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8. Capital Plan

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8. Capital Plan

This chapter describes the methodology used in developing the District’s water system Capital Plan (CP), and presents the costs and schedule for projects planned for implementation annually from 2018 through 2027, and for the following ten years.

8.1 Development of CP

The CP was prepared from two primary resources. The District prepares a biannual capital plan as part of the budget process. The most recent CP covers the period 2018-2023, with emphasis on financial planning for years 2018 and 2019. That process addresses projects identified in the prior WCP, but not yet completed, and new projects identified by the District since the prior WCP. The CP was augmented with projects identified to address water system needs or deficiencies, as documented in earlier chapters of the WCP. In addition, recurring or annual capital improvement projects related to system maintenance (e.g., reservoir recoating and water main replacement programs) have been included in the list of improvements.

A 20-year implementation schedule of the projects was then developed. Generally, projects of higher priority (i.e., those that address current system needs) were scheduled for implementation within the ten-year planning horizon (2018-2027). Projects that serve anticipated future needs associated with system growth, or are less critical to system operation, were scheduled for implementation between 2028 and 2037. Detailed scheduling of the higher priority projects was based primarily upon the District’s existing forecast of project implementation timelines.

Planning-level cost estimates have been developed for each capital improvement project included in the 2018-2037 CP. Generally, each project cost includes the following components:

- **Base construction cost.** Includes all labor and material costs needed to construct a project. For pipeline and valving projects, construction costs were estimated based upon unit construction costs derived from bid tabulations for recent District projects and similar water distribution projects for other utilities in King County.
- **Sales tax.** Calculated as 10.0 percent (the 2018 local tax rate) of the base construction cost.
- **Construction contingency.** Considers the uncertainties associated with estimating project costs at this planning level. Calculated as 30 percent of the total of base construction plus sales tax.
- **Design engineering.** Includes District and consultant design costs, and other related cost items, such as permitting and construction administration. For most projects, this is calculated as 25 percent of the base construction cost. However, a higher percentage of the base construction cost is used for projects with more complex design or permitting needs.

These components are combined to determine the total project-level cost estimate for a
project, as expressed in 2018 dollars\footnote{The Engineering News Record Construction Cost Index for Seattle for August 2018 was 11,515.}.

Where applicable, projects with significant design costs are scheduled one year in advance of construction costs, to reflect the phasing typically used for larger projects.

The District has an Asset Management program developed using the Environmental Protection Agency (EPA) model considering the following elements; the current state or condition of the District’s assets, asset performance needed to deliver the desired level of service, an assets’ criticality to sustained performance and service delivery, an assets’ minimum life-cycle costs, and the best long-term funding strategy to operate and renew assets. The Asset Management Plan provides the basis to project future capital replacement needs and costs to establish a reserve funding strategy based on each generation of customers paying for their current use of assets. A portion of customer rates is identified and held in the Capital Renewal Fund for the future replacement of all of the major components of the system.

The District has developed useful life estimates for major asset types. The useful life schedule, install dates and field condition assessments are used to determine the remaining useful life of major facilities. As the District’s system is very young, the majority of rehabilitation and replacement of assets is not expected until at least 2075. The District reviews the assets’ consequence of failure, remaining useful life/condition and replacement drivers such as growth, asset failure or level of service to determine priority and funding sources to determine when an asset should be considered for replacement.

Assets may be replaced for reasons other than their normal replacement schedule, such as a road realignment or development needs. In those situations, the capital renewal fund is only used to pay for the percentage of the asset life used prior to replacement and amount funded to date. The expected remaining life portion is paid for from operating funds.

8.2 Planned Projects

Table 8-1 presents the District’s schedule of capital improvement projects (CIPs) planned for implementation between 2018 and 2037. Figures 8-1 and 8-2 indicate the locations for the pipe network improvements and future extensions in the Plateau Zone and Cascade View Zone, respectively. These projects represent the District’s systematic approach to upgrading and expanding the transmission and distribution system. Developer extension and District projects in progress are also listed in Table 8-1 and presented on Figures 8-1 and 8-2. Figures 8-3 and 8-4 indicate other water facility projects, for the Plateau Zone and Cascade View Zone, respectively. Projects of a general system or District-wide nature are not indicated on the figures.

Descriptions of all CIPs are provided following the exhibits described above.

Table 8-1 identifies the following for each project:
Purpose of project: Provides the primary purpose of the project
- Deficiency: to correct a deficiency
- Improve: to improve overall system operation
- O&M (Operation and Maintenance): to assist with proper maintenance
- Growth: addresses growth and system expansion

Funding source: The fund or funds that will pay for the project
- WOF: Water Operating Fund
- CRF: Capital Renewal Fund
- LFC: Water Local Facility Fund
- GFC: Water General Facility Fund
- SPWJFF: Sammamish Plateau share of Joint Facility Fund (JFF) (does not include Northeast Sammamish share of JFF)
- Other: Sources not included above, such as Grants or Developer Extension funded projects (DEAs). Note that DEA project funding does not show as “Other” until the project is approved for construction.

Funding type: Indicates the type of project anticipated to install the project.
- CR – Capital Replacement: CIP installation of a project replacing existing facilities representing the expended life of the project
- LFC – Local Facility: CIP installation of a project providing local service
- GFC – General Facility: CIP installation of storage, supply, transmission or other projects that provide shared service to large areas of the District
- SPWJFF - Sammamish Plateau Joint Facility Fund: CIP installation of a project associated with the jointly owned 3 MG storage tank
- DEA/ULID – Developer Extension or Utility Local Improvement District: project installed by a developer or funded by property owners assessments

Anticipated project cost
- Provided in 2018 dollars
- Includes 10% Sales Tax
- Includes 30% Construction Contingency
- Assumes soft costs at 25% of base construction costs

Anticipated year of completion.
- The estimated year for project expenses or project completion.

The total cost of funding by fund type is summarized annually at the bottom of the table.

In total, the District's ten-year CP (for years 2018-2027) includes approximately $55.0 million in improvements. The long-term CP (2028-2037) includes approximately $58.6 million in additional improvements.
## Section 1

### Capital Plan (2018-2037)

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Description</th>
<th>Funding Information</th>
<th>Schedule and Cost of Improvements (In dollars)</th>
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<tr>
<td></td>
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<td>Purpose of Project</td>
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<td>Project Funding Type</td>
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### Notes

1. Costs are in 2018 dollars. ENR Construction Cost Index for Seattle as of August 2018 is 11,515.
2. Purpose of Project: Deficiency = Addresses deficiencies identified in the Water Comprehensive Plan; Improve = Does not address a deficiency, but improves overall system operation; Growth = Required to address Growth/Expansion in the system; O&M = Necessary for proper maintenance.
3. Funding Source: General Facility Charge (GFC); Local Facility Charge (LFC); Water Operating Fund (WOF); Capital Replacement Fund (CRF); SPW Joint Facility Fund (SPW JFF); Other - could be implemented through Developer Extension Agreements (DEA), Utility Local Improvement Districts (ULID), grants or other.
4. Table 8-1

