (Phase 2):** This project is located in rural Skagit County, along the District's existing easement from Mount Vernon to the Judy Reservoir WTP. The project consists of constructing a new 36-inch-diameter pipeline to be built within the same easement as the existing 24-inch-diameter concrete cylinder pipeline. The District's hydraulic model has shown that the 24-inch-diameter pipeline is exceeding design velocities during peak day demands. In addition, future growth scenarios show that the 24-inch-diameter pipeline will be inadequate to deliver average day flows within the planning horizon of this WSP. Also, with the majority of the District's customers located downstream of the Judy Reservoir to Mount Vernon pipeline, a redundant and reliable transmission feed is an important part of the District's future, especially since the existing 24-inch-diameter pipeline was constructed in 1961 and is very difficult to access during most of the year.

**P-5, Mclean Road Pipeline:** This project is located along Mclean Road in rural Skagit County, between Best Road and Wall Street in Mount Vernon. The project will construct a new 12-inch-diameter pipeline to replace the existing 8-inch-diameter AC pipeline. The new pipeline will serve to improve system pressures and flows to the far reaches of the District's system at the south end of Best Road and on Fir Island.

**P-6, Best Road Pipeline:** This project is located on Best Road in rural Skagit County, from Valentine Road south to Summers Drive. The project will replace existing 3- and 6-inch-diameter PVC to help improve system pressures and flows near Pleasant Ridge and on Fir Island. The existing pipes are undersized and create a bottleneck in delivering adequate flows to this area. The pipeline will eventually connect to a future crossing of the North Fork of the Skagit River and the existing water line on Fir Island Road to complete a distribution loop for this area that will help increase system reliability and performance.

**P-7, Burklund Road Pipeline:** This project is located on Burklund Road in rural Skagit County, south of the City of Mount Vernon, between Stackpole Road and SR 534. The project will replace existing 8-inch-diameter AC pipe from 1962 to help improve system pressures and flows to the Conway area and Fir Island. This existing pipe is undersized and creates a bottleneck in delivering adequate flows to this area. A portion of the existing pipe between East Johnson Road and SR 534 is located in a 25-foot easement through active farmers' fields. There are no services on this line, so it is an option to construct the new line on this same alignment to reduce the overall project length. However, access to this easement is limited in most months of the year due to groundwater levels and farming activities.

**P-8, North Fork Skagit River Crossing:** This project is located in rural Skagit County, on the North Fork of the Skagit River between Pleasant Ridge and Fir Island. Currently, the District does not have a crossing of the North Fork so the water systems on Fir Island and Pleasant Ridge are not looped and require shutdowns during periods of construction or when leaks occur. A new crossing of the North Fork would serve to loop the District's system in this area so that water can be delivered from different directions and reduce the need for system shutdowns and flushing of dead-end lines. Skagit County is proposing to replace the North Fork bridge at some point and the new water line could be built as part of the new bridge construction. However, the District would prefer to construct a sub-surface crossing of the river so that any issues with the bridge in the future would not impact the water line.

**P-9, Transmission Line, Judy Reservoir to Sedro-Woolley – Skagit River Crossing:** This project is the replacement/upsizing of the existing aerial crossing of the Skagit River from South Skagit Highway to River Road in Sedro-Woolley. The existing water line is a 24-inch-diameter ductile iron pipe from 1958 that will reach its peak day hydraulic capacity sometime in the next decade, depending on growth and water demand in areas north of the Skagit River. The new water line has not been sized yet, and it has not been determined on the alignment whether it will be an aerial crossing or a subsurface crossing.

**P-10, Bayview Ridge Reservoir to Allen West Road Pipeline:** This project is located in rural Skagit County from Benson Heights Place, along Benson Road to Allen West Road. The project will add piping to connect the Bayview Ridge Reservoir to the rural 214-foot HGL pressure zone in Edison to provide a redundant feed in addition to the normal feed from the PRV station at Cook Road and Old Highway 99. The project will also replace the existing 2-, 3-, and 4-inch-diameter plastic pipes from

the 1960s and 1970s on Benson Road to provide delivery of adequate system pressures and flows to the Edison area.

**P-11, Transmission Line, Judy Reservoir to Sedro-Woolley – New Pipeline:** This project is located between the Judy Reservoir WTP and Sedro-Woolley, along the District’s existing easement. There is an existing transmission line that supplies water to Sedro-Woolley, which ranges in size from 20- to 30-inch-diameter and is made of ductile iron, steel, and concrete cylinder pipe. The District’s hydraulic model has shown that the existing pipeline will eventually exceed the design criteria and be inadequate during peak day demands. The project involves construction of a new 24-inch-diameter pipeline to provide additional capacity and a redundant supply to Sedro-Woolley. The timing of the project depends on the growth of the Sedro-Woolley area and the water demands. The alignment of the new pipeline has not been detailed at this time, but it is expected that it would be constructed within the same easement as the existing pipeline.

### 10.1.2 Reservoir Projects

**R-1, East Division Reservoir, Pump Station and Piping:** This project is located in the District’s 322-foot HGL pressure zone in Mount Vernon, and it involves construction of the following facilities:

1. Construction of a new 6-MG reservoir located at the intersection of Division Street and Digby Road at the site of the existing 1-MG Division Street Reservoir. The District’s 322-foot HGL pressure zone is deficient in standby storage volume, so the existing 1-MG reservoir will be removed and the new 6-MG reservoir will be constructed.
2. Construction of a new booster pump station to deliver water to the 560-foot HGL pressure zone. Currently, the Fir-Waugh booster station is the only feed to the 560-foot HGL zone and this new pump station will be a redundant measure.
3. Construction of a new pipeline to connect the new booster pump station to the 560-foot HGL pressure zone. The new pipeline will start at the new reservoir site and proceed south along Digby Road until reaching Woodland Drive (Project P-3).
4. Construction of a new dedicated pipeline feed to supply the new 6-MG reservoir. This project will involve a new connection to the existing 36-inch-diameter transmission line from Judy Reservoir at North 30th Street in Mount Vernon. The new pipeline will proceed south on North 30th Street until reaching Division Street, then turn east and end at the new reservoir site with a PRV station (Project P-3).
5. Installation of new fiber optic cable from the intersection of North 30th Street and College Way to the new 6-MG Division Street Reservoir. This new cable will provide redundant communication between District facilities in the event of an emergency when regular communication is not available. It will also improve the District’s ability to monitor system status at various sites throughout Mount Vernon and allow for remote operation. The cable is not intended to be used for commercial purposes or by the general public.

**R-2, Cascade Ridge Reservoir (858 / 592-foot HGL):** This project is located in the Cascade Ridge development south of Mount Vernon. The development is currently served by three glass-lined bolted steel tanks that are undersized and in need of maintenance. The project will involve construction of a larger, new reservoir to serve the upper pressure zone, and PRV stations to serve the lower pressure zones.

**R-3, Big Lake Reservoir (356-foot HGL):** This project is located in the 356-foot HGL pressure zone near Big Lake, east of Mount Vernon. The 356-foot HGL zone is still experiencing growth, and it is projected that an additional storage reservoir will be needed. There is the potential for the reservoir to be a developer-driven requirement, with the District contributing to the up-sizing of the reservoir. This project will not be fully defined until the status of a number of potential developments in the Big Lake area is finalized.

**R-4, Pleasant Ridge Area Reservoir (290-foot HGL):** This project is located in the Pleasant Ridge area of rural Skagit County off Valentine Road. This area currently does not have a reservoir to provide standby storage or fire flow. The project will construct a new reservoir at the 290-foot HGL to create a new pressure zone that will serve the residents at the higher elevations in this area.

**R-5, North Sedro-Woolley Reservoir #2 (430 / 350-foot HGL):** This project is located in the north part of Sedro-Woolley and will serve future demands in this area as the population and water demand increase. The existing Hoogdal Reservoir also serves this area, but it is not adequate to provide standby storage as the demand in this pressure zone increases. A site has not yet been selected for this reservoir.

**R-6, Burlington Reservoir (214-foot HGL):** This project will be located somewhere north of Burlington to provide standby and fire flow storage to Burlington and the rural areas north of SR 20. Currently, the storage for these areas is provided by the 9th and Highland Reservoir in Mount Vernon and the clearwells located at the WTP, but it would be more beneficial if there were a local storage reservoir that could respond to local demands. The site for the new reservoir has not been decided at this time, and the timing of the reservoir depends on the growth and the future water demand of this area. If there is significant growth in areas such as Bay View, then the timing of the reservoir could be pushed forward.

