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CHAPTER 8

CAPITAL IMPROVEMENT PROGRAM

8.1 OVERVIEW

King County Water District No. 49 has maintained a repair and water main replacement program for many years. Historically, the District has funded capital improvement projects with the excess revenues from rate collection, from State funded low interest loans and from the sale of revenue bonds.

Chapter 3 presents a hydraulic analysis of the District's system and develops a program of recommended capital improvements to be undertaken to correct the deficiencies and improve the system, in response to current and forecast demands.

Table 8.1 lists the recommended improvements and their estimated project costs. Figure 8-1 shows the project locations. Most of the projects involve the replacement of undersized mains.

Table 8.2 shows the ten-year capital improvement plan.

The projects have been prioritized and scheduled based on current information. Priority has been given to those areas that have recently experienced more than an average number of leaks or areas which will provide the greatest immediate improvement to the flows and hydraulic efficiency of the system.

Even though a tentative schedule has been developed, circumstances may require that projects be moved ahead or deferred.

8.2 CAPITAL IMPROVEMENT PROJECT FUNDING

As detailed in Chapter 9 of this report, it is expected that all capital improvement projects scheduled for the next six to ten years will be funded through a combination of cash-on-hand, connection charges, a Public Works Trust Fund loan and sale of revenue bonds.

It is not possible to accurately predict the actual amount of connection charge revenue or successful loan applications that will be available in any given year. It is also difficult to predict the extent of increases in construction costs that may occur. Completion of elements of the Capital Improvement Program will depend on actual availability of District resources at the time.

**Table 8.1
CAPITAL PROJECTS**

ID	Capital Improvement	Project Description	Estimated Project Cost (2019 \$)	Recommended Year of Completion
I. SUPPLY				
<i>(no supply deficiencies or projects)</i>				
Subtotal for Supply Projects			\$0	
II. STORAGE				
ST-1	Additional Storage	Construct 3.7 million gallons of additional storage capacity in 575 Pressure Zone - partially below ground level, at 8th Ave SW and SW 146th St. Include 6,000 gpm booster pump station with onsite standby power system. Estimate only includes work for 2019 through completion. Property purchased and predesign complete. Design in progress.	\$5,088,000 \$6,794,000 \$11,882,000	2019 2020 -
Subtotal for Storage Projects			\$11,882,000	
III. DISTRIBUTION				
D-1	Replace PRV-4	<i>Completed 2018</i>		
D-2	VFD for Ex. Booster Pump Station	Convert power supply for existing booster pump station to variable frequency drive for power use savings during routine cycling operations.	\$136,000	2021
<i>Water Main Replacement Projects:</i>				
D-3	Des Moines Memorial Drive - Phase 3	<i>Completed 2017</i>		
D-4	SW 169th St & SW 170th St	Along SW 169th St & 22nd Ave SW, west of 19th Ave SW, SW 170th St between 16th Ave SW and 19th Ave SW, and along private drive south of SW 170th St at 1900 block - 2,352 LF 8" main	\$818,000	2020-2021
D-5	13th Ave SW & 14th Ave SW	Along 13th Ave SW north of SW 158th St, perpendicular to said line, along 14th Ave SW south of SW 158th St and along 25th Ave SW north of 164th St - 1,359 LF 8" main	\$473,000	2022
D-6	9th Ave SW & 10th Ave SW	Along 10th Ave SW from SW 164th St to SW 168th St and along 9th Ave SW from the intersection of SW 164th St and 9th Ave SW to the intersection of SW 166th St and 10th Ave SW - 2,324 LF 8" main	\$808,000	2023
D-7	SW 165th St & SW 167th St	Along SW 165th St and SW 167th St from 21st Ave SW to 19th Ave SW, along SW 167th St west of 21st Ave SW and along SW 170th St west of 27th Ave SW - 1,965 LF 8" main	\$683,000	2024
D-8a	15th Ave SW	Along 15th Ave SW from SW 164th St to SW 168th St - 1,328 LF 8" main	\$461,562	2019
D-8b	11th Ave SW	Along 11th Ave SW south of SW 166th St - 200 LF 8" main	\$69,512	2023
D-9	Ambaum Blvd - Phase 1	Along Ambaum Blvd from S 168th St to S 173rd St and along S 173rd St east of Ambaum Blvd - 1,302 LF 8" main. Includes abandonment of existing 1,100 LF 6" main paralleled by existing 8" and 12" DI	\$498,000	2025
D-10	7th Ave SW & 3rd Ave SW	Along 7th Ave SW and 3rd Ave SW between SW 146th St and SW 148th St and along 3rd Ave SW south of SW 144th St - 1,543 LF 8" main. Between 2nd & 3rd Ave SW from north of 146th St to south of 144th St - 82 LF 2" copper	\$547,000	2026
D-11	4th Ave S, S 150th St and Easement	Along 4th Ave S north of S 150th St, along S 150th St east and west of 4th Ave S, and along easement from S 150th St to S 152nd St - 1,766 LF 8" main	\$614,000	2027