December 2018
| Project No. | Description | Purpose of Project | Project Funding Source | Project Funding Type | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028-2037 | 2038+ | Future Projects 2038+ |
|-------------|-------------|------------------|----------------------|---------------------|------|------|------|------|------|------|------|------|------|-------|-------|---------------------|
| FF-1        | 217th St NE 60th St NE to NE 162nd Ave NE Replacement - 10" | Improve | LFC | DEA/ULID | 474,000 | 0 | 474,000 | 0 | 2,194,000 | 2,194,000 |
| FF-2        | 216th Ave NE 60th St NE to NE 160th Ave NE Replacement - 10" | Improve | LFC | DEA/ULID | 474,000 | 0 | 474,000 | 0 | 2,194,000 | 2,194,000 |
| FF-3        | Improved Pressure Joint Modification - 10" | Deficiency | GFC | DEA/ULID | 191,000 | 390,000 | 441,590 | 0 | 2,194,000 | 2,194,000 |
| FF-4        | 218th Ave NE 60th St NE to NE 160th Ave NE Replacement - 10" | Improve | LFC | DEA/ULID | 220,000 | 0 | 220,000 | 0 | 2,133,000 | 2,133,000 |
| FF-5        | 219th St NE 120th St NE to 130th St Connection - 8" | Deficiency | GFC | DEA/ULID | 228,000 | 0 | 228,000 | 0 | 2,133,000 | 2,133,000 |
| FF-6        | 220th Ave NE 60th St NE to NE 160th Ave NE Replacement - 10" | Improve | LFC | DEA/ULID | 30,000 | 30,000 | 30,000 | 0 | 1,432,000 | 1,432,000 |
| FF-7        | Sammamish Town Center SE 4th St Replacement - 12" | Improve | LFC | DEA/ULID | 549,000 | 274,500 | 274,500 | 274,500 | 0 | 2,133,000 | 2,133,000 |
| FF-8        | Helix Club Replacement - 10" | Deficiency | LFC | DEA/ULID | 322,000 | 0 | 322,000 | 0 | 1,432,000 | 1,432,000 |
| FF-9        | SE 15th St Connection - 8" | Deficiency | LFC | DEA/ULID | 2,133,000 | 0 | 2,133,000 | 0 | 1,432,000 | 1,432,000 |
| FF-10       | Washougal Pkwy Add On and Mix Replacement - 8" | Deficiency | LFC | DEA/ULID | 2,133,000 | 6% GFC 63% LFC 5% WOF | 522,000 | 0 | 1,432,000 | 1,432,000 |
| FF-11       | SE 15th St Connection - 8" | Deficiency | LFC | DEA/ULID | 2,133,000 | 0 | 2,133,000 | 0 | 1,432,000 | 1,432,000 |
| FF-12       | 243rd Ave NE Connection - 8" | Improve | LFC | DEA/ULID | 549,000 | 0 | 549,000 | 0 | 2,133,000 | 2,133,000 |
| FF-13       | NE 10th St Replacement - 8" | Improve | LFC | DEA/ULID | 217,000 | 0 | 217,000 | 0 | 1,432,000 | 1,432,000 |
| FF-14       | NE Union Hill Rd and 208th Ave NE Connection - 8" | Improve | LFC | DEA/ULID | 217,000 | 0 | 217,000 | 0 | 1,432,000 | 1,432,000 |
| FF-15       | 4th Ave NE 60th St NE Connection - 6" | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 1,432,000 | 1,432,000 |
| FF-16       | NE 8th St Connection - 12" | Deficiency | LFC | DEA/ULID | 217,000 | 0 | 217,000 | 0 | 1,432,000 | 1,432,000 |
| FF-17       | 240th Ave NE Replacement (NE 8th Assemblage DEA) - 8" | Improve | LFC | DEA/ULID | 343,000 | 545,000 | 545,000 | 545,000 | 0 | 2,133,000 | 2,133,000 |
| FF-18       | SE 1st St/222nd PL SE in Town Center and 228th Ave SE to Sammamish Commons Connection - 16" | Improve | LFC | DEA/ULID | 6% GFC 50% LFC 4% WOF 26% GFC 74% LFC | 917,730 | 917,730 | 0 | 1,432,000 | 1,432,000 |

Notes:
1. Costs are in 2018 dollars. ENR Construction Cost Index for Seattle as of August 2018 is 11,515.
2. Purpose of Project: Deficiency = Addresses deficiencies identified in the Water Comprehensive Plan; Improve = Does not address a deficiency, but improves overall system operation; Growth = Required to address Growth/Expansion in the system; O&M = Necessary for proper maintenance.
3. (1) Funding Type: GFC = General Facility Charge; LFC = Local Facility Charge; CR = Capital Replacement; DEA/ULID = Developer Extension Agreement or Utility Local Improvement District; SPW = Sammamish Plateau Water and Sewer District.
4. (2) Purpose of Project: Deficiency = Addresses deficiencies identified in the Water Comprehensive Plan; Improve = Does not address a deficiency, but improves overall system operation; Growth = Required to address Growth/Expansion in the system; O&M = Necessary for proper maintenance.
5. (3) Funding Type: GFC = General Facility Charge; LFC = Local Facility Charge; CR = Capital Replacement; DEA/ULID = Developer Extension Agreement or Utility Local Improvement District; SPW = Sammamish Plateau Water and Sewer District.
6. (4) These are projects identified and mapped for general system connectivity and generally anticipated system extensions to serve property not yet fully developed. Projects identified in M-10 are developer funded/contributed or are funded through the Local Facility Charge and General Facility Charge fund. Costs for M-10 will be developed in future budget cycles as specific projects and funding approaches are identified.
| Project No. | Description | Purpose of Project | Project Funding Source | Project Funding Type | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028-2037 | 2038-2058 | 2059+ |
|-------------|-------------|-------------------|-----------------------|---------------------|------|------|------|------|------|------|------|------|------|-------|--------|-------|
| H-49         | SE 17th St Connection (Yu SE 17th St Plat DEA) - 8" | Improve | LFC | DEA/ULID | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 |
| H-50         | 228th Ave NE Connection - 8" | Improve | LFC | DEA/ULID | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 |
| H-51         | 229th Ave SE Connection - 8" | Improve | WOF | LFC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-52         | SE 26th Pl Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-53         | SE 26th Pl Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-54         | SE 29th St Connection - 8" | Improve | LFC | DEA/ULID | 151,000 | 612,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 | 765,000 |
| H-55         | SE 29th St to 26th Way Connection - 8" | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-56         | SE 26th Pl Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-57         | SE 29th St Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-58         | SE 29th St SE Connection - 8" | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-59         | SE 30th St Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-60         | 414th Ave SE Connection | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-61         | SE 30th St to 31st St Connection - 8" | Improve | WOF | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-62         | SE 30th St to 31st St Connection - 8" | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-63         | 229th Ave SE Connection - 8" | Improve | LFC | DEA/ULID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-yr CIP    |                     |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2022        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2023        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2024        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2025        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2026        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2027        |                 |                  |                      |                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sub-Total:  |                 |                  |                      |                    | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 |

Notes: (1) Costs are in 2018 dollars. ENP Construction Cost Index for Seattle as of 2018 is 11,515.
(2) Funding Source: General Facility Charge (GFC); Local Facility Charge (LFC); Water Operating Fund (WOF); Capital Renewal Fund (CRF); SPW Joint Facility Fund (SPW JFF); Other — could be implemented through Developer Extension Agreements (DEAs), Utility Local Improvement Districts (ULIDs), grants or other.
(3) Shown for demonstration purposes only.
(4) Future budget cycles as specific projects and funding approaches are identified.
(5) These are projects identified and mapped for general system connectivity and generally anticipated system extensions to serve property not yet fully developed. Projects identified in M-10 are developer funded/contributed or are funded through the Local Facility Charge and General Facility Charge fund.
FIGURE 8-2

Plateau Zone (see Figure 8-1)

CP - Pipe Projects
Cascade View Zone

LEGEND
Mains - Transmission / General
- 1-10 Years
- 11-20 Years
Mains - Fire Flow
- 1-10 Years
- 11-20 Years
Mains - Redundancy
- 1-10 Years
- 11-20 Years
- > 20 Years
- Redundancy PRV
Mains - Projects in Progress
- DEA / CIP
Mains - Connectivity / Extension
- Connectivity / Extension Pipe (CIP M-10)
- Tank
- Active Well
- Water Mains
- Major Roads
- Freeways
- Current Water Service District Boundary
- Future Water Service Area
- Waterbodies
- Streams
Pressure Zones
- 550
- 550 CV
- 590 CV
- 642
- 650 CV
- 730
- R-77 CIP Number

Water Comprehensive Plan
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8.2.1 Combined Water and Sewer Projects

The District operates both a water and sewer system and each system supports programs and projects that are jointly managed and implemented for the benefit of each system. Each system supports such programs or projects in proportion to the benefit or size of each system. The values indicated in Table 8-1 are the water system share of the combined project total cost.