**R-7, Mount Vernon – County Reservoir (214-foot HGL):** This project will be located somewhere in Mount Vernon or south Mount Vernon to provide additional standby and fire flow storage for Mount Vernon and the rural areas to the west. The main storage reservoir for this pressure zone is the 9th and Highland Reservoir in Mount Vernon, but eventually the storage volume of that tank will be inadequate. A site for the new reservoir has not been decided at this point, and the timing of the reservoir is dependent on population growth and water demand forecasts.

### 10.1.3 Fiber Optic Projects

**FO-1, Josh Wilson Road Fiber:** This project will be performed in conjunction with the new pipeline to extend the District's fiber optic network to Bay View, to facilitate direct SCADA connections to more of the District's facilities.

**FO-2, Old Highway 99 Fiber:** This project is located on Old Highway 99 between Burlington and the Chuckanut interchange on I-5. As part of the 2013 Josh Wilson Road transmission pipeline project, new fiber was installed from Higgins Airport Way to Old Highway 99. This project will allow the District to directly connect the Port of Skagit County to the fiber already installed in Burlington and Mount Vernon to facilitate direct SCADA connections to more of the District's facilities.

**FO-3, Cascade Ridge Fiber:** This project is located in the Cascade Ridge development south of Mount Vernon and involves construction of new fiber optic line from the lower elevations of the development to the top of the new reservoir to facilitate direct SCADA connections to more of the District's facilities.

**FO-4, Sedro-Woolley to Burlington Fiber:** This project is located along SR 20 from Fruitdale Road in Sedro-Woolley to Burlington, and involves construction of new fiber optic line to facilitate direct SCADA connections to more of the District's facilities.

### 10.1.4 Other Projects

**O-1, Computer Software:** This is the completion of a multi-year project in which the District's Customer Information Service software is being replaced, the financial software is being replaced, and a new Computerized Maintenance Management System is being installed.

**O-2, Dukes Hill Pump Station (214-foot HGL to 459-foot HGL):** This project is located at the Dukes Hill Reservoir site. The project will provide a redundant feed to the higher pressure zones in Sedro-Woolley using Dukes Hill Reservoir as the source.

**O-3, Cedar Hills Booster Station:** This project is located in the Cedar Hills development off East Blackburn Road in Mount Vernon. The project will replace the existing booster station, which serves approximately 25 customers, due to increasing age and maintenance. This booster station will be temporary until a new development-driven pipeline connects East Blackburn Road to the Eaglemont Golf Course development.

**O-4, WTP Chemical Feed System Replacement:** This project is directly related to worker safety and risk management in the operation of the WTP. It involves replacement of existing chemical feed pumps at the WTP. The existing pumps are 25 years old and reaching the end of their supportable life span.

**O-5, Document Management Software:** This project involves implementation of a software program that will help manage project files and e-mails in an environment where multiple people are accessing the information, both in the office and from mobile platforms. The software will also address the archiving and storage of historical files.

**O-6, WTP Dry Scrubber Retrofit:** This project is also directly related to worker safety and risk management in the operation of the WTP. It involves replacement of the chlorine scrubber system at the WTP. The project will replace the aging wet caustic system by using new technology to install a new dry chlorine scrubber with controls and an alarm system.

**O-7, Computer Server Hardware:** This project is for the replacement of end of life (EOL) equipment in the District's data center. The first portion of the project is for server hardware and switching equipment upgrades and replacements, and the second portion is for storage hardware and storage networking upgrades and replacements.

**O-8, Badger Orion 5/8-inch Water Meter Transmitter Replacement:** This project involves all of the District's existing 5/8-inch water meters that were installed in the past 6 years. The new water meters have radio-read technology and the battery life is expected to be about 15 to 20 years. This project involves changing the batteries and possibly the entire transmitter on the meters, depending on the options and technology available at the time.

### 10.1.5 Future Projects

**F-1, Bow Hill to Alger Pipeline:** This project is located in rural Skagit County, along Highway 99 between Bow Hill Road and Alger Cain Lake Road. The project consists of the construction of a new 12-inch-diameter pipeline to bring water from the District's Judy System up to Alger so that the residents currently supplied by the District's Alger well can be transferred to the Judy System. The new pipeline will also allow for the potential wheeling of water from the Judy System farther north along Lake Samish Road toward Nulle Road for residents at the south end of Lake Samish.

**F-2, Lake McMurray Pipeline:** This project is located in rural Skagit County, along State Route 9 from the south end of Big Lake to Lake McMurray. The project will involve construction of new 8-inch and 12-inch-diameter water lines, a new booster pump station, and a new reservoir to bring water from the District's Judy System south to Lake McMurray so that the residents currently supplied by wells can be transferred to the Judy System.

**F-3, Micro-Hydroelectric Projects:** This project is not specific to any one location within the District's many water systems. Instead, it is a placeholder for the construction of new micro-hydroelectric plants at any one of the various locations within the District's many water systems, such as the Creek intake pipeline at Judy Reservoir or one of the many PRV stations along the District's transmission pipelines. The project(s) would include a feasibility study, licensing, permitting, design and construction of the plant.