D-12	S 152nd St	Along S 152nd St from east of 4th Ave S to District Boundary, along 4th Ave S north of S 156th St and along easement south of Highline Highschool Performing Arts Center - 975 LF 8" main	\$339,000	2028
D-13	Ambaum Blvd - Phase 2	Along Ambaum Blvd from S 173rd St to 660 south of 17424 Ambaum Blvd - 660 LF 8" main. Includes abandonment of existing 700 LF 6" main paralld by existing 12" DI	\$253,000	2029
D-14	S 156th St	Along S 156th St from east of SR 509 to Des Moines Memorial Drive - 1,750 LF 8" main	\$609,000	2030
D-15	Seahurst Elementary	Along a line west of 14th Ave SW south of 144th Pl, perpendicular to said line at the southern end, along a line north of SW 148th St east of Ambaum Blvd, along SW 144th St west of Ambaum Blvd, crossing Ambaum Blvd SW at SW 148th St, and alley south of SW 152nd St between 10th Ave SW and Ambaum Blvd - 1,658 LF 8" main	\$577,000	2031
D-16	4th Ave S, 5th PI S and S 158th St	Along a line east of SR 509 south of S 156th St, along 5th PI S and S 158th St from S 160th St to S 158th St and along a line east of 1st Ave S south of S 160th St - 1,130 LF 8" main. Along 4th Ave S south of S156th St - 300 LF 12" main	\$540,000	2032
D-17	SW 154th St	Along SW 154th St from Ambaum Blvd to 1st Ave S - 2,435 LF 8" main	\$847,000	2033-2034
D-18	11 PI SW	Along 11 PI SW from Sylvester Rd to the intersection of 13th Ave SW and SW 174th St - 1,832 LF 8" main	\$637,000	2035
D-19	SW 160th St & SW 158th St	Along SW 160th St from 8th Ave SW to 4th Ave SW, along SW 158th St from Ambaum Blvd to 1st Ave S and along a line west of SR 509 from east of 1st Ave S to FH #700- 1,510 LF 8" main	\$559,000	2036
D-20	SW 157th	Along a loop of SW 156th St to and from Ambaum Blvd and along SW 157th St from Ambaum Blvd to 1st Ave S - 1,605 LF 8" main	\$558,000	2037
D-21	4th Ave SW, 6th Ave SW & SW 151st St	Along 4th Ave SW south of SW 148th St, along SW 151st St east of 8th Ave SW and along 6th Ave SW between S 152nd St and S 154th St - 1,335 LF 8" main. Along SW 150th St midblock of 8th Ave SW and 6th Ave SW - 50 LF 12" main	\$484,000	2038
D-22	S 176th St	Along S 176th St east of Des Moines Memorial Drive - 1,590 LF 8" main	\$553,000	2038
Subtotal for Distribution Projects			\$11,064,074	
IV. OTHER				
O-1	SCADA Update	Upgrade remote sites	\$130,000	2021
O-2	District Office/shop	Purchase property and complete replacement office and shop facility (further evaluation, beginning ith a needs assessment, will be necessary to confirm scope and cost)	\$4,000,000	2025
O-3	Water System Plan Update	Update Water System Plan	\$125,000	2028
V-1	Light Duty Vehicle	Replace existing light duty vehicle	\$40,000	2019
V-2	Pick Up Truck #1	Replace existing service truck	\$55,000	2023
V-3	Pick Up Truck #3	Replace existing service truck	\$55,000	2024
V-4	Dump Truck	Replace existing dump truck	\$125,000	2027
Subtotal for Other Projects			\$4,530,000	
Grand Total			\$27,476,074	