- **C-1 District Headquarters Maintenance Program.** This program covers building and grounds maintenance and upgrade projects. Outdoor grounds projects include parking lot seal coating and striping and gate replacement. Building projects include skylight and carpet replacement and exterior building paint. The water system funds 60% of the combined project cost.

- **C-2 Enterprise Level System Replacement Program.** This program includes replacement of computer software and hardware to support work plans and daily functions, which will be able to integrate with other District administration programs. Future program upgrades would include utility billing and financial, human resources, payroll, and project accounting software. The water system funds 60% of the combined project cost.

- **C-3 Computerized Maintenance Management System.** This program will implement a new computerized maintenance management system. The new system will be integrated with the District’s asset management and customer service programs to guide the system operators for implementation of pro-active maintenance of District’s assets. The water system funds 60% of the combined project cost.

- **C-4 District Headquarters Communications Rewiring.** This project will complete upgrades throughout the 20-year old headquarters building to replace and/or enhance communication systems wiring to current technology and standards. The water system funds 60% of the combined project cost.

- **C-5 Miscellaneous Capital Improvement Projects.** This program covers projects which are identified after the WCP, Capital Plan and annual budget are approved, originating from local needs, projects by other jurisdictions, and/or from operational necessity. Project expenses are transferred to identified projects once the project charter is complete. The water system funds 65% of the combined project cost.

- **C-6 Security Improvements.** Security measures at several locations are planned to reduce the vulnerability of the District’s system. The installation of motion detectors at all water tanks is underway. Badge entry at most facilities is a potential project. Additional funds are allocated for other unspecified security improvement projects. The water system funds 60% of the combined project cost.

- **C-7 Vehicles and Large Equipment (General).** This program funds additional new
and replacement of vehicles and large equipment shared by the water and sewer systems. Additional vehicles and equipment may be needed for increased maintenance plans and additional requirements for water treatment, safety issues and changing technology. Vehicles and equipment are scheduled for replacement due to age, heavy use, wear and tear, or required to meet operational needs of the District. The water system funds 60% of the combined project cost.

- **C-8 District Headquarters Facility Expansion.** Conduct a spatial needs analysis for the District headquarters considering existing use and requirements to support growth into the future. Implement analysis recommendations through a remodel/expansion capital improvement project. The water system funds 50% of the combined project cost.

### 8.2.2 General Water System

- **G-1 AMI.** This project is an extension of the nearly-complete project to implement advanced metering technology throughout the system. The identified budget will support customer outreach and launch of a customer portal.

- **G-2 Smart Water Infrastructure.** This project adds new data systems to enable analysis that will maximize efficiency of the water operations, particularly in the areas of leak detection, pressure monitoring, water quality monitoring and leveraging electricity use.

- **G-3 Vehicles and Large Equipment (Water).** The District budgets an amount annually to cover periodic purchases of vehicles and large equipment specifically for the water system. The vehicles and equipment are scheduled for replacement due to age, wear and tear and the ability of the vehicle to meet the evolving needs of the District.

- **G-4 Water Hydraulic Model.** The water system hydraulic model was updated and calibrated in 2016 for steady state conditions. With implementation of the AMR/AMI project, additional demand data is available. This project will further develop and enhance the hydraulic model, including development of extended period simulation parameters and analysis.

- **G-5 Water Comprehensive Plan.** Every ten years the District must update its water comprehensive plan. Capital funds are allocated periodically to support these updates.

- **G-6 550 Zone Study (Conversion to Blended Supply).** This is a study to evaluate the feasibility of transitioning the 550 Zone from the segregated supply area to the blended supply area.

- **G-7 700 SH Zone Study (Conversion to 550 & 590 Zones).** This is a study to evaluate the feasibility of transitioning the 700 SH Zone to the 550 and 590 Zones.
The 700 SH Zone currently receives high pressures as it is a lower elevation area obtaining water from the 700 Zone transmission main in 228th. This conversion would result in more moderate pressures to this area. The study would involve consideration of specific customer needs, in addition to impacts to the District’s system.

8.2.3 Water Supply

- **W-1 Well 9 Pump and Motor Upgrade for Wells 7, 8 and 9 Well Field.** This project will replace pump and motor assemblies for Well 9. The pump replacement and motor upgrade will allow Well 9 to maximize the capacity of the well, and match the adjusted water right. The schedule for this project is dependent upon Department of Ecology approval of Well 9 as a permanent additional point of withdrawal for the Wells 7 and 8 water rights.

- **W-2 Well 9 PFC Treatment.** As described in Chapters 5 and 6, perfluorinated compounds (PFCs), and in particular Per- and Polyfluoroalkyl Substances (PFASs), have been detected in District wells 7, 8 and 9, as well as in nearby City of Issaquah wells. The District is monitoring this situation to discern trends and consider a long-range plan to manage these water resources in context of present health advisory levels. One alternative includes the potential implementation of additional treatment at the Well 9 treatment facility for supply from wells 7, 8 and 9, as described in Chapter 1. This project has been scheduled in the event the alternative chosen is to treat existing well supplies for PFASs.

- **W-3 Well 13 Pump Enclosure.** This project will create an addition to the existing building or create a separate shelter to enclose the existing well and piping that is located outside the structure. Additional consideration will be given to efficiency and safety concerns within the current space which may lead to renovation of the current structure.

8.2.4 Booster Pumping

No water booster pumping improvements were identified as being required in Chapter 3 for the 20-year planning horizon. The following projects address potential long-term improvements related to growth and facility maintenance and service reliability.

- **BP-1 SE 43rd Booster Pump Station Rehabilitation.** This project involves replacing the current below-grade booster pump station with an above-grade facility with new pumps and related components.

- **BP-2 New 297 Booster Pump.** This project will complete addition of a third pump in the existing station for increased capacity and reliability.

- **Well 9 to 650 Zone Booster Pump Station.** This project is a reliability measure associated and integrated with water main project M-8, for system reliability following
a significant seismic event. See project description in the Transmission and General Improvements section.

- **2 MG Reservoir Booster Pump Station Project.** The objective of this project is to make more effective use of storage in the 2 MG reservoir. See description for Project ST-11 in the Water Storage section.

### 8.2.5 Water Storage

No water storage capacity improvements were identified as being required in Chapter 3 for the 20-year planning horizon. District staff has identified several storage-related improvements for the CP, as follows.

- **ST-1 Reservoir Safety Improvements.** This project encompasses safety improvements to comply with current regulations. Work will address safety of ladders, step-offs, and safety cables on all reservoirs in the District.

- **ST-2 3 MG Tank Replace Interior Coating and Exterior Top Coating.** This project will replace the interior coating of the reservoir and upgrade the exterior coating with a top coat. This facility is jointly owned with Northeast Sammamish Sewer and Water District (NESSWD) and project implementation will be a joint decision. There is a Joint Facility Fund (“JFF”) that has been established for funding projects associated with shared facilities. District use of the SPW portion of the JFF is shown as SPW JFF. NESSWD portion of funding is identified as “Other”. The total project cost is reflected in Table 8-1.

- **ST-3 3 MG Tank Replace Exterior Coating.** This project will replace the exterior coating of the reservoir. As described for Project ST-2, the total project cost is reflected in Table 8-1, with cost sharing by NESSWD and SPW. This project is forecast for completion in 2035, subject to periodic assessment of the existing coating.

- **ST-4 Section 36 East Tank Replace Interior Coating.** This project will replace the interior coating of the reservoir.

- **ST-5 Section 36 East Tank Exterior Top Coating.** This project will upgrade the exterior coating of the reservoir with a top coat. This project is forecast for completion in 2030, subject to periodic assessment of the existing coating.

- **ST-6 Section 36 West Tank Exterior Top Coating and Replace Interior Coating.** This project will replace the interior coating of the reservoir and upgrade the exterior coating with a top coat. This project is forecast for completion in 2030, subject to periodic assessment of the existing coating.

- **ST-7 Section 36 East Tank Replace Exterior and Interior Coating.** This project will replace the interior and exterior coatings of the reservoir. This project is forecast
for completion in 2045, subject to periodic assessment of the existing coating.