*This page intentionally left blank.*

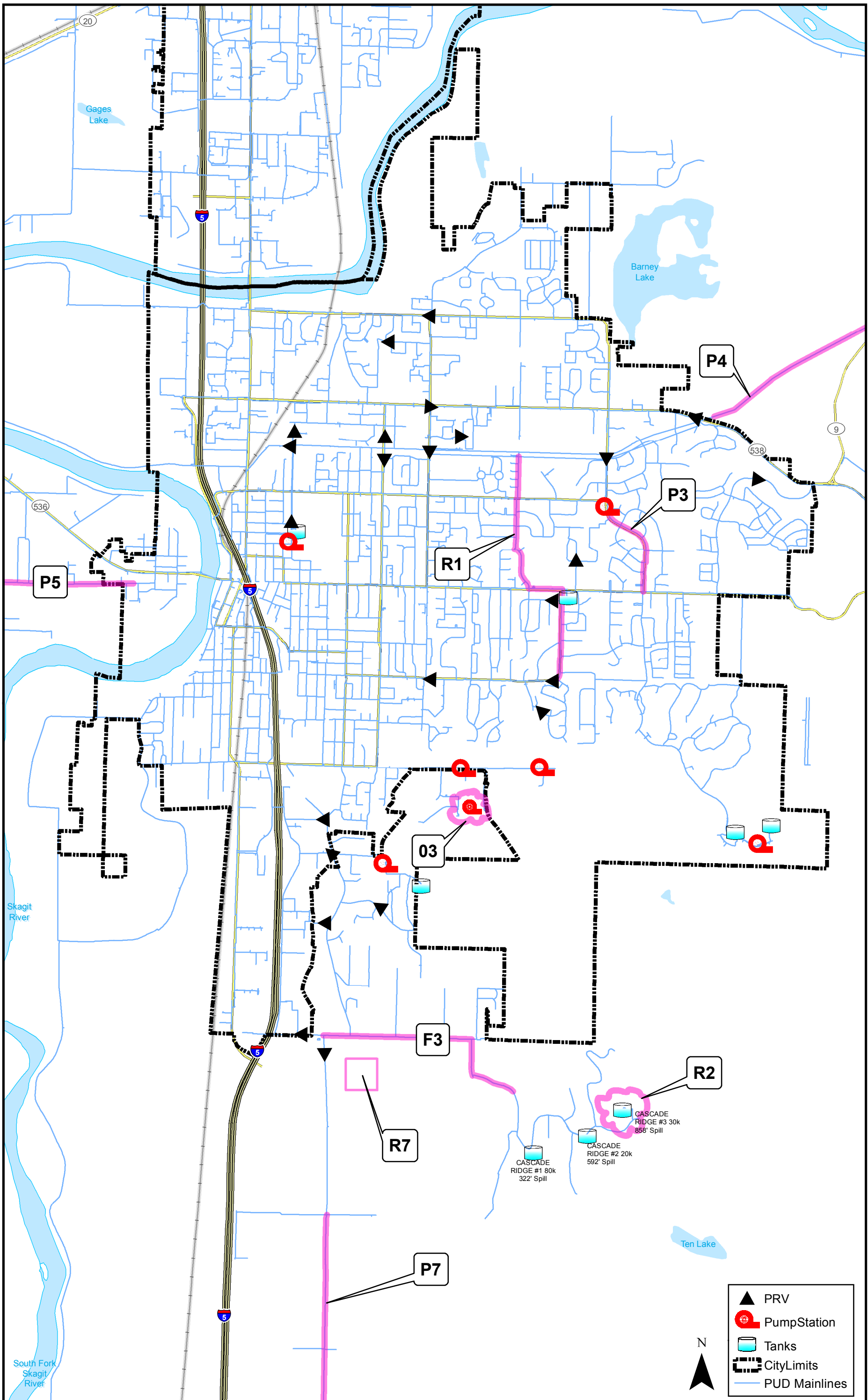


**Table 10-1 Major Capital Improvement Plan**

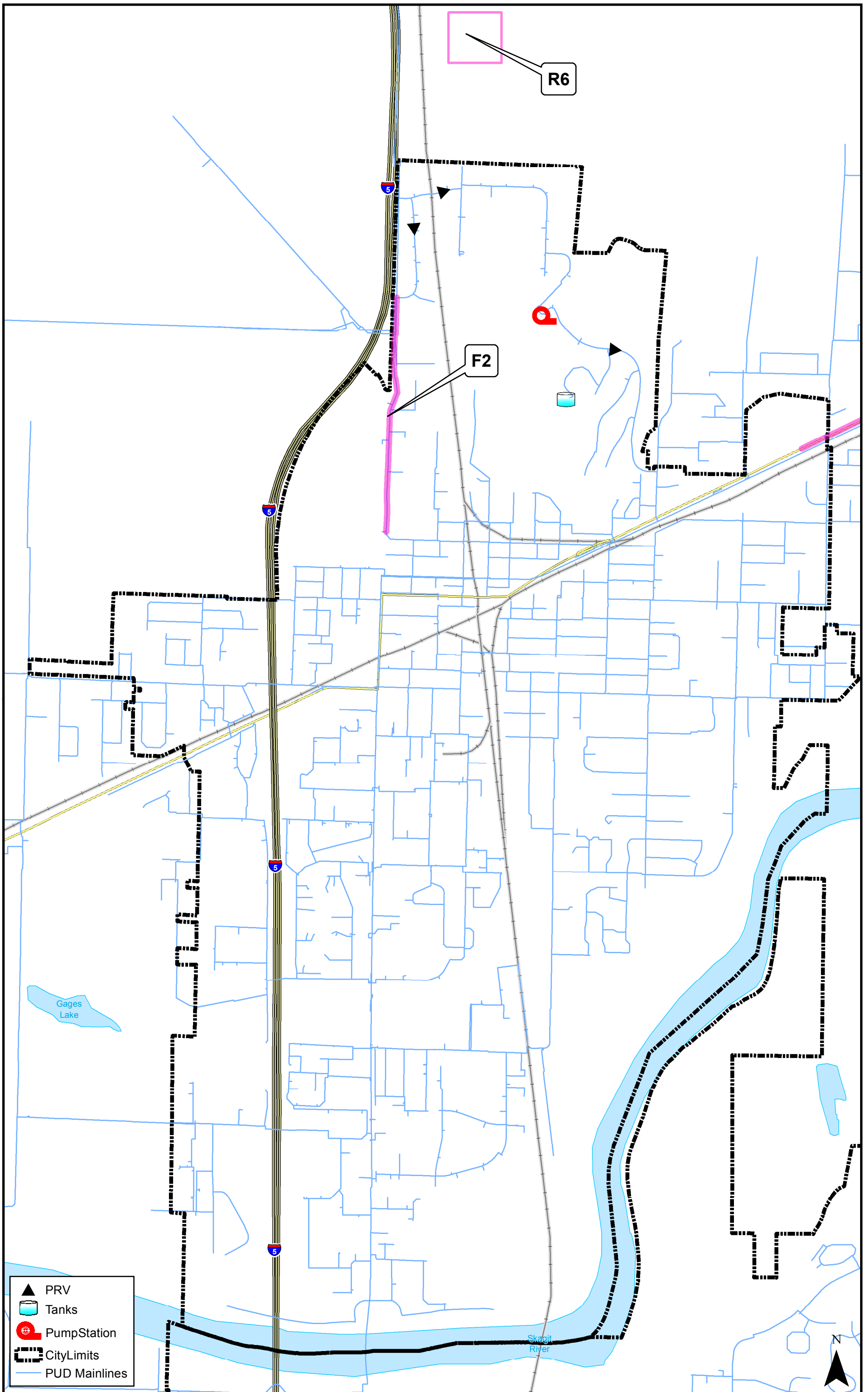
Project	Name	Description	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
P-1	Fir Island Road Pipeline	14-inch HDPE pipeline	\$ 1,900,000																				
O-1	Computer Software		\$ 300,000																				
O-2	Dukes Hill Pump Station (214'-459')	Redundant Pump Station to feed Hoogdal		\$ 150,000																			
O-3	Cedar Hills Booster Station	Replacement Booster Pump Station		\$ 60,000																			
O-4	WTP Chemical Feed System Replacement			\$ 125,000																			
O-5	Document Management Software			\$ 200,000																			
O-6	WTP Dry Scrubber Retrofit			\$ 125,000																			
	Water Loss Control Action Plan	Activities to reduce DSL		\$ 70,000																			
R-1	E. Division Reservoir, Pump Station and Piping	6 MG tank, Redundant PS for 560 Zone			\$ 10,000,000																		
P-2	Josh Wilson Road Improvements	18, 12 and 8-inch pipeline		\$ 200,000		\$ 1,300,000																	
FO-1	Josh Wilson Fiber	Higgins to Bayview Reservoir				\$ 130,000																	
FO-2	Old Highway 99 Fiber	Fairhaven to Chuckanut				\$ 60,000																	
P-3	North 30th St and Digby Road Pipelines	12 and 18-inch pipeline for Division Street Tank			\$ 2,400,000																		
P-4	Transmission Line, Judy - MV (Phase 2)	Parallel 5-mile 36-inch transmission pipeline from WTP to Mount Vernon		\$ 300,000	\$ 800,000	\$ 4,000,000	\$ 9,200,000																
O-7	Computer Server Hardware						\$ 175,000	\$ 175,000															
P-5	McLean Road Pipeline	12-inch pipeline					\$ 300,000	\$ 4,400,000															
R-2	Cascade Ridge Reservoir (858'/592' HGL)	0.1 MG Tank					\$ 50,000	\$ 150,000															
FO-3	Cascade Ridge Fiber	I-5 to Tank #3					\$ 250,000																
P-6	Best Road Pipeline	12-inch pipeline					\$ 300,000	\$ 2,100,000															
P-7	Burklund Road Pipeline	12-inch pipeline					\$ 300,000	\$ 3,100,000															
R-3	Big Lake Reservoir (356' HGL)	0.2 MG Tank					\$ 50,000	\$ 350,000															
P-8	North Fork Skagit River Crossing	12-inch pipeline						\$ 500,000	\$ 2,300,000														
R-4	Pleasant Ridge Area Reservoir (290' HGL)	0.2 MG Tank						\$ 100,000	\$ 400,000														
FO-4	SW - Burlington Fiber	Fruitdale Rd to Burlington						\$ 150,000	\$ 600,000														
P-9	Judy - SW Transmission Line	Skagit River Crossing							\$ 300,000	\$ 700,000													
P-10	Bayview Ridge Reservoir to Allen West Rd	12-inch pipeline							\$ 400,000	\$ 2,000,000													
R-5	N Sedro Woolley Reservoir #2 (430'/350' HGL)	1 MG Tank							\$ 250,000	\$ 250,000	\$ 250,000	\$ 1,250,000											
O-8	Badger ORION 5/8 Meter Transmitter Replacement														\$ 2,500,000								
P-11	Judy - SW Transmission Line	Parallel 3-mile 24-inch transmission pipeline from WTP to Sedro Woolley												\$ 100,000	\$ 700,000	\$ 5,100,000							
R-6	Burlington Reservoir (214' HGL)	2 MG Tank													\$ 250,000	\$ 300,000	\$ 700,000	\$ 3,650,000					
R-7	Mount Vernon - County Reservoir (214' HGL)	2 MG Tank													\$ 250,000	\$ 300,000	\$ 700,000	\$ 3,650,000					
	Annual Pipe and Vehicle Replacement	Yearly Program	\$ 3,336,500	\$ 3,430,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000
		<b>TOTAL</b>	<b>\$ 5,536,500</b>	<b>\$ 4,460,000</b>	<b>\$ 16,900,000</b>	<b>\$ 8,990,000</b>	<b>\$ 13,225,000</b>	<b>\$ 9,125,000</b>	<b>\$ 9,800,000</b>	<b>\$ 7,100,000</b>	<b>\$ 4,850,000</b>	<b>\$ 5,750,000</b>	<b>\$ 3,750,000</b>	<b>\$ 4,850,000</b>	<b>\$ 6,950,000</b>	<b>\$ 8,900,000</b>	<b>\$ 4,450,000</b>	<b>\$ 7,450,000</b>	<b>\$ 4,200,000</b>	<b>\$ 7,150,000</b>	<b>\$ 3,500,000</b>	<b>\$ 3,500,000</b>	<b>\$ 3,500,000</b>