ENR Index, Seattle, December 2018 = 11,537.66

**Table 8.2
10-YEAR CAPITAL IMPROVEMENT PLAN**

ID	Capital Improvement	Project Description (See Table 8.1 for detailed description)	Page Where Need Identified	Funding Source*	Estimated Project Cost (2019 \$)	Estimated Year of Completion
I. SUPPLY						
	(no supply deficiencies or projects)		n/a	n/a	n/a	n/a
Subtotal for Supply Projects					\$0	
II. STORAGE						
ST-1	Additional Storage	3.7 million gallons of additional storage and booster pump station with onsite standby power	3.4.3	GFC and Rates	\$11,882,000	2019-2020
Subtotal for Storage Projects					\$11,882,000	
III. DISTRIBUTION						
D-2	VFD for Ex. Booster Pump Station	Variable frequency drive power for existing pumps	Staff Recommend	Rates	\$136,000	2021
<i>Water Main Replacement Projects:</i>						
D-4	SW 169th St & SW 170th St	2352 LF 8 inch main	3.4.4	GFC and Rates	\$818,000	2020-2021
D-5	13th Ave SW & 14th Ave SW	1359 LF 8 inch main	3.4.4	GFC and Rates	\$473,000	2022
D-6	9th Ave SW & 10th Ave SW	2324 LF 8 inch main	3.4.4	GFC and Rates	\$808,000	2023
D-7	SW 165th St & SW 167th St	1965 LF 8 inch main	3.4.4	GFC and Rates	\$683,000	2024
D-8a	15th Ave SW	1328 LF 8 inch main	3.4.4	GFC and Rates	\$461,562	2023
D-8b	11th Ave SW	200 LF 8 inch main	3.4.4	GFC and Rates	\$69,512	2023
D-9	Ambaum Blvd - Phase 1	1302 LF 8 inch main	3.4.4	GFC and Rates	\$498,000	2025
D-10	7th Ave SW & 3rd Ave SW	1625 LF 8 inch main	3.4.4	GFC and Rates	\$547,000	2026
D-11	4th Ave S, S 150th St and Easement	1766 LF 8 inch main	3.4.4	GFC and Rates	\$614,000	2027
D-12	S 152nd St	975 LF 8 inch main	3.4.4	GFC and Rates	\$339,000	2028
Subtotal for Distribution Projects					\$5,447,074	
IV. OTHER						
O-1	SCADA Update	Upgrade remote sites	Staff Recommend	Rates	\$130,000	2021
O-2	District Office/shop	Purchase Property and Complete Replacement and Shop Facility	Staff Recommend	Rates	\$4,000,000	2025
O-3	Water System Plan Update	Update Water System Plan	DOH	Rates	\$125,000	2028
V-1	Light Duty Vehicle	Replace existing light duty vehicle	Staff Recommend	Rates	\$40,000	2019
V-2	Pick Up Truck #1	Replace existing service truck	Staff Recommend	Rates	\$55,000	2023
V-3	Pick Up Truck #3	Replace existing service truck	Staff Recommend	Rates	\$55,000	2024
V-4	Dump Truck	Replace existing dump truck	Staff Recommend	Rates	\$125,000	2027
Subtotal for Other Projects					\$4,530,000	
Grand Total					\$21,859,074	