- **ST-8 Section 36 West Tank Replace Exterior Coating.** This project will replace the exterior coating of the reservoir. This project is forecast for completion in 2040, subject to periodic assessment of the existing coating.

- **ST-9 2 MG Tank Replace Interior and Exterior Tank Coating.** This project will replace the interior and exterior coatings of the reservoir. The project will be coordinated with Project ST-10.

- **ST-10 2 MG Tank Improvements.** This project will include the installation of new piping or equipment in the tank structure to allow for better circulation of the water within the tank to improve the water quality and chlorine residual and add improvements for seismic resiliency. The timing of this project would be coordinated with Project ST-9.

- **ST-11 2 MG Tank Booster Pump Station.** This project will involve installation of a booster pump station to make more effective use of storage in this facility for the 650 Zone. The primary objective of this project is to enhance reliability by making storage in this tank more available to the 650 Zone in the event that storage in other facilities is unavailable.

- **ST-12 10 MG Reservoir.** This project is a conceptually-planned new facility near the 2 MG Reservoir, for storage needs anticipated beyond the 20-year planning period.

- **ST-13 7 MG & 297 Tank Seismic Retrofit.** Both tanks have been evaluated and found to be vulnerable to anchorage failure during a 1,000-year return seismic event. This project will retrofit both tanks with appropriate anchoring designed for the event level, to support continued service of each facility and to prevent collateral damage to the surrounding built and natural environment in the event of failure.

- **ST-14 7 MG Tank Exterior Coating.** The exterior coating of this tank is in good structural condition but will be damaged during the seismic retrofit (Project ST-13). The recoating of this tank is to follow the completion of the seismic retrofit work.

- **ST-15 7 MG Tank Replace Interior Coating.** This project will replace the interior coating of the reservoir.

- **ST-16 7 MG Tank Replace Exterior Coating.** This project will replace the exterior coating of the reservoir. This project is forecast for completion in 2035, subject to periodic assessment of the existing coating.

- **ST-17 297 Tank Replace Interior Coating and Exterior Top Coating.** This project will replace the interior coating of the reservoir and upgrade the exterior coating with a top coat.
• **ST-18 297 Tank Replace Exterior Coating.** This project will replace the exterior coating of the reservoir. This project is forecast for completion in 2035, subject to periodic assessment of the existing coating.

• **ST-19 Well 12 Tank Replace Interior Coating and Exterior Top Coating.** This project will replace the interior coating of the reservoir and upgrade the exterior coating with a top coat.

• **ST-20 Well 12 Tank Replace Exterior Coating.** This project will replace the exterior coating of the reservoir. This project is forecast for completion in 2037, subject to periodic assessment of the existing coating.

• **ST-21 Well 12 Reclaim Tank Replace Interior and Exterior Coating.** This project will replace the interior and exterior coatings of the reservoir. This project is forecast for completion in 2030, subject to periodic assessment of the existing coating.

### 8.2.6 Water Distribution System

Many of the following transmission and distribution-related capital improvement projects address deficiencies or needs described in Chapter 3, while some represent system improvement projects that the District plans to implement. Pipeline projects are grouped into four sections:

M-x: Transmission mains, mains related to projects by other agencies and general projects for mains (M) that provide connectivity or extensions for service that are not specifically identified as either redundancy or fire flow projects described in the following sections.

FF-x: Water mains and pressure reducing valve (PRV) stations planned to address fire flow deficiencies (FF).

R-x: Water mains and additional PRV stations planned to address water distribution redundancy and looping (R), as determined through the evaluation process described in Section 3.3.8 of Chapter 3.

Projects in Progress: Both Capital Improvement Projects (CIP) and Developer Extension (DEA) projects that are completed or nearing completion in 2018. These projects do not have individual project numbers or labels, but are simply designated DE/CIP in Table 8.1 and shown as solid lines on Figures 8-1 and 8-2.

### 8.2.6.1 Plateau Zone

*Transmission and General Improvements*

The transmission mains and general system improvement projects are summarized as
follows:

- **M-1 Zackuse Creek Fish Passage Culvert Main Replacement.** Replacement of existing main with new 8-inch main in the immediate vicinity of a fish passage culvert replacement project by the City of Sammamish due to conflicts with construction of the new culvert.

- **M-2 216th Ave SE and Main Street Replacement.** Replacement of existing 6-inch asbestos cement (AC) main with 660 feet (ft.) of 12-inch and 340 ft. of 8-inch ductile iron (DI) main along Main Street, west of 216th Ave SE.

- **M-3 Main Street from 216th to 218th Replacement (Flynn 218th SE Plat DEA).** This portion of the Flynn 218th SE Plat DEA will replace approximately 660 ft. of existing 6-inch AC main with 12-inch DI main.

- **M-4 SE 8th from 212th to 218th Replacement.** Replacement of approximately 1,330 ft. 6-inch AC main and 660 ft. 8-inch DI main in SE 8th St with 12-inch DI main.

- **M-5 228th Avenue SE 24” Transmission Main/Replacement.** Replacement of approximately 1,150 ft. of 12-inch AC main with 24-inch DI main. Project is located along 228th Ave SE from the south side of Pine Lake Middle School southward to the entrance to Marionwood.

- **M-6 Sorrento Estates 24” Transmission Main.** Connect 24-inch DI transmission main between the existing 24-inch transmission main in SE 48th St and the existing 20-inch transmission main from Providence Point to the 7 MG Tank. The project would be constructed simultaneously with a proposed developer extension project. This transmission main will allow the District to transfer water tank-to-tank between the 7 MG Tank and the 297 Tank to improve system reliability and meet build-out demands.

- **M-7 Issaquah Fall City Rd 16” Transmission Main/Replacement.** Replacement of approximately 790 ft. of 8-inch DI main with 16-inch DI main to improve fire flow. The 8-inch main was installed with the intention of replacement with the larger main when the road was improved. Construction will be coordinated with City’s improvements on Issaquah Fall City Road Phase 3.

- **M-8 Well 9 to 650 Zone 16” Transmission Main and Booster Pump Station.** This project will install approximately 4,865 ft. of 16-inch DI main from Well 9 to the 650 Zone. The pipeline will be routed from Well 9 north to, then northeasterly along, SE Issaquah Fall City Rd, to SE Black Nugget Rd. The booster pump station would be located at a suitable location to be determined along SE Issaquah Fall City Rd. The initial project phase will focus on acquisition of the booster pump location.

- **M-10 Distribution System Connectivity and Extension Program.** The redundancy analysis described in Chapter 3 and system review by District staff
identified additional piping projects that are recommended for future implementation to improve overall system connectivity (i.e. looping and flow), as well as piping required to extend service to unserved or underserved parcels within the District’s Service Area. Figures 8-1 and 8-2 indicate the general anticipated location and route for water mains to be added under this program. These depictions are schematic in nature to illustrate the general principle of pipe network connectivity and extension requirements. The actual connection and extension requirements will be determined at time of project initiation or during review of developer extension application.

**Fire Flow Deficiency Improvements**
The projects to address fire flow deficiencies are summarized as follows:

- **FF-1 NE 27th Pl/NE 29th St PRV Addition and Main Connection.** Addition of approximately 1,382 ft. of 8-inch DI main between 244th Ave NE and NE 29th St, and connection to existing main to the south. Project includes a new PRV on NE 29th St.

- **FF-2 212th Ave NE from NE 14th to NE 16th AC Replacement.** Replacement of approximately 660 ft. of existing 6-inch AC main with 8-inch DI main, to address a local segment of undersized main.

- **FF-3 NE 11th St and 209th Ave Replacement.** Replacement of approximately 1,464 ft. of 6-inch main with 8-inch DI main along NE 11th St from 207th Ave NE to 210th Ave NE and south along 209th Ave NE.

- **FF-4 N Inglewood Pressure Zone Modification Connection.** Install approximately 400 ft. of new 8-inch DI main to provide adequate customer and fire flow pressure. Convert existing valves to zone valves. Project is between 211th Pl NE and 211th Ave NE.

