

PROPOSED IMPROVEMENTS IN THE WATER FACILITY PLAN

The Greenferry Water and Sewer District recognizes the need to provide a water system facility plan and capital facilities projects within the district to protect the health, safety, and property of the district and its citizens. This water system facility plan updates the previous water system facility plan; project future growth; analyze the existing and future water systems; provide capital facility projects required to meet known deficiencies and increasing demands on the system; and review financing of capital facility projects.

EXISTING CONDITIONS

The district has an existing water system which consists of two (2) water sources (wells) and (4) water storage tanks. The existing water system has its deficiencies. The most pressing deficiency is the ability to move water from the source wells to the outlying reservoirs. Our Engineers have identified existing deficiencies and capital facility projects have been identified to fix these deficiencies.

DEMOGRAPHICS

The first step before analyzing the water system is to establish the district's demographics and project these demographics into the future. For this plan, the 20-year planning period was used. Based on demographic data from the US Census Bureau and previous studies completed in the area, a 2.4% growth rate was used for the plan. The City of Coeur d'Alene, Post Falls and Kootenai show a 2.4% population growth from 2010 to 2016 also. Kootenai County recently adopted a new comprehensive plan showing zoning within the district to be "Shoreline & Suburban. The Kootenai County comprehensive plan also has estimated the population growth to be between 1% - 3% projected to 2025. If we extend an average of this rate to the year 2037 Kootenai County will see a population of 227,994.

Using US Census population projections, the Kootenai County Future Zoning Map, and conversations with the local jurisdictions, the projected future connections and Equivalent Residential Units (ERUs) were determined. ERUs will be the primary units used in this report for the water system analysis.

An ERU equals on family dwelling (2.54 persons, US Census) with known demand characteristics or requirements. Other types of uses such as commercial or industrial uses are typically factored based upon comparison of their demand versus the residential single family unit. Green Ferry Water and Sewer District does not have commercial or industrial zoning within the district although recent new development request irrigation system meters which will be listed as commercial.

Projected Future ERUs

	Year	2020 (Current Year)		2021		2027		2032		2037	
	Projected Pop.	851		871		1079		1215		1368	
Service Conn. Type	Growth Rate (%)	CON	ERUs	CON	ERUs	CON	ERUs	CON	ERUs	CON	ERUs
Residential	2.4	335	335	343	343	425	425	478	478	538	538
Commercial/IRR	2.4	1	2.6	2	5.2	2	5.2	3	7.6	3	7.6
Increase From 2017			N/A	1	8	N/A	90	2	143	N/A	203

The information established in the demographics chapter of the plan was used to determine future requirements; establish future capital facility projects; and analyze financial impacts to the water fund. Area demographics show a steady increase in population in Kootenai County. While most of the growth areas are in incorporated areas, some more desirable un-incorporated areas are expected to grow at the same steady rate. The Green Ferry Water and Sewer District is located in a more desirable area in Kootenai County.

WATER SYSTEM CONSERVATION

The District currently has a water use conservation plan which dictates that new hookups must install an automatic landscape irrigation system if they plan on watering lawn, garden and landscape areas. This will help conserve water through proper use.

The district also plans on future system updates such as Variable Frequency Drive pumps and Supervisory Control and Data Acquisition (SCADA) system to help prevent loss of water through reservoir overfill, or system pressure blow off. The district can also consider raising high water usage rates, preparing a leak detection study, and placing watering time restrictions such as watering of lawns in the evening or early morning hours.

WATER SYSTEM ANALYSIS

The water system was analyzed with the different water analysis scenarios as required by Idaho Code. Analysis of the existing and future water system identified existing and future deficiencies in the water system including SCADA/telemetry controls, undersized pipelines, dead end mains (low pressures and fire flows), slow recovery during high demands due to inadequately sized mains. To fix these existing and future deficiencies a capital improvement project list was completed.