Future Projects			
F-1	Bow Hill to Alger Pipeline	12-inch pipeline	\$4,200,000
F-2	Lake McMurray Pipeline	8 and 12-inch pipeline, booster station and reservoir	\$7,500,000
F-3	Micro Hydroelectric Projects	Various	Unknown

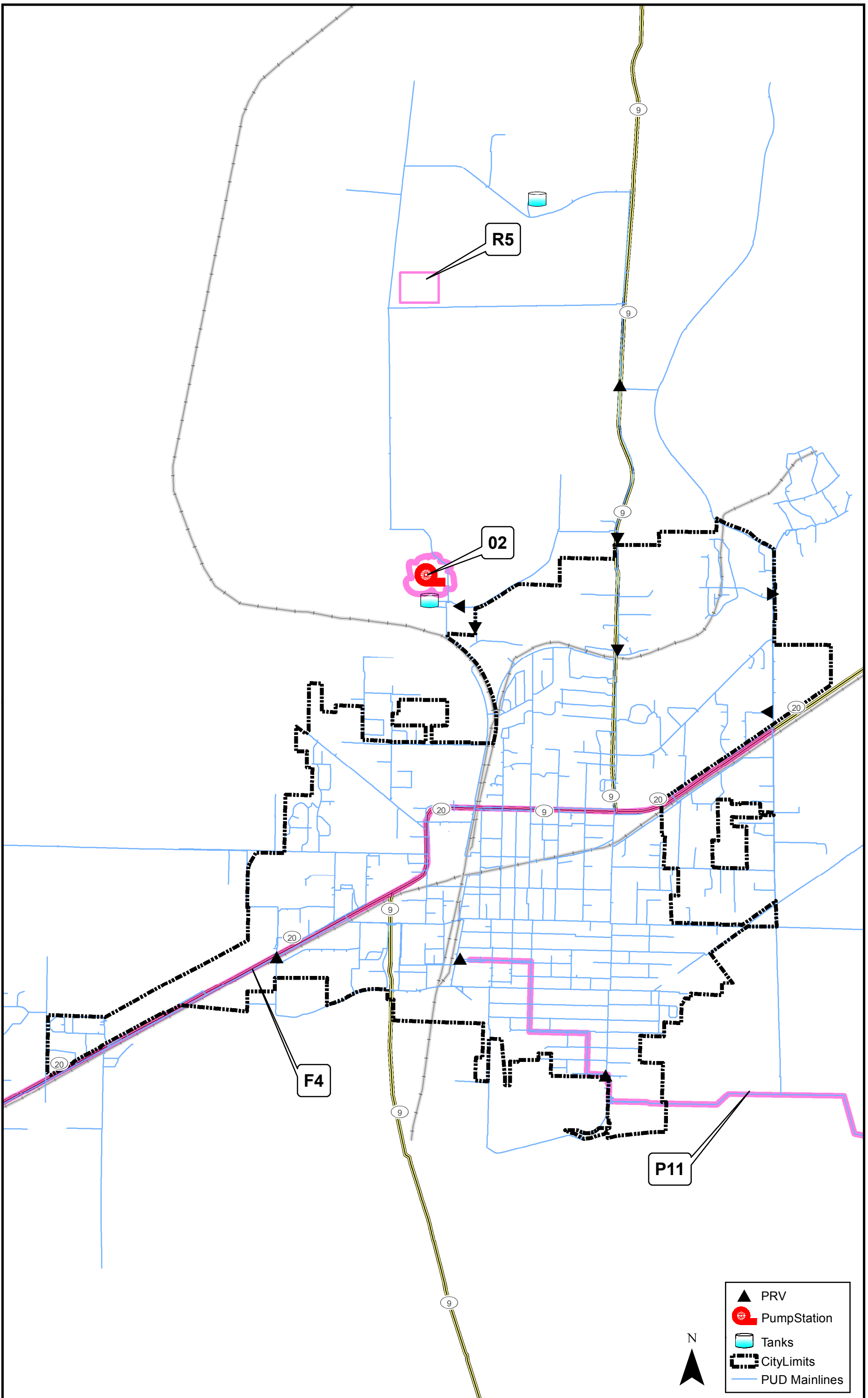












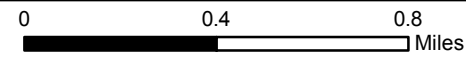
	PRV
	Pump Station
	Tanks
	City Limits
	PUD Mainlines



**Major CIP Project - City of Sedro-Woolley**

2013 Skagit PUD Water System Plan

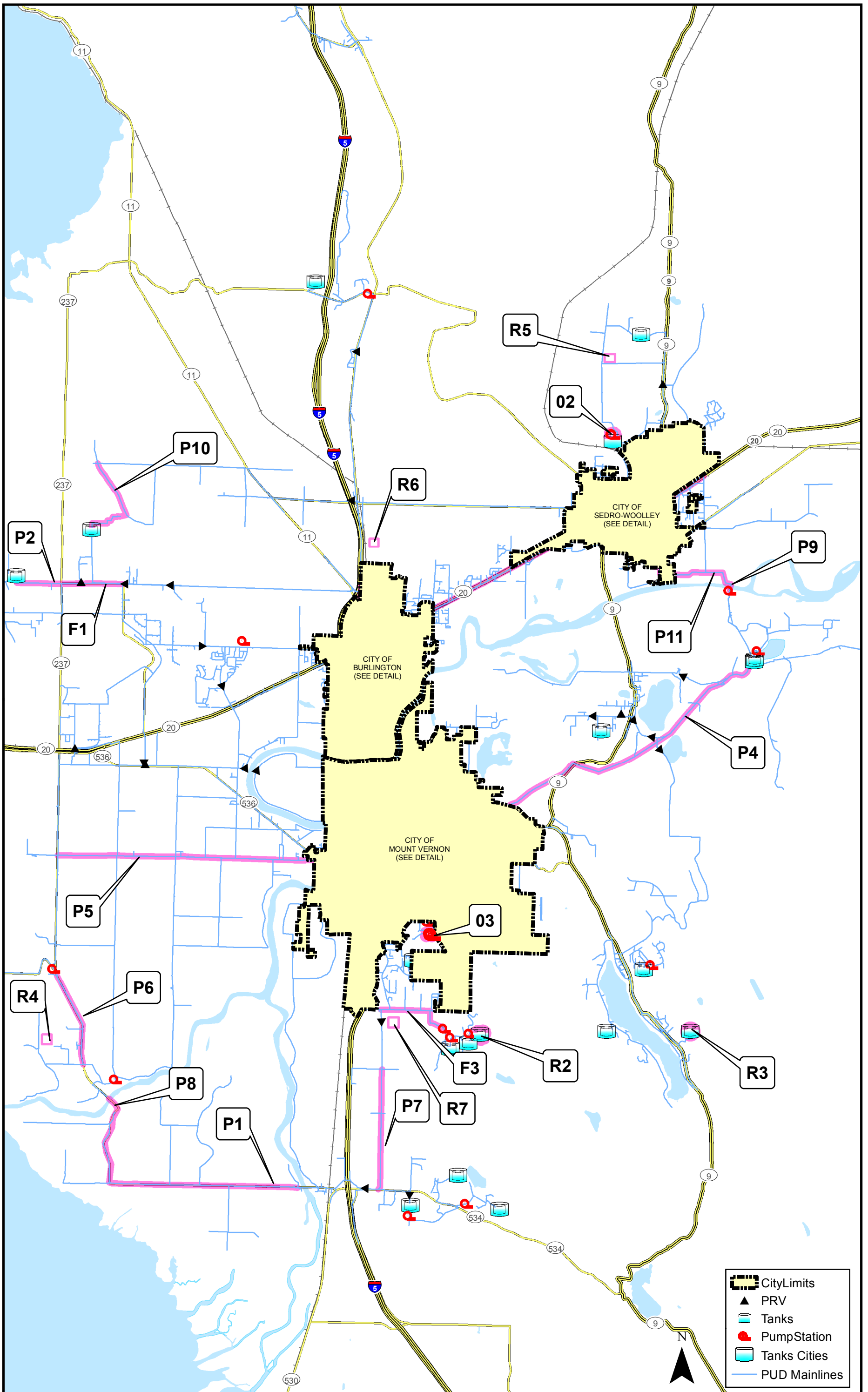
Coordinate System: WA State Plan North, NAD83



**Figure 10-3**









## 10.2 Minor CIP Project Development

Minor CIP projects are the yearly pipe replacement projects that help improve system operation. Three main elements are used to develop the list of minor CIP projects:

- **WSP System Analysis:** As described in Chapter 6, the District's distribution facilities were analyzed during peak hour and fire flow demands to determine whether they have sufficient capacity to meet current and future demands. When deficiencies were identified, CIP projects were developed to rectify the deficiencies.
- **District CIP:** District staff had previously identified several projects specifically related to system maintenance and water main replacement programs.
- **District Staff:** A record of system leaks and breaks is compiled and tracked in the District's database. This information is used to develop projects based on the number of leaks on a given pipeline.