- **FF-5 216th Ave NE PRV Addition.** Install new PRV on 216th Ave NE north of NE 10th Pl on existing main.

- **FF-6 SE 1st St/222nd PL SE in Town Center and 228th Ave SE to Sammamish Commons Connection.** Install approximately 4,296 ft. of 16-inch main along future extension of SE 1st St west from 228th Ave SE to and south along 222nd Pl SE to SE 4th St, and from 228th Ave SE westerly along the extension of SE 8th St to the east side of Sammamish Commons, then northerly and westerly around Sammamish Commons.

- **FF-7 Sammamish Town Center SE 4th St Replacement.** In conjunction with the Sammamish Town Center project replace approximately 3,000 ft. of 8-inch main with 12-inch DI main along SE 4th St from 220th Ave SE to 225th Pl SE.

- **FF-8 Plateau Club Replacement.** Replacement of approximately 96 ft of 6-inch main with 12-inch DI main in the parking/access area of the Plateau Club golf course.
• **FF-9 SE 14th St Connection.** Install approximately 704 ft of 8-inch DI main along and east of SE 14th St to connect to existing main at northerly extension of 196th Ave SE.

• **FF-10 SE 16th St PRV Addition and SE 17th St Connection.** Install approximately 718 ft. new 8-inch DI main between the end of SE 17th St and SE 16th St at 196th Ave SE alignment and add new PRV on SE 16th St west of the new main connection.

• **FF-11 Waverly Hills PRV Addition and Main Replacement.** Replacement of approximately 5,289 ft. of 4-inch and 6-inch AC main along the following streets: SE 32nd St from E Lake Sammamish Pkwy SE to 199th Ave SE, 198th Ave SE/SE 30th St/196th Ave SE/SE 29th St from SE 32nd St to 200th Ave SE, SE 31st Pl from 198th Ave SE to 197th Ave SE and 198th Ave SE south of SE 29th St continuing south to 199th Ave SE. Project includes addition of a PRV on SE 30th St.

• **FF-12 Waverly Shores Connection.** Install approximately 779 ft of 8-inch DI main in E Lake Sammamish Shore Lane SE, south of the intersection with SE 33rd St, to connect two existing mains.

• **FF-13 Overdale 232nd Ave SE and SE 54th Pl Fire Flow Connection.** Install approximately 1,829 ft. of 8-inch main in SE 54th Pl SE, from 235th Ave SE to 232nd Ave SE, continuing north in 232nd Ave SE to SE 53rd St. connected to the 650 Pressure Zone system, to provide improved fire flow to an area served by the 700 OV Pressure Zone.

**Redundancy Improvements**
The projects identified to improve redundancy are summarized as follows:

• **R-1 NE 25th St Connection 1 (NE 25th St Assemblage DEA).** Install approximately 461 ft. of 8-inch DI main along NE 25th St and north to NE 26th Pl, west of 244th Ave NE to connect existing main to Project R-2. Easements crossing private properties may be required.

• **R-2 NE 25th St Connection 2.** Install approximately 985 ft. of 8-inch DI main along NE 25th St to connect Project R-1 with existing main in 244th Ave NE, and south of NE 25th to extension of NE 24th St west of 244th Ave NE, to connect to Project R-3. Easements crossing private properties may be required.

• **R-3 NE 24th St Connection (Cedar Hill DEA).** Install approximately 574 ft. of 8-inch DI main along extension of NE 24th St west of 244th Ave NE to connect existing main to Project R-2. Easements crossing private properties may be required.

• **R-4 NE 26th St Connection.** Install approximately 1,352 ft. of 8-inch DI main along NE 26th St east of 244th Ave NE to connect existing mains. Easements crossing private properties may be required.
- **R-5 207th Ave NE PRV Addition.** Install PRV on existing main on 207th Ave NE south of NE 15th St to provide additional supply path between pressure zones.

- **R-6 NE 15th St from 207th Pl NE to 208th NE Connection.** Install approximately 304 ft. of 8-inch DI main along NE 15th St from 207th Pl NE to 208th Ave NE to connect existing mains. Easements crossing private properties are required. New main will link the 475 Zone and 475 SAMSUN Zone and will allow the 475 SAMSUN Zone to receive water from the 650 Zone, which is fluoridated and chlorinated. PRV 20 would become normally closed and only open during fire flow conditions.

- **R-7 East Sammamish Park Connection.** Install approximately 1,118 ft. of 12-inch DI main from NE 16th St north and east through park property to connect existing mains. An easement crossing the park property is required.

- **R-8 NE 14th St from 212th to 216th NE Connection.** Install approximately 2,220 ft. of 8-inch DI main along NE 14th St from 212th to 216th Ave NE to connect existing mains. Easements crossing private properties are required.

- **R-9 NE 8th St Replacement.** Replacement of approximately 500 ft of 6-inch main with 8-inch DI main along NE 8th St from 216th Ave NE west to 214th Pl NE.

- **R-10 212th Ave NE PRV Addition.** Install PRV on existing main on 212th Ave NE north of NE Inglewood Hill Rd to provide additional supply path between pressure zones.

- **R-11 236th Ct NE Connection.** Install approximately 451 ft. of 8-inch DI main from 236th Ct NE north to connect existing mains. Easements crossing private properties are required.

- **R-12 NE 14th St Connection.** Install approximately 500 ft. of 12-inch DI main along NE 14th St alignment from 236th Pl NE east to connect existing mains. Easements crossing private properties are required.

- **R-13 238th Ave NE Connection.** Install approximately 500 ft. of 8-inch DI main from north end of 238th Ave NE north and east to connect existing main to Project R-14. Easements crossing private properties are required.

- **R-14 240th Ave NE Replacement (NE 8th Assemblage DEA).** Replacement of approximately 1,140 ft of 2-inch main with 8-inch DI main along 240th Ave NE north of NE 8th St, and extension to west to connect to Project R-13.

- **R-15 NE 4th St from 235th to 238th NE Connection.** Install approximately 1,580 ft. of 8-inch DI main from south end of 235th Ave NE south and east to NE 4th St at 238th Ave NE to connect existing mains. Easements crossing private properties are required.
• **R-16 243rd Ave NE Connection.** Install approximately 167 ft. of 8-inch DI main along 243rd Ave NE south of NE 14th St to connect existing mains. Easements crossing private properties may be required.

• **R-17 NE 18th St Connection 1 (NE 18th Assemblage DEA).** Install approximately 802 ft. of 8-inch DI main south from NE 18th St and east to connect to the 16th Sammamish Phase 2 - Shillam DEA (in progress). Easements crossing private properties may be required.

• **R-18 NE 18th St Connection 2.** Install approximately 500 ft. of 8-inch DI main south from NE 18th St and west to connect to the 16th Sammamish Phase 2 - Shillam DEA (in progress). Easements crossing private properties may be required.

• **R-19 247th Pl NE from NE 18th to 20th Connection.** Install approximately 683 ft. of 8-inch DI main along 247th Pl NE from NE 18th St to NE 20th St to connect existing mains. Easements crossing private properties may be required.

• **R-20 245th Ave NE Connection (Atherton-Campbell 246th NE Plat DEA).** Install approximately 1,834 ft. of 8-inch DI main from end of 245th Ave NE north of NE 11th Pl north to Twins Ridge DEA (in progress), and from east end of Twins Ridge extension east and south, for connection to Project R-21. Easements crossing private properties may be required.

• **R-21 NE 11th St to 250th Ave NE Connection.** Install approximately 1,638 ft. of 8-inch DI main from east end of NE 11th St to 250th Ave NE to connect existing mains and to Project R-20. Easements crossing private properties may be required.

• **R-22 250th Ave NE from NE 14th to NE 18th Connection.** Install approximately 1,490 ft. of 8-inch DI main from north end of 250th Ave NE at NE 14th St extension to NE 18th St to connect existing mains. Easements crossing private properties may be required.

