FY2015-2021 Capital Investment Program

W-16 Small Diameter Water Main Replacement

Category: Water Status: Ongoing

Department: Utilities Location: Various locations throughout Water Utility's service area

Programmed Expenditures									
Programmed	Appropriated	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	
Expenditures	To Date	Budget							
109,937,885	49,168,885	6,119,000	7,708,000	8,503,000	9,326,000	9,513,000	9,703,000	9,897,000	

Description and Scope

This program focuses primarily on replacing small diameter asbestos cement (AC) pipe that has reached its useful life. A secondary benefit is increasing the emergency fireflow available to neighborhoods. This investment will ramp up water pipeline replacement to 5 miles/year by 2018, and then be adjusted with inflation to maintain the 5 miles/yr replacement rate. At that rate, water pipe will need to last on average 100-125 years. Pipes are selected for replacement based on risk of failure (likelihood and consequence), failure history, and coordination with other construction, such as planned street overlays (which reduce restoration costs).

Rationale

Water pipeline replacement rate will increase to 5 miles per year (over a ten-year period) by 2018. The 5 miles/year pipe replacement rate is required to achieve the Asset Management Program (AMP) goal of cost effective system renewal and replacement while maintaining acceptable customer service levels. Experience has shown that small diameter AC pipes have the shortest life. AC pipe fails catastrophically, often causing significant damage to nearby properties and triggering more breaks in nearby AC pipes.

Small diameter AC pipe accounts for a disproportionate share of water main breaks. Besides size and material, soil corrosiveness, moisture content, and original construction quality affect pipe life. As budgeted, most 4-inch AC pipe will be replaced by 2017, reaching a maximum pipe age of 61 years. Replacement of 6-inch AC main will follow, over a 30 year period. Larger diameter mains would be replaced before they reach 125 years old. Pipes of other materials (ductile and cast iron, clay) will also be replaced as needed. The potential for main breaks will be significantly reduced, minimizing service disruptions to customers and costly emergency repairs, and reducing claims exposure.

Environmental Impacts

Replacement of Water mains less than eight inches in diameter generally have minimal impact to the environment, unless they are in or adjacent to sensitive areas. Proactive system replacement before failure reduces erosion and other environmental damage.

Operating Budget Impacts

Project Map (405) Lake Washington NORTH

Project Activities	From - To	Amount	
Project Costs	1982 - 2021	109,937,885	

Schedule of Activities

Total Budgetary Cost Estimate: 109,937,885

Means of Financing

Funding Source Amount

Judgements/Settlements 42,000
Miscellaneous Revenue 769,000
Utility Rates/Fees 109,126,885

Total Programmed Funding: 109,937,885
Future Funding Requirements:

Comments