After a project is developed and put on the list of minor CIP projects, it then must be prioritized using a number of evaluation criteria so that the most important projects are completed ahead of other projects. Because so many projects are identified, the District recently began using an asset management approach to the selection of projects, based on a scoring and ranking system for each criterion. The following evaluation criteria are mainly used in the development of minor CIP projects:

- **Pipe Material:** Certain types of pipe materials are prone to leaks and breaks. Asbestos-cement and plastic pipes are targeted for replacement whenever possible and are assigned a higher score during the evaluation of a new project.
- **Pipe Age:** Older pipes are assigned a higher score during the evaluation process, with existing pipes 50 years old and older receiving the maximum score.
- **Number of Leaks:** If the existing pipe has a record of leaking, it will be assigned a higher score during the evaluation.
- **Fire Flow Availability:** The ability of the existing pipe to meet the current fire flow goal is an important factor in the evaluation of a project. A lower available fire flow will result in a higher score for the new project.
- **Hydraulics/System Gridding:** If the existing pipeline is responsible for looping and gridding the water system, then it will be assigned a higher score in the evaluation of the new project.
- **Level of Service:** The existing pipeline is evaluated for the level of service that it provides, where the more critical lines receive a higher score in the evaluation.

- **Agency Coordination:** If other local agencies are planning projects in the same area, then a project will receive a higher score based on how soon those projects are planned.
- **Minimize Dependency on Anacortes:** If a new project will minimize or eliminate the process of purchasing water from the City of Anacortes, then it will receive a higher score.

Other criteria are also used in the development of minor CIP projects such as construction cost, water quality improvement, soil conditions, condition assessment, etc. However, these criteria are not used in the scoring and ranking system and represent a secondary evaluation system.

Each main evaluation criterion listed above was assigned an importance weighting factor from 1 to 3, where a higher factor means the criterion is more important for the project. Then, each criterion is scored from 0 to 5, where the higher score means the criterion is more important for the project. Next, those two numbers are multiplied to yield a total score for that criterion, and the total scores for the criteria are added together to determine a total score for the project. A summary of the importance weighting factors and scoring for each criterion is provided in Table 10-2.

**Table 10-2. Summary of Weighting and Scoring Factors**

Evaluation Criteria	Importance Weighting Factor	Scoring					
		0	1	2	3	4	5
Hydraulics/System Gridding	3		No improvement		Some improvement		Significant improvement
Fire Flow (FF) Availability	3		Meets/exceeds FF goal	75% of goal	50% of goal	25% of goal	Less than 25% of goal
Anacortes Dependency	3	No effect					Will minimize dependency
Level of Service	3		Dead end line		Distribution line		Transmission/critical supply
Number of Leaks	3	None			1		2 or more
Agency Coordination	2		5+ years away	4 years away	3 years away	2 years away	1 year away
Pipe Material	1		DI/Steel/HDPE	CCP/CI	PVC	AC	ABS Plastic
Pipe Age	1		10 yrs old	20 yrs old	30 yrs old	40 yrs old	50+ yrs old

DI = ductile iron; HDPE = high density polyethylene; CCP=concrete cylinder pipe; CI = cast iron; PVC = polyvinyl chloride; AC = asbestos-cement

Table 10-3 is an example of the weighted scoring process for three example projects.

**Table 10-3. Scoring and Ranking for Three Example Projects**

	Material	Age	Fire Flow	Agency	Gridding	Anacortes	LOS	Leaks	Score
Importance Weighting Factor	1	1	3	2	3	3	3	3	
Project A 4-inch AC from 1953 (dead-end)	4	5	3	1	1	0	1	3	35
Project B 3-inch ABS from 1967 (main grid)	5	4	5	1	5	0	5	0	56
Project C 8-inch AC from 1968 (distribution line)	4	4	1	1	3	0	3	5	46

LOS = level of service

So for Project A, the score was calculated as follows:

Material importance factor x score	$1 \times 4 = 4$
Age importance factor x score	$1 \times 5 = 5$
Fire flow importance factor x score	$3 \times 3 = 9$
Agency coordination importance factor x score	$2 \times 1 = 2$
System gridding importance factor x score	$3 \times 1 = 3$
Anacortes dependency importance factor x score	$3 \times 0 = 0$
Level of service importance factor x score	$3 \times 1 = 3$
Leaks importance factor x score	$3 \times 3 = 9$
Total score for Project A = 35	

In looking at the three example projects, Project B scored the highest because it received high scores in the criteria that had the highest importance factors.

This method of evaluation does not rely on one single evaluation criterion as the means for selecting a project, but instead considers many different criteria that are separated by their importance.

Table 10-4 lists the minor CIP projects that have currently been identified. This table includes all the pipeline replacement projects that were identified, and the table also includes the score for each project based on the ranking and scoring method discussed above. The District typically revisits this list every year to determine if additional projects should be added, or if projects need to be shuffled based on priorities.