• **R-23 254th Ave NE from NE 8th to NE 4th Connection.** Install approximately 1,492 ft. of 8-inch DI main along 254th Ave NE from NE 8th St to existing main north of NE 4th (if extended) to connect existing mains in the 550 Pressure Zone. Easements crossing private properties may be required.

• **R-24 222nd Pl NE Connection.** Install approximately 265 ft. of 8-inch DI main along 222nd Pl NE north of NE 2nd St north to Coffman 222nd NE Short Plat DEA (in progress). Easements crossing private properties may be required.

• **R-25 NE 2nd Ct Connection.** Install approximately 559 ft. of 8-inch DI main along NE 2nd Ct from 259th Ave NE west to connection to existing main in the parking/access area of the Plateau Club golf course. Easements crossing private properties may be required.
• **R-26 208th Ave SE PRV Addition.** Install PRV on existing main on 208th Ave SE at about westerly extension of SE 5th St to provide additional supply path between pressure zones.

• **R-27 220th Ave NE Connection.** Install approximately 750 ft. of 8-inch DI main along 220th Ave NE north from SE 4th St to connect to the Hennessey 220th SE Project and 218th McCabe (aka Brixton) DEAs (in progress). Easements crossing private properties may be required.

• **R-28 Town Center Connections NW.** Install approximately 3,894 ft. of 12-inch DI main between SE 4th St and the westerly extension of Main St from 228th Ave, with segments connecting to mains from the Villages at Sammamish Town Center DEA (in progress) and mains to be completed per Projects FF-6 and FF-7. Easements crossing private properties may be required.

• **R-29 Town Center Connections SW.** Install approximately 4,006 ft. of 12-inch DI main between SE 4th St, the northern edge of Sammamish Commons (NE 6th if extended) and continuing south to SE 8th west of 228th Ave SE, with segments connecting to Projects FF-6 and FF-7. Easements crossing private properties may be required.

• **R-30 Town Center Connections SE.** Install approximately 3,200 ft. of 12-inch DI main in a triangular area bounded on the south by SE 8th St, the west by 228th Ave SE and the north by Crusader Way, with segments connecting to existing mains and mains from Sammamish Town Ctr Townhomes TCA-3-1 DEA (in progress). Easements crossing private properties may be required.

• **R-31 Future Town Center School Site Connection.** Install approximately 2,220 ft. of 12-inch DI main in an area north and south of Crusader Way, including connection to existing main at the west end of SE 4th Pl. This project will connect to the Town Center Plateau 120 Apartments DEA (in progress). Easements crossing private properties may be required.

• **R-32 Thirty Acres Park Connection.** Install approximately 1,738 ft. of 8-inch DI main parallel to and north of SE 9th Way, between the Soaring Eagle Regional Park Pipeline Trail and transmission main and the mid-point of SE 9th Way, to provide additional capacity for the west end of SE 9th Way. Easements crossing the park property may be required.

• **R-33 SE 19th St and 193rd Ave SE Connection and PRV Addition.** Install approximately 1,758 ft. of 8-inch DI main between the west end of SE 19th St and the north end of 193rd Ave SE. A PRV will be necessary at the pressure zone boundary. Easements crossing private properties may be required.
• **R-34 SE 12th St and 208th Ave SE Connection.** Install approximately 2,670 ft. of 8-inch DI main along SE 12th St from 212th Ave SE west to then south along 208th Ave to SE 16th St to connect existing mains. Easements crossing private properties may be required.

• **R-35 SE 19th St and 205th Ave SE Connection.** Install approximately 592 ft. of 8-inch DI main between the east end of SE 19th St and the north end of 205th Ave SE to connect existing mains. Easements crossing private properties may be required.

• **R-36 SE 20th St Connection.** Install approximately 367 ft. of 8-inch DI main between the existing main serving Creekside Elementary School and SE 20th St, to connect existing mains. Easements crossing private properties may be required.

• **R-37 SE 24th St to 210th Pl SE Connection (Tridco SE 24th Short Plat or Baker SE 24th Short Plat DEA).** Install approximately 369 ft. of 8-inch DI main between SE 24th St and the intersection of SE 22nd St and 210th Pl SE, to connect existing mains. Easements crossing private properties may be required.

• **R-38 215th SE Connection.** Install approximately 580 ft. of 8-inch DI main along the extension of 215th Ct SE, connecting mains installed by Sienna Lane II and Taylor SE 20th Short Plat DEAs (in progress). Easements crossing private properties may be required.

• **R-39 218th Ave SE Connection.** Install approximately 1,090 ft. of 8-inch DI main south from SE 8th St along the southerly extension of 218th Ave SE to connect to the existing main at the east end of SE 13th Pl. Easements crossing Big Rock Park or private properties may be required.

• **R-40 223rd Ave SE Connection (Lancaster 223rd DEA).** Install approximately 1,037 ft. of 8-inch DI main between the south end of Lancaster Way SE and the existing main at the north end of 223rd Ave SE, to connect existing mains. Easements crossing private properties may be required.

• **R-41 226th Ave SE Connection.** Install approximately 1,662 ft. of 8-inch DI main between 228th Ave SE west along SE 23rd Pl then south, crossing Pine Lake Park, to the existing main at the north end of 226th Ave SE, to connect existing mains. Easements crossing private properties and Pine Lake Park may be required.

• **R-42 SE 22nd St Connection.** Install approximately 1,142 ft. of 8-inch DI main between the east end of SE 21st St, east of 228th Ave SE, east and south to the existing main at the west end of SE 22nd St, to connect existing mains. Easements crossing private properties may be required.

• **R-43 239th Pl SE Connection.** Install approximately 2,104 ft. of 8-inch DI main between SE 24th St, north along 239th Pl SE then northeasterly to the existing main
in SE 18th Pl, to connect existing mains. Easements crossing private properties may be required.

- **R-44 244th Ave SE Connection.** Install approximately 1,229 ft. of 8-inch DI main between 244th Ave SE at SE 17th Pl north and northeasterly to SE 14th St, east of and parallel to 244th Pl SE, to connect existing mains. Easements crossing private properties may be required.

- **R-45 247th Ave to 248th Ave SE Connection.** Install approximately 418 ft. of 8-inch DI main between 247th Ave SE and 248th Ave SE south of SE 14th St, to connect existing mains. Easements crossing private properties and the powerline easement may be required.

- **R-46 SE 13th St Connection.** Install approximately 384 ft. of 8-inch DI main from 251st Ave SE, west, to connect existing main to the Richter SE 14th Plat DEA (in progress). Easements crossing private properties may be required.

- **R-47 SE 17th St to SE 14th St Connection.** Install approximately 1,591 ft. of 8-inch DI main along SE 17th St between 249th Pl SE and 251st Pl SE, then north to SE 14th St, to connect existing mains. This project will also connect to Project R-48. Easements crossing private properties may be required.

- **R-48 SE 17th St Connection (Yu SE 17th Short Plat DEA).** Install approximately 135 ft. of 8-inch DI main along SE 17th St from east end of existing main to 249th Pl SE, to connect existing mains, and to connect to Project R-47. Easements crossing private properties may be required.

- **R-49 SE 20th Pl from 245th to 242nd Ave SE Connection.** Install approximately 895 ft. of 8-inch DI main along SE 20th Pl west of 245th Ave SE to 242nd Ave SE, to connect existing mains. Easements crossing private properties may be required.

- **R-50 246th Ave SE to SE 17th Pl Connection (Sammamish Highlands on 248th and Hamilton Estates DEAs for 246th section).** Install approximately 1,670 ft. of 8-inch DI main from along 246th Ave SE from north end of existing main, north and then west to SE 17th Pl at 244th Ave SE, to connect existing mains. Easements crossing private properties may be required.

- **R-51 251st Ave SE to West Beaver Lake Dr SE Connection.** Install approximately 708 ft. of 8-inch DI main from 251st Ave SE at SE 21st Pl to West Beaver Lake Dr SE, to connect existing mains, including connection to main in 251st Pl SE. Easements crossing private properties may be required.