ENR Index, Seattle, December 2018 = 11,537.66

* GFC=General Facilities Charges, Rates=Service Charges

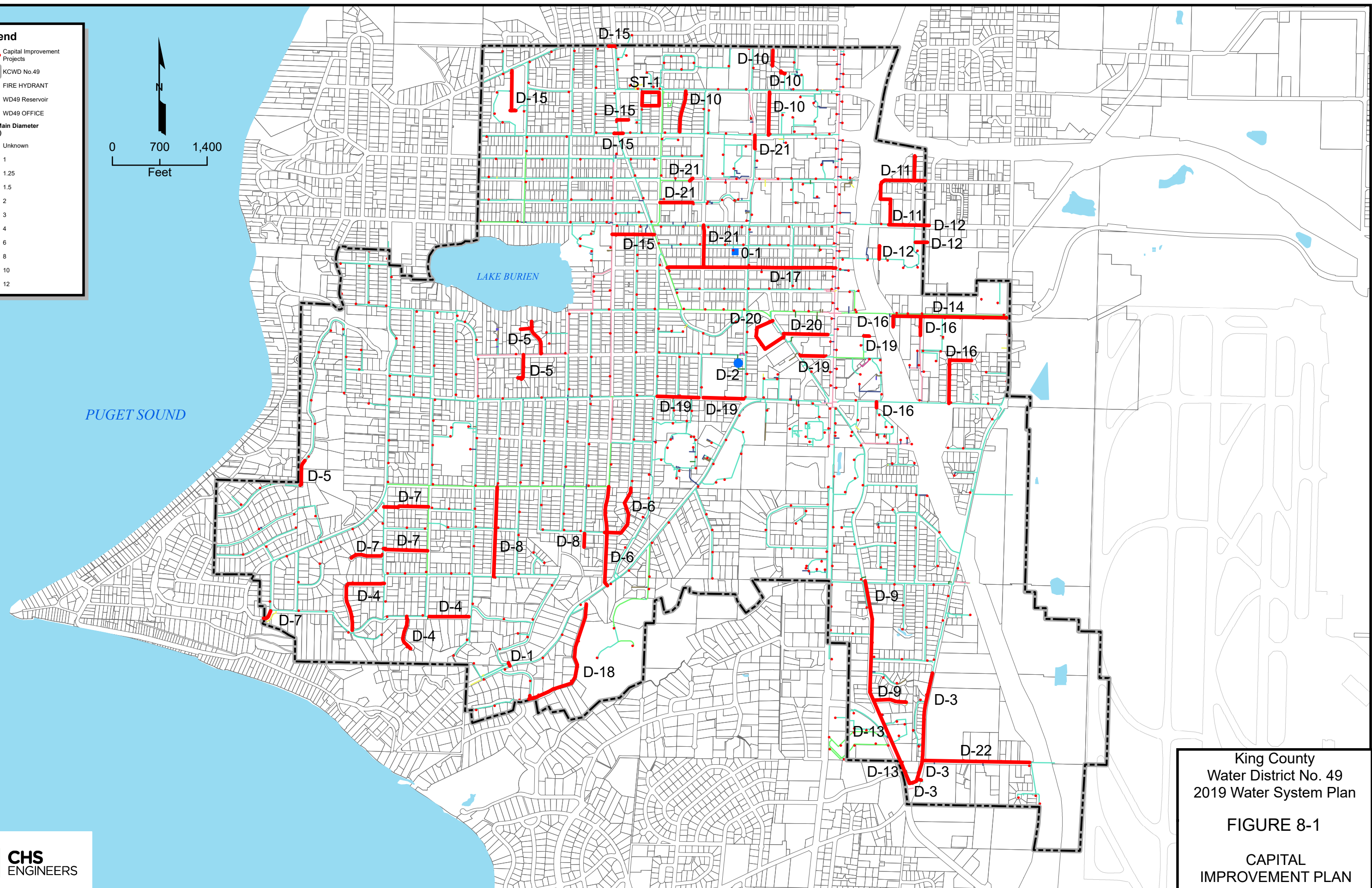
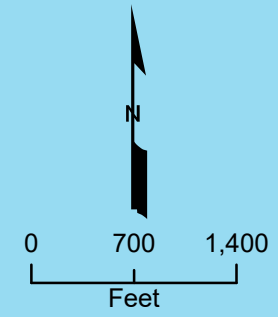
\$27,476,074

Legend

- Capital Improvement Projects
- KCWD No.49
- FIRE HYDRANT
- WD49 Reservoir
- WD49 OFFICE

Water Main Diameter (inches)

- Unknown
- 1
- 1.25
- 1.5
- 2
- 3
- 4
- 6
- 8
- 10
- 12



King County
Water District No. 49
2019 Water System Plan

FIGURE 8-1

**CAPITAL
IMPROVEMENT PLAN**