Table 10-4 - Minor Capital Improvement Plan

MINOR CAPITAL IMPROVEMENT PROJECT LIST		Old Pipe	New Pipe	Length	Cost	Material	Age	Fire Flow	Agency	Hydraulics	Anacortes	L.O.S.	Leaks	Overall	
						Wgt = 1	Wgt = 1	Wgt = 3	Wgt = 2	Wgt = 3	Wgt = 3	Wgt = 3	Wgt = 3		Score
		2014 PROJECTS													
PUD CONSTRUCTION															
2014	Mtn View Dr., Streeter Pl., N. 21st St., Cascade Ave & Highland Ave	4-in AC	8-in DI	4,262	\$822,609	4	5	2	1	3	0	3	5	46	
2014	Belair Dr, N Belair Dr., E Viewmont Dr. & Carmel Ave	4-in & 6-in AC	8-in DI	1,670	\$250,500	4	5	2	1	3	0	3	3	44	
2014	Summers Dr To Beaver Marsh, N to 8-in PVC	4-in AC	8-in DI	3,998	\$599,700	4	4	5	1	5	0	3	5	60	
2014	S. Gardner, Sanchez Ln. To E. Rio Vista & Cascade Vista	6-in AC	8-in DI	1,753	\$262,950	4	5	2	1	5	0	3	3	46	
2014	Old Hwy 99 N. Rd., County Shop Ln to Gear Rd. - Abandon 8-in AC	8-inch AC	6-in & 8-in DI	200	\$124,000	4	5	2	1	5	0	5	5	58	
2014	Mary Lane, SR-20 N. & Peter Anderson Rd., SR-20 N. to Aliston Ln.	2-in PL & 4-in & 6-in AC	6 or 8-in DI	2,200	\$330,000	4	5	5	1	1	0	1	5	43	
2014	Francis Rd., North 30th to Swan Rd. & Swan, Francis to Trumpeter Ln.	4-in Stl & 3-in PVC	12-in DI	3,250	\$650,000	3	5	5	1	5	0	5	5	70	
2014	Ellison Rd., Willett St. to Blodgett Rd.	6-in PVC	12-in DI	1,650	\$330,000									100	
CONTRACTOR CONSTRUCTION															
2014	Old Day Creek Road, A Street to Transmission Line	6-in PL	8-in DI	6,800	\$1,012,112									99	
2014	Switch PRVS off of College Way and N. 30th with spring assisted Check Valves				\$40,000										
2014	Little Mountain Pump Station & Piping - Park Ave to Skyridge Tank (Directional drill down the slope?)	8 & 10-in AC	12-in DI or HDPE	2,700	\$540,000									98	
2014	Bored Crssngs Ph 1 : S. Pine to Anacortes, I-5 Conway & Hickox, Chuckanut Drive Joe Leary Slough, Buchanan, SR-9.		DI & HDPE		\$150,000										
AGENCY PROJECTS															
2014	Pioneer Hwy/Fir Island Rd. Roundabout	4-in & 8-in AC	8-in & 12-in DI	996	\$199,200										
2014	City of Mount Vernon Floodwall Protection Project Phase II	1-in & 1-in CPR & PVC	2-in PVC	330	\$50,000	5	3	5	4	5	0	5	5	71	
2014	Rio Vista, Section to Gardner & Sunset Dr., Vine St. & Sparr's Ln.	2-in PL, 4-in & 6-in A/C	8-in DI	2,802	\$420,300	4	5	3	5	3	0	3	3	55	
2014	Calhoun Rd., Beaver Marsh to Kamb	3-in & 4-in PVC	8-in DI	4,000	\$600,000										
		2015 PROJECTS													
PUD CONSTRUCTION															
2015	Denny, Section to Hazel, Hazel Denny to 15th; Quentin Ave, Section to Hazel & S. 19th, Broadway to Section	2-in PL	8-in DI	2,446	\$366,900	5	5	5	1	1	0	3	3	48	
2015	Ball Rd. East (500') (Permit Ball Rd., Ovenell S. & Ball Rd. West to Farm to Mrkt Rd. - 2,551')					4	5	0	1	3	0	0	0	20	
2015	Hazel Ave and Avon Ave, N. Oak St. to N. Anacortes St & Hazel Ave from Burl Blvd to N Walnut St; Anacortes St., SR-20 to Magnolia; Magnolia, Pine St. to Chery St. & Chery St., SR-20 to Fritsch	2 & 6-in PVC, 4-in & 6-in AC & CI	8-in DI	3,688	\$553,200	5	5	2	1	5	0	3	5	57	
2015	Clear Lake - N. Front St., School Dr., Lake Dr., & Bartle St.	1-in CPR, 4 & 6 in AC & 6-in PVC	8-in DI	2,747	\$412,050	5	5	5	1	5	0	5	3	66	
2015	N. Walnut, Victoria to Washington; Alley S. of E Fairhaven, N. Walnut & N. Spruce & Alley S. of Victoria	1-in PVC, 2-in PVC & 4-in AC	8-inch DI	1,245	\$186,750	5	5	5	1	5	0	3	3	60	
2015	Memorial Highway, N. Wall to Moores's Garden	6-in AC & CI	12-in DI	2,939	\$587,800	4	5	2	1	5	0	5	5	62	
2015	Discovery, Peterson-Gailee & Gull Dr., Gailee to Maple Crest Dr.	4-in AC	8-in DI	1,880	\$282,000	4	5	3	1	3	0	3	5	53	
2015	Farm to Market Rd., Josh Wilson Rd. to Marihugh Rd.	2-in PL	12-in DI	2,587	\$517,400	5	5	5	1	5	0	5	0	57	
CONTRACTOR CONSTRUCTION															
2015	Bored Crssngs Ph 2 : Jackson, SR-9 to Fir, Rolling Ridge to Plaza Dr., Cook Rd. over Maddox Crk.		DI & HDPE		\$150,000										
		2016 PROJECTS													
PUD CONSTRUCTION															
2016	7th St., Division to Fulton; Warren, 7th to 10th; 8th St., Division to Fulton & Warren, 11th E.	1-in & 1.5-in PVC & 4-in AC	8-in DI	2,250	\$337,500	4	5	4	1	5	0	3	3	56	
2016	Alexander, 6th to 11th PL. & Sterling, Township E. to 6-inch PVC	2-in ABS PL & 4 & 6-in A/C	8-in DI	2,905	\$435,750	5	4	5	1	3	0	3	5	58	
2016	S 2nd, Milwaukee To Park & Milwaukee, 1st to 2nd	6-in PL & 6 & 8-in CI	8 & 12-in DI	1,365	\$273,000	2	5	1	1	5	0	5	3	51	
2016	Vaughan Rd.; Nilson Rd. & Avon Allen Rd., Nilson to Memorial Hwy (800 LF)	2-in PVC, 4-in & 6-in AC	8 & 12-in DI	2,160	\$432,000	4	5	3	1	5	0	5	5	65	
2016	S. Wall Street, S. of W. Blackburn Rd. & S. Wall St., N. of W. Blackburn Rd.	2-in PL & 4-in A/C	8-in DI	1,031	\$154,650	4	5	5	1	5	0	3	5	65	
2016	Best Road, Young Rd. S. to 8-inch & Young Rd., Best to S. Fredonia Rd.	3-in PVC & 4-in AC	8-in DI	2,280	\$342,000	3	5	5	1	5	0	5	0	55	
2016	3rd St., Josh Wilson to E; E St., 3rd to Bayview Edison; Bayview Edison, E. St., S to Marihugh Rd.	2-in PL & 4-in AC	8-in DI	4,060	\$609,000	5	5	3	1	5	0	3	3	54	
2016	Highland 4th to 9th; E. Lawrence, 6th to 8th; E. Spruce, from 6th to N. 4th & E. Evergreen Street from 6th to N. 4th	4 & 6-in AC & 6 & 12-in CI	8-in & 18-in DI	2,932	\$586,400	4	5	3	1	5	0	5	3	59	
CONTRACTOR CONSTRUCTION															
2016	N. Wall, W.Division to W. Lincoln; W. Lincoln, W End to N. Ball; N. Barker, W. Lincoln to Dunbar; Cosgrove, N. Wall to N. Baker; Cascade St., N. Wall W. & S. Baker, Mem Hwy to Garfield; Garfield & S. Bkr to Mem Hwy	4 & 6-in AC & CI	8-in DI	5,761	\$864,150	4	5	3	1	5	0	3	5	59	
2016	Valley Rd, Dodge Valley Rd West (2,715) & Dodge Valley Rd., Valley Rd. S (3,860)	2-in PL	4-in HDPE	6,575	\$657,500	5	5	5	1	3	0	3	3	54	
		2017 PROJECTS													
PUD CONSTRUCTION															
2017	Upland, E. Fir to Iroquois; Iroquois, Upland to N. 30th & Commanchee, Upland to N. 30th; & Upland to Elliott	4-in & 6-in AC	8-in DI	4,035	\$605,250	4	5	2	1	3	0	3	5	50	
2017	Talcott, 3rd-Township (Concrete Paving - Design to avoid)	4-in AC	8-in DI	2,870	\$430,500	4	5	3	1	3	0	3	3	47	
2017	Alta Vista, Vista View & Plaza Drive	2-in PL & 4-in & 6-in AC	8-in DI	3,950	\$592,500	4	5	3	1	3	0	3	5	53	
2017	Blackburn Road - 13th to 18th & S. 19th St., Blackburn Rd. to Aemmer Place, Aemmer Street & S. 20th St.	4 & 6-in AC	8-in DI	2,700	\$405,000	4	5	3	1	5	0	5	0	50	
2017	State, 3rd to Eastern & Eastern to Ferry (No cut til 2017)	6-in CI	12-in DI	1,655	\$331,000	2	5	1	1	5	0	5	5	57	
2017	Forest Drive, Windsor Dr. to Forest Ridge Pl. & Forest Ridge Pl., Windsor to Forest Dr.	4 & 6-in AC	8-in DI	2,650	\$397,500	4	5	1	1	3	0	3	5	47	
CONTRACTOR CONSTRUCTION															
2017	Olympic PL., Skyridge to Soundview; Soundview, Olympic PL N.; Meadow Ln. & Skyridge Rd., W. Skyridge Dr. W.	2 & 4-in AC & 2-in PVC	8-inch DI	2,970	\$445,500	5	5	4	1	3	0	3	3	51	
2017	Belmont St., Clarmont Place & E. Montgomery, N 15th E.	2 & 3-in PL & 4 & 6-in AC	8-in DI	2,560	\$384,000	5	5	3	1	3	0	3	5	54	
2017	Peterson, Pulver-Avon Allen & Sunrise Lane E.	6 & 8-in AC	12-in DI	5,463	\$1,092,600	4	5	1	1	5	0	5	5	59	
2017	W. Taylor Street; Harrison to 3rd ; 3rd, S. 2nd to W. Section	6-in A/C & CI?	8-in DI	3,115	\$467,250	4	5	1	1	5	0	3	5	53	
		2018 PROJECTS													
PUD CONSTRUCTION															
2018	Trumpeter Ct. Martin Rd. to N. Trumpeter Dr. & N.Trumpeter Dr, Trumpeter Ct. to Martin Rd.	6-in PVC	12-in DI	2,165	\$433,000	3	3	3	1	5	0	5	0	47	
2018	S. Alder Street, From E. Rio Vista to E. Sharon St	4-in AC	8-in DI	625	\$93,750	4	5	3	1	3	0	3	3	47	