- **R-52 SE 29th St to SE 24th Way SE Connection and PRV Addition.** Install approximately 1,037 ft. of 8-inch DI main from SE 29th St at 198th Ave SE northwest to SE 24th Way at SE 27th Pl. A PRV will be necessary at the pressure zone boundary. Easements crossing private properties may be required.
• **R-53 SE 29th St Connection.** Install approximately 1,450 ft. of 8-inch DI main from the 200th Ave SE to 204th Ave SE in the SE 29th St alignment, to connect existing mains. Easements crossing private properties may be required.

• **R-54 SE 28th Pl Connection.** Install approximately 590 ft. of 8-inch DI main from the west end of SE 28th Pl west to 208th Ave SE, to connect existing mains. Easements crossing private properties may be required.

• **R-55 SE 39th St Connection.** Install approximately 1,818 ft. of 8-inch DI main from 212th Ave SE along SE 39th St, continuing east and north to SE 37th St, to connect existing mains. Easements crossing private properties may be required.

• **R-56 SE 29th Pl Connection.** Install approximately 795 ft. of 8-inch DI main along SE 29th Pl from 222nd Pl SE to 220th Ave SE, to connect existing mains. Easements crossing private properties may be required.

• **R-57 221st Ave SE Connection.** Install approximately 1,170 ft. of 8-inch DI main from SE 40th Ln in Providence Point, north in 221st Ave SE then east along SE 38th St, to connect existing mains to the 223rd Mullen-Warren Assemblage DEA (in progress). Easements crossing private properties may be required.

• **R-58 SE 35th St Connection.** Install approximately 333 ft. of 8-inch DI main between 226th Ave SE and 225th Ave SE, along SE 35 St alignment, to connect existing mains. Easements crossing private properties may be required.

• **R-59 239th Ave SE Connection.** Install approximately 1,038 ft. of 8-inch DI main from Issaquah-Pine Lake Rd SE northwest of SE 36th Ln northeasterly to the south end of 239th Ave SE, to connect existing mains. Easements crossing private properties may be required.

• **R-60 241st Ave SE Connection.** Install approximately 765 ft. of 8-inch DI main from SE 24th St south to connect to the Penny Lane South DEA (in progress), along the 241st Ave SE alignment. Easements crossing private properties may be required.

• **R-61 SE 25th St and SE Duthie Hill Rd Connections.** Install approximately 3,864 ft. of 8-inch DI main along SE 25th St (if extended) between 267th Ct SE and 272nd Way SE, and from the SE 25th St alignment along 270th Ave SE and 271st Ave SE to SE Duthie Hill Rd, to connect existing mains. Easements crossing private properties may be required.

• **R-62 SE Issaquah-Fall City Rd Connection.** Install approximately 3,107 ft. of 8-inch DI main along SE Issaquah-Fall City Rd from east of Klahanie Dr SE to a location near SE 41st Ct, to connect existing mains, including mains that extend from the interior of Klahanie to SE Issaquah-Fall City Rd.
- **R-63 SE 48th St to SE 46th alignment Connection (Hochanadel SE 48th Property - Sorrento Estates DEA).** Install approximately 1,542 ft. of 8-inch DI main from SE 48<sup>th</sup> St north through the proposed Sorrento development to, parallel to Project M-6, to SE 46<sup>th</sup>, if extended, and 228th Ave SE, to connect existing mains, including connection with Project R-64. Easements crossing private properties may be required.

- **R-64 229th Pl SE Connection.** Install approximately 250 ft. of 8-inch DI main from the existing main in 229<sup>th</sup> Pl SE west to connect to Project R-63. Easements crossing private properties may be required.

- **R-65 240th Ave SE Connection.** Install approximately 221 ft. of 8-inch DI main between 240<sup>th</sup> Ave SE and 240<sup>th</sup> Pl SE, to connect existing mains. Easements crossing private properties may be required.

- **R-66 East Lake Sammamish Center North Connection.** Install approximately 360 ft. of 16-inch DI main between existing mains in the shopping centers north and south of SE Black Nugget Road. Easements crossing private properties may be required.

- **R-67 229<sup>th</sup> Ave SE Connection.** Install approximately 831 ft. of 8-inch DI main between south end of 229<sup>th</sup> Ave SE in Overdale and existing main in northwest corner of The Heights at Issaquah development, to connect existing mains. Easements crossing private properties may be required.

- **R-68 East Lake Sammamish Center South Connection.** Install approximately 765 ft. of 16-inch DI main through the parking lot of the southernmost lot of the East Lake Sammamish Center (currently Walgreens) and along SE Issaquah-Fall City Rd to E Lake Sammamish Pkwy SE, to connect existing mains. Easements crossing private properties may be required.

- **R-69 University House/Timbers Connection.** Install approximately 270 ft. of 8-inch DI main between the existing mains in The Timbers II multi-family development and the University House senior housing, parallel to and northwest of SE Issaquah-Fall City Rd. Easements crossing private properties may be required.

**Projects in Progress**
The following developer extension and District Capital Improvement Projects are in progress. Projects that are part of current Developer Extension Agreements are identified with DEA as part of the project name.

- **Inglewood JNT 2387 NE 15th Residence DEA.** Extension of approximately 192 ft. of 8-DI main near NE 16<sup>th</sup> St and 207<sup>th</sup> Ave NE.

- **Inglewood Hill Rd at 211th PL NE Main Replacement.** Replacement of existing 2-inch galvanized, 4-inch AC main and 8-inch AC main with 8-inch DI main in
Inglewood Hill Rd. between 211th Ave NE & 212th Ave NE, and with 8-inch and 4-inch DI in 211th Pl NE north of NE 13th (if extended).

- **16th Sammamish II - Shillam DEA.** Approximately 236 ft. of 8-inch DI main extension north of intersection of NE 16th St and 247th Ave NE.

- **Twins Ridge DEA.** Approximately 1,527 ft. of 8-inch DI main extension southeast of intersection of NE 16th St and 244th Ave NE.

- **Morningside Estates DEA.** Approximately 783 ft. of 8-inch DI main extension from Main St and 215th NE north and east to 214th Ave NE.

- **Flynn 218th SE Plat DEA (onsite portion).** Approximately 674 ft. of 8-inch DI main extension from 216th Pl SE at SE 2nd north to Main St.

- **218th McCabe (aka Brixton) DEA (offsite portion).** Approximately 675 ft. of 12-inch DI main extension along 218th Ave NE from Main St to SE 2nd (if extended).

- **Hennessey 222nd SE Short Plat and 218th McCabe (aka Brixton) DEAs.** Approximately 2,000 ft. of 8-inch DI main extension along SE 1st from 218th Ave NE to 222nd Pl SE.

- **Village at Sammamish Town Center DEA.** Approximately 1,242 ft. of 12-inch DI main extension in SE 4th and the Villages development between 228th Ave SE and 225th Ave SE.

- **Town Center Plateau 120 Apartments DEA.** Approximately 755 ft. of 12-inch DI main extension on SE 1st, east of 228th Ave SE.

- **Sammamish Town Ctr Townhomes – TCA-3-1 DEA.** Approximately 675 ft. of 12-inch DI main and 755 ft. of 8-inch DI main extension east of 228th Ave SE at SE 5th.

- **Coffman 222nd NE Short Plat DEA.** Approximately 505 ft. of 8-inch DI main extension from the SE 4th alignment south to the north end of 222nd Pl NE.

- **Reynolds SE 8th Short Plat DEA.** Approximately 265 ft. of 8-inch DI main extension along SE 8th St east of 200th Ave SE.

- **Richter SE 14th Plat DEA.** Approximately 392 ft. of 8-inch DI main extension from the east end of SE 13th Pl at 249th Ave SE (if extended).

- **Sammamish Highlands on 248th DEA.** Approximately 660 ft. of 8-inch DI main extension between 246th Ave SE and 248th Ave SE at SE 21st.

- **Penny Lane South DEA.** Approximately 933 ft. of 8-inch DI main extension northwest of intersection of SE 28th St and 242nd Ave SE.
- **223rd Mullen-Warren Assemblage DEA.** Approximately 2,013 ft. of 8-inch DI main extension along 223rd Ave SE between Providence Point and about SE 36th St.