CAPITAL IMPROVEMENT PROJECTS

Based on the water system analysis and input from the district operator, existing and future deficiencies were identified and prioritized. The priority of the projects was weighted based on the urgency to fix the specific deficiency within the water system. The table below summarizes the future water capital improvement projects based on priority and lists the project need.

Proposed Project	Type *	Estimated Cost	Project Description	Construction Year Proposed	Funding
#1A Well house to Greenferry, to Highland main line Upsizing	D	\$ 498,125	This project adds a 10 inch water main in Kelly road and provides the ability for future area upgrade for fire flow.	2021	\$498,125
#1B Bayshore 10" Transmission line from well house to Greenferry & Highland	SE	\$307,577	This project would install a dedicated 10" transmission main to Riverview & replace the 4" main in Riverview from Highland to Greenferry.	2021	\$307,577
#2 Greenferry Terrace fire flow and meter upgrades	D	\$1,055,687	This project replaces water main in alley, Bret and Patrick to 8", adds fire hydrants and relocates meters. Connects to 10" main in Kelly.	2021	\$1,055,687
#3 Backup generator for well house & Boosters	G	\$140,900	This project would provide the system required back up power in the event of an outage.	2023	\$162,035
#4 System Pressure Zone	D & S T	\$489,196	This project will relocate existing booster stations & install a new one to a lower elevation lowering pump house pressure and providing better reservoir recovery.	2028	\$587,035
#5 Install SCADA system	T	\$99,160	This project replaces the existing multiple services required for the district to have dial up, phone and	2030	\$118,992
			internet service into one service. In addition it will provide a means of collection real time data from the facilities.		

#6 Crystal Bay upgrades for system flow increase	D	\$1,102,440	This project will increase flow to the NW region of the system. Along with this upgrade there will be additional fire hydrants installed and the ability of the system to be extended for future development.	2030	\$1,322,928
#7 Snowshoe/ Tanglewood upgrades for area system flow increase	D	\$637,020	This project will replace the 4 inch main with 8 inch. Install fire hydrants	2028	\$660,000
#8 Highlands service & Snowshoe booster station upgrades	G	\$101,830	This project will bring the existing booster stations into compliance with upgrades as mentioned in the recent sanitary survey.	2028	\$110,830
#9 System wide easement/ research with corrective action	G	\$50,000		2025	\$50,000
#10 Well house	G	\$25,000	Well house addition to provide separate, ventilated area for chlorine storage	2025	\$30,000
#11 Well upgrades for system flow increase	D	\$220,000	This project will re-develop the existing wells & update the pumps for increased flow or drill a third well to meet increased population demand.	2030	\$253,000
#12 Highland Reservoir replaced	ST	\$280,000	This project will replace the aging Highland Reservoir. It will be upsized from 150,000 gal. to 200,000 gal.	2035	\$364,000

*D=Distribution ST=Storage G=General SE=Service T=Telemetry
 Funding assumes additional costs incurred in the year of construction.

The capital improvement projects were analyzed and compared with a no action alternative. All of the projects except 4, 5, 9, 10, 11 & 12 were found to be required to fix existing and future deficiencies. The projects could be completed with grant or an alternate source of funding to help the district incorporate an environmental sustainable project into its water system.

FINANCING AND COST EVALUATION

This plan discussed various funding alternatives for the capital improvement projects such as water rates, connection fees, grants, and revenue bonds. To properly analyze the system a cost evaluation was completed which included a water rate analysis. The water rate analysis of the Green Ferry Water and Sewer District Water Rates used expenditures and revenues projected in the 20-year planning period. Rates remained unchanged in the current scenario and are expected to remain fairly stable during the planning period.

SUMMARY OF FINANCING:

The district had a capital assessment completed in 2015 and assigned a capital improvement fee of \$9,200 per each new hookup fee. In addition, the district has been collecting a \$15 fee per meter per month which is put into a Capitalization Reserve account to be used as payment for the new bond. The new bond, approved in May of 2018 for up to \$1.8 million, will be used to fund the system deficiency projects selected for construction in the year 2021.