Table 10-4 - Minor Capital Improvement Plan

MINOR CAPITAL IMPROVEMENT PROJECT LIST		Old Pipe	New Pipe	Length	Cost	Material Wgt = 1	Age Wgt = 1	Fire Flow Wgt = 3	Agency Wgt = 2	Hydraulics Wgt = 3	Anacortes Wgt = 3	L.O.S. Wgt = 3	Leaks Wgt = 3	Overall Weighted Score
						Score	Score	Score	Score	Score	Score	Score	Score	
2018	Summers Drive to Bradshaw Rd.	4-in AC	8-in DI & HDPE	2,475	\$371,250	4	4	3	1	5	0	5	0	49
2018	S Pine, Orange S. (2500 LF), E. Sharon, Railroad to Anacortes (780 LF) & Olympia RR to Anacortes (816 LF)	2-in PVC & 4-in AC	8-in DI	4,100	\$615,000	4	5	3	1	1	0	3	5	43
2018	N. Skagit St., Liberty Ln N. & Huff Rd. & Lei Garden Rd., N. Skagit to N. Section St.	2-in PVC & 4-in AC	8-in DI	2,016	\$302,400	4	5	1	1	5	0	3	3	47
2018	Junquist Rd., Beaver Marsh Intersection Improvements	3-in PVC	8-in DI	60	\$15,000	4	4	5	1	5	0	3	0	49
2018	Haines, SR-20 to Northern; Waldron, Reed to Central; Munro, Haines to Central & Northern, Metcalf to Central	1 PL; 2 -3-in PL & 4-in AC, PL	8-in DI	3,140	\$471,000	4	5	5	1	5	0	3	0	50
<b>CONTRACTOR CONSTRUCTION</b>														
2018	Carter St., Polte to McGarigle (12-in Crossing SR-20); SR-20, Township to Fruitdale (12-in DI) (2,600 LF)	4-in AC	8-in & 12-in DI	4,561	\$912,200	4	5	3	1	5	0	5	0	50
2018	Eagle Dr., Fairview W; Fairview Dr.; Country Club Dr., Fairview to Rainier	2-in PL & 4-in AC	8-in DI	5,547	\$832,050	5	5	1	1	5	0	3	5	54
2018	College Wy, Urban to LaVenture & Crossings At Leigh, Windsor & N. 19th	8-in AC	12-in DI	5,515	\$1,103,000	4	4	3	1	5	0	5	0	49
<b>2019 PROJECTS</b>														
<b>PUD CONSTRUCTION</b>														
2019	10th, Division to Broad & E. Kincaid St; S. 10th to S. 11th	1-in CPR & 6-in AC	8-in DI	2,630	\$394,500	4	5	3	1	3	0	3	0	38
2019	Wicker Rd., Columbia Wy to Fruitdale Rd. & Whatcom Ln., Wicker to State St.	3-in PL, 4-in AC & 6-in AC	8-in DI	2,614	\$392,100	5	5	2	1	5	0	3	0	42
2019	Blackburn, S 3rd to Henson	10-in CI	12-in DI	1,129	\$225,800	2	5	2	1	5	0	5	0	45
2019	Mary Lane	2-in PL & 4-in AC	8-in DI	1,310	\$196,500	5	5	5	1	1	0	1	3	42
2019	Dunbar Rd., Avon Allen to Memorial Hwy & Dunbar Lane	4 & 6-in AC	6-in & 8-in DI	3,700	\$555,000	4	5	3	1	3	0	3	5	53
2019	SR-9, McGarigle to Sapp Rd.	6-in A/C	12-in DI	2,186	\$437,200	4	5	1	1	5	0	5	0	44
2019	Monica Drive & Cindy Place	4-in & 6-in PVC	8-in DI	1,800	\$270,000	3	3	2	1	1	0	3	5	41
<b>CONTRACTOR CONSTRUCTION</b>														
2019	Moore's Garden Rd., Mem Hwy E & Dunbar Rd., Mem Hwy E	4-in AC	8-in DI	5,485	\$822,750	4	5	3	1	1	0	3	5	47
2019	Riverbend Rd., Freeway Drive W. (8,570 LF)	4-in AC	8-in HDPE (Burst)	8,570	\$1,285,500	4	5	3	1	1	0	3	3	41
<b>2020 PROJECTS</b>														
<b>PUD CONSTRUCTION</b>														
2020	N 19th, College Way To Kulshan & Roosevelt, 18th to N. 20th PL.	2-in PL & 4-in AC	8-in DI	1,889	\$283,350	4	5	2	1	3	0	3	0	35
2020	Northern, Metcalf To Murdock & Northern, Reed to Central (approaching aprons newly paved)	1-in, Cop & 1-1/2-in PL	8-in DI	1,145	\$171,750	5	5	5	1	3	0	3	0	40
2020	4th St., E. Division S.; E. Division, 4th to 5th & Jefferson, 4th to 5th	1 & 1.5 -in PL	8-in DI	778	\$116,700	5	5	5	1	1	0	1	3	42
2020	Cohoe, Chinook to West Chinook & Country Lane & Joy Place	4-in AC & PVC	6-in & 8-in DI	2,104	\$315,600	4	5	3	1	1	0	1	5	41
2020	6th, Union to Hazel, 7th, Section To Hazel; Hazel, 6th To 7th & E. Section, RR to S. 7th	6-in AC & CI	8-in & 12-in DI	2,864	\$572,800	4	4	5	1	3	0	3	0	43
2020	Fidalgo St., 3rd to 7th & Nelson, 6th to 7th and 6th, Nelson to Bennett	1-in CPR, 2-in PL & 4-in AC	8-in DI	2,630	\$394,500	5	4	4	1	3	0	3	0	41
2020	N 14th, E. Fir To Florence; N 15th, E. Fir N. & N. 16th, Florence N.	6-in AC	8-in DI	1,654	\$248,100	4	5	1	1	1	0	3	3	35
<b>CONTRACTOR CONSTRUCTION</b>														
2020	10th, Skagit-Hazel; Hazel, 10th-11th; 12th, Section to Fowler; 12th, E. Kincaid to E. Skagit; 13th, Broadway to Skagit; Skagit, 11th to 16th & E. Section 11th to 15th	1-in PL, 2-in CI, & 4 & 6-in AC	8-in DI	6,920	\$1,038,000	4	5	1	1	5	0	3	5	53
2020	Josh Wilson Road, Bayview Elementary to View Ridge Drive & 2-in E to Jensen	4-in AC, 2-in PL	12-in DI & 2-in PE	5,834	\$1,166,800	4	5	3	1	3	0	1	5	47
2020	Township, State to Polte; Township, Waldron to Cultus Loop Rd. & Township, McGarigle-Sapp Rd.	6-in AC & CI	12-in DI	5,214	\$1,042,800	4	5	1	1	5	0	5	0	44
<b>2021 PROJECTS</b>														
<b>PUD CONSTRUCTION</b>														
2021	Geneva Alley, E. Spruce to E. Highland; E. Spruce, 16th W & N. 16th, E. Spruce S.	4-in AC & 6-in AC & PVC	8-in DI	1,258	\$188,700	4	5	3	1	3	0	3	0	38
2021	Claybrook, Wicker to Polte & Thresher Ave, Wicker N.	4-in AC & 4-in PVC	8-in DI	2,190	\$328,500	4	5	2	1	5	0	3	0	41
2021	Douglas St., Blackburn to W. Hazel and Walter, W. Hazel S to Park	6-in AC & 4-in AC & 2-in PL	8-in DI	2,292	\$343,800	5	5	1	2	3	0	3	3	44
2021	N. Section, E. Hazel to Monroe St., Monroe St., N. Section W.; Short St. & E. Hazel Ave, E of Caroline St.	2-in & 4-in & 6-in ABS & A/C	8-in DI	2,304	\$345,600	4	5	3	1	3	0	3	0	38
2021	Sterling Rd., Lafayette Rd. to SR-20; Sterling Dr. (1,019 LF)	2-in PL, 4-in & 6-in A/C	2-in PE & 8-in DI	2,869	\$430,350	5	5	5	1	1	0	1	5	48
2021	E. Sharon St., S. Skagit W.; Curtis St., S. Skagit E. & S. Holly, E. Rio Vista to Olympia	2-in PL & 4-in AC	4-in PVC & 8-in DI	1,551	\$232,650	4	5	3	1	3	0	3	0	38
2021	Jaqueline Pl., N. LaVenture E.	4-in AC	8-in DI	1,181	\$177,150	4	5	3	1	3	0	1	0	32
2021	E. Fir, N. LaVenture to Apache	4-in & 6-in AC	12-in DI	2,603	\$520,600	4	5	3	1	3	0	0	0	29
<b>CONTRACTOR CONSTRUCTION</b>														
2021	Ball St., State St. to Evans Dr. & Evans Dr., Ball St. to SR-9	4-in AC	8-in DI	4,650	\$697,500	4	5	1	1	3	0	3	0	32
2021	Deception Rd. Yokeko to Front	6-in AC (Burst)	8-in HDPE	1,567	\$235,050	4	3	3	1	3	0	5	0	42
2021	Deception, Deception S	4-in AC	8-in DI	3,994	\$599,100	4	5	3	1	1	0	1	5	41
2021	Victoria, N. Regent to N. Skagit; Hawthorne, E. Fairhaven N., Rainbow Dr., E. Fairhaven S., Pioneer, E. Fairhaven S., Swank PL. & Kenkirk PL.	2-in PL, 4-in AC & 6-in AC	8-in DI	3,709	\$556,350	4	5	2	1	3	0	3	0	35
<b>2022 AND BEYOND PROJECTS</b>														
	Rockport State Park Waterline Replacement		8-in DI	1,000	\$150,000	4	5	0	1	3	0	0	0	20
	Entner, Gibraltar to Jura Way	1.5-in PL	8-in DI		\$0	4	5	0	1	3	0	0	0	20
	Polte, Claybrook to Fruitdale & Fruitdale North	4-in AC	8-in & 12-in DI	2,588	\$517,600	4	5	1	1	5	0	3	0	38
	Minkler Rd., Fruitdale East	4-in AC & 4-in PVC	8-in or 12-in DI?	4,480	\$896,000	4	5	3	1	1	0	1	3	35
	Haines, E. State to SR-20	1-in CPR & 4-in AC	8-in DI	2,688	\$403,200	4	5	1	1	3	0	3	0	32
	Central, E. State to SR-20	4-in AC	8-in DI	2,650	\$397,500	4	5	1	1	3	0	3	0	32
	Puget St., E. State to SR-20	4-in & 6-in A/C	8-in DI	2,577	\$386,550	4	5	1	1	3	0	3	0	32
	Rhodes Rd., SR-20 S. to Corner	4-in AC	8-in & 12-in DI	1,416	\$283,200	4	5	1	1	1	0	3	0	26
	Markwood Rd., Myrtle Dr. to Andis Rd. & Myrtle Dr.	2-in PL & 4-in AC	4-in PVC & 8-in DI	1,400	\$210,000	4	5	3	1	3	0	3	0	38
	Gardner Rd., Poplar Pl. to SR-20, Willow Dr., Maple St., Sunne St., Bernice St. & Galbreath St., Sunne St. N.	2-in PL & 4-in & 6-in AC	8-in DI	3,562	\$534,300	4	5	1	1	3	0	3	0	32
	Ridge Place, Clara PL. N & Rolling Ridge Dr., Ridge Place to Collins Rd., Rolling PL. & Cummings Dr.	2-in PVC & 4-in AC	8-in DI	2,450	\$367,500	4	5	2	1	1	0	1	3	32
	Bradley Road west of Avon Allen	2,3 & 6-in PL & AC	8-in DI	2,550	\$382,500	4	4	5	1	1	0	1	0	31
	Avon Ave (SR-20), Walnut to Cascade Hwy	6-in AC & CI	8 & 12-in DI	2,322	\$464,400	4	4	1	1	3	0	3	0	31
	Cook Rd., Prospect W. & Glenwood Acres, Cook Rd. S.	2 & 3-in PL & 6-in AC	8-in DI	2,310	\$346,500	5	5	4	1	1	0	1	0	30
	Chuckanut Dr, south of Cook Road	2 & 3-in PL	8-in DI	1,700	\$255,000	5	5	4	1	1	0	1	0	30