- **Providence Ridge DEA.** Approximately 1,877 ft. of 12-inch DI main extension along and south of SE 43rd Way, from Forest Village in Providence Point at 220th Ave SE (if extended).

- **Taylor SE 20th Short Plat DEA.** Approximately 270 ft. of 8-inch DI main extension along 214th SE south of SE 20th.

- **Sienna Lane II DEA.** Approximately 229 ft. of 8-inch DI main extension along 215th Pl SE, extending from Sienna Lane south of SE 20th.

- **Sunnyhills Elementary School Replacement DEA.** Approximately 1,339 ft. of 12-inch DI main extension from Issaquah-Pine Lake Rd SE to 235th Pl SE north of SE 32nd Way.

- **Jarvis Estates SW DEA.** Approximately 1,003 ft. of 8-inch DI main extension between 232nd Ave SE in Kempton Downs and 234th Ave SE in Lac Riant.

- **Oxley SE 30th Short Plat DEA.** Approximately 691 ft. of 8-inch DI main extension between SE 30th St and SE 32nd St, on 243rd Ave SE.

- **Irons-Hedberg Issaquah-Beaver Lake Rd Plat DEA.** Approximately 871 ft. of 8-inch DI main extension from SE 36th Ct to 262 Ave SE.

- **212th Way SE Road Improvements.** Relocation of approximately 250 ft of 8-inch DI main in 212th Way SE, at the connection to the main into Peregrine Point, included with the City of Sammamish 212th Way SE Road Improvement project.

- **SE 52nd at 229th SE AC Main Replacement.** Approximately 100 ft. of 8-inch DI main at SE 52nd and 229th Ave SE, to connect the northwest Overdale connection to the distribution system, and replace the prior emergency intertie connection to the transmission system.

- **221st PI SE Main Replacement.** Approximately 1,000 feet of 12-inch DI main in 221st PI SE extending south from 5655 221st Pl. SE to approximately SE 61st, where it will connect to the SE 62nd and 221st PI SE Main Replacement Project. This project will improve fire flow for this commercial area and provide additional transmission capacity for supply from the Issaquah Valley Wells.

- **SE 62nd & 221st PI SE Main Replacement.** Approximately 650 ft of 12-inch DI main in 221st Pl SE extending south from the 221st PI SE Main Replacement project at approximately SE 61st to SE 62nd St, where it will connect to an existing main in 4th Ave NW and approximately 40 ft. of 8-inch DI main to connect to an existing
main in SE 62nd. This project is included with the City of Issaquah SE 62nd Improvements project, and will improve fire flow for this commercial area and provide additional transmission capacity for supply from the Issaquah Valley Wells.

8.2.6.2 Cascade View Zone

Transmission and General Improvements
The transmission mains and general system improvement projects are summarized as follows:

- **M-9 Redmond-Fall City Rd/Ames Lake Rd 12” Transmission Main.** Extension of approximately 7,141 feet of new 12-inch transmission main from the Plateau Zone 550 Zone to the Cascade View Zone 550 CV Zone.

- **M-10 Distribution System Connectivity and Extension Program.** The redundancy analysis described in Chapter 3 and system review by District staff identified additional piping projects that are recommended for future implementation to improve overall system connectivity (i.e. looping and flow), as well as piping required to extend service to unserved or underserved parcels within the District’s Service Area. Figures 8-1 and 8-2 indicate the general anticipated location and route for water mains to be added under this program. These depictions are schematic in nature to illustrate the general principle of pipe network connectivity and extension requirements. The actual connection and extension requirements will be determined at time of project initiation or during review of developer extension application.

Fire Flow Deficiency Improvements
The projects to address fire flow deficiencies are summarized as follows:

- **FF-14 NE 80th St Connection.** Install approximately 2,342 ft. new 12-inch DI main, to complete a loop along NE 80th St between 246th Ave NE and 255th Ave NE. This project will also enable the District to more efficiently move North Regional Connection water from the connection through the Cascade View Zone and to the Well 13 storage tank.

- **FF-15 NE 70th St Replacement.** Replace approximately 2,615 ft of 8-inch main with 12-inch DI main, along NE 70th St from the Well 13 Tank and north along private driveway east of equestrian center.

- **FF-16 NE Union Hill Rd and 266th Ave NE Connection.** Install approximately 2,531 ft. of 8-inch DI main beginning at 264th Ave NE easterly along NE Union Hill Rd and south along the extension of 266th Ave NE to NE 53rd St, together with an extension of 8-inch DI main in NE 51st St east of 264th Ave NE.

- **FF-17 NE 45th St/268th Ave NE Connection.** Install approximately 2,740 ft. of 8-inch DI main from 264th Ave NE to 272nd Ave NE in NE 45th St.
- **FF-18 NE 45th St/272nd Ave NE Replacement.** Replace approximately 660 ft. of existing 2-inch main with 8-inch DI main from 272nd Ave NE to the east. This extension is necessary to provide fire flow to a future extension to the east.

**Redundancy Improvements**  
The projects identified to improve redundancy are summarized as follows:

- **R-70 Dawnbreaker Cascade Intertie/Connection.** Installation of approximately 2,848 ft. of 8-inch DI main from the intersection of 255th Ave NE and NE 100th St west, north and west along NE 100th St, 248th Ave NE and NE 102nd St., from the 201 Development 9081 Redmond Ridge Short Plat (in progress) through Dawnbreaker to Eastridge Dr. NE for an intertie to provide a redundant connection to Cascade Water Alliance and the North Regional Supply.

- **R-71 250th and 252nd Ave NE from NE 80th to NE 85th St Connection.** Install approximately 5,905 ft. of 8-inch DI main from NE 80th St north along 250th Ave NE and along 252nd Ave NE, with a connection between those two alignments, along with segment from 252nd Ave NE to intersection of NE 85th St and 255th Ave NE, to connect existing main to Project FF-14. Easements crossing private properties may be required.

- **R-72 248th Ave NE Connection.** Install approximately 1,285 ft. of 8-inch DI main in 248th Ave NE from the southeast end of NE 72nd St southeasterly to NE 67th Pl, to connect existing mains. Easements crossing private properties and the powerline easement may be required.

- **R-73 254th Ave NE Connection.** Install approximately 2,436 ft. of 8-inch DI main south from NE 80th St along 254th NE to connect to existing main north of NE 67th Pl, and a connection west to the Culbertson 252nd NE Plat (in progress). Easements crossing private properties may be required.

- **R-74 245th Ave NE Connection.** Install approximately 705 ft. of 8-inch DI main north from NE 52nd Pl along and to 245th Ave NE, to connect existing mains. Easements crossing private properties may be required.

- **R-75 NE 47th Pl and 254th Ave NE Connection.** Install approximately 1,687 ft. of 8-inch DI main from in the NE 47th Pl alignment from the end of an existing main at the east edge of the plat of Canyon Creek, east to the end of NE 47th Pl, and south along 254th Ave NE alignment to existing main north of NE 42nd St, to connect existing mains. Easements crossing private properties and the powerline easement may be required.

- **R-76 NE 29th Pl Connection and PRV Addition.** Install approximately 1,143 ft. of 8-inch DI main from the east end of NE 29th Pl to NE Ames Lake Rd near 264th Ave NE, to connect existing mains. A PRV will be necessary at the pressure zone boundary. Easements crossing private properties may be required.
- **R-77 NE 24th St Amesbury Connection.** Install approximately 2,049 ft. of 8-inch DI main along NE 24th St. between 259th Ave NE and 265th Ave NE south of Amesbury, to connect existing mains. Easements crossing private properties may be required.

*Projects in Progress*

The following developer extension projects are in progress.

- **201 Development 9081 Redmond Ridge Short Plat DEA.** Approximately 2,329 ft. of 8-inch DI main extension along NE 100th St between 255th Ave NE and the end of 258th Ave NE.

- **Culbertson 252nd NE Plat DEA.** Approximately 2,021 ft. of 8-inch DI main extension north of NE 67th Pl, east of 248th Ave NE.