Table 10-4 - Minor Capital Improvement Plan

MINOR CAPITAL IMPROVEMENT PROJECT LIST	Old Pipe	New Pipe	Length	Cost	Material Wgt = 1	Age Wgt = 1	Fire Flow Wgt = 3	Agency Wgt = 2	Hydraulics Wgt = 3	Anacortes Wgt = 3	L.O.S. Wgt = 3	Leaks Wgt = 3	Overall Weighted Score
					Score	Score	Score	Score	Score	Score	Score	Score	
Cedar Lane, SR-20 to Collins Rd.	4-in AC	8-in DI	837	\$125,550	4	5	1	1	1	0	3	0	26
Green Road, north of cook road	4-in AC	8-in DI	435	\$65,250	4	5	3	1	1	0	1	0	26
E. Orange, S. Cherry to S. Skagit & S. Regent, E. Orange to E. Rio Vista	6-in AC	8-in DI	1,940	\$291,000	4	4	1	1	1	0	3	0	25
Morris St. S.3rd St. West	4-in AC	6-in PVC	800	\$120,000	4	4	3	1	1	0	1	0	25
North off of E. MarketPlace Dr.	2-in PL	8-in DI	351	\$52,650	3	4	3	1	1	0	1	0	24
Lafayette Road	4-in AC	8-in DI	740	\$111,000	5	5	1	1	1	0	1	0	21
Auto Blvd	6-in PVC	8-in DI	1,405	\$210,750	3	3	2	1	1	0	1	0	20
<b>Construction Ready Projects In Inventory</b>													
Green St., State to Dean Dr., Dean Dr., Greet St. to Virginia Ave., & Virginia Ave, Dean Dr. to Wicker Rd.	4-in AC	8-in DI	2,169	\$325,350	4	5	3	1	1	0	3	5	43
<b>Projects to be Designed and Placed in Inventory</b>													
Cedar Street, Pringle to Buchanan (w/PRV)	1.5-in & 2-in PVC	8-in DI	1,045	\$156,750	3	5	5	1	5	0	3	3	55
Woodland Place & Woodland Drive, Woodland Place South to Lindsay Place	4 & 6-in AC	8-in DI	3,036	\$455,400	4	5	3	1	5	0	3	5	59
Reed, Ferry to SR-20 & Waldron, Reed to Central	4-in AC	8-in DI	2,540	\$381,000	4	5	1	1	3	0	3	0	32
Buchanon St/Mud Lake Rd, west of Glenwood Drive & Sunday Lane	2-in PL & 4-in PVC	8-in DI	1,811	\$271,650	5	5	4	1	3	0	1	0	36
Warner, Township to 10th & Jameson St., Township E. to S. 11th PL.	4-in AC	8-in DI	1,576	\$236,400	4	5	1	1	3	0	3	0	32
<b>Non Major &amp; Major Capital Projects: 2022 and Beyond</b>													
Nookachamps Pressure Revision					4	5	0	1	3	0	0	0	20
Gilligan & Mundt Intake Improvements				\$250,000									
Panorama Supply to Future Tank		8-in DI	2,300	\$345,000									
Eaglemont Tank Overflow Line		12-in HDPE	1,430	\$286,000									
Bulson Road Area Tank				\$50,000									
Fencing of Properties				\$75,000	4	5	0	1	3	0	0	0	20
Potlatch CT Improvements				\$75,000	4	5	0	1	3	0	0	0	20
Bayview Airport Tank				\$50,000	4	5	0	1	3	0	0	0	20
<b>Projects Contingent On Road Improvements</b>													
E Blackburn, Cedar Hills E. to 12-in	6-in AC	12-in DI	2,050	\$410,000	4	5	5	1	5	0	5	3	65



## 10.3 Development of CIP Costs

Development of the District's CIP was based on planning-level cost estimates that were used to prepare the overall financial obligation of the projects. The cost for each major project listed in this chapter includes the following components:

- **Base construction cost:** Includes labor and material costs needed to construct a project. For most projects, construction costs were estimated based on unit construction costs from similar recent projects in western Washington from 2007 to 2012.
- **Sales tax:** Calculated as 8.5% (the 2012 local tax rate) of the base construction cost.
- **Construction contingency:** Takes into account the uncertainties associated with estimating project costs at this planning level. Calculated as 20% of the base construction cost.
- **Design engineering/geotechnical/surveying/construction engineering/ legal/ administration/ land:** Includes District and consultant engineering costs, and other related cost items such as geotechnical, surveying, legal costs, administration, and land/easements. Each item was assigned its own percentage of the base construction cost, but the average sum of these costs was usually around 25% of the sum of the base construction cost, sales tax, and contingency.

These four components were summed to determine the total project-level cost estimate for a major CIP project, as expressed in 2013 dollars.

The planning-level project costs for the minor CIP projects were based on the average pipe replacement costs for actual District projects from 2009 through 2012. They include all District costs for engineering, construction, permitting, and administration. If there were any consultant or contracted costs such as design or material testing, they were also included in the average costs. In terms of the District's pipe replacement program, approximately \$3.5 million is set aside yearly (2013 dollars) to complete this work.

After the major and minor CIP projects were developed and their costs determined, they were scheduled over the 20-year planning period. The District contracted with a financial consulting firm to develop the scheduling of the CIP projects so that they can be integrated with other ongoing financial obligations. The District's financial plan for the CIP is provided in Chapter 11.

## **10.4 CMMS as a Tool for CIP Development**

As mentioned in earlier chapters, the District is implementing a Computerized Maintenance Management System (CMMS) for coordinating and prioritizing the District's maintenance program. The District will gather information to input into the CMMS in order to develop maintenance priorities, and that information will also be utilized to help develop pipe replacement projects for the CIP program. Condition assessments will be performed on existing transmission and distribution piping so that the District can adjust its capital replacement programs to better focus on long-range strategies while meeting immediate demands.