

# W-16 Small Diameter Water Main Replacement

Category: **Water**  
Department: **Utilities**

Status: **Ongoing**  
Location: **Various locations throughout Water Utility's service**

## Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
110,117,885	49,168,885	6,119,000	7,888,000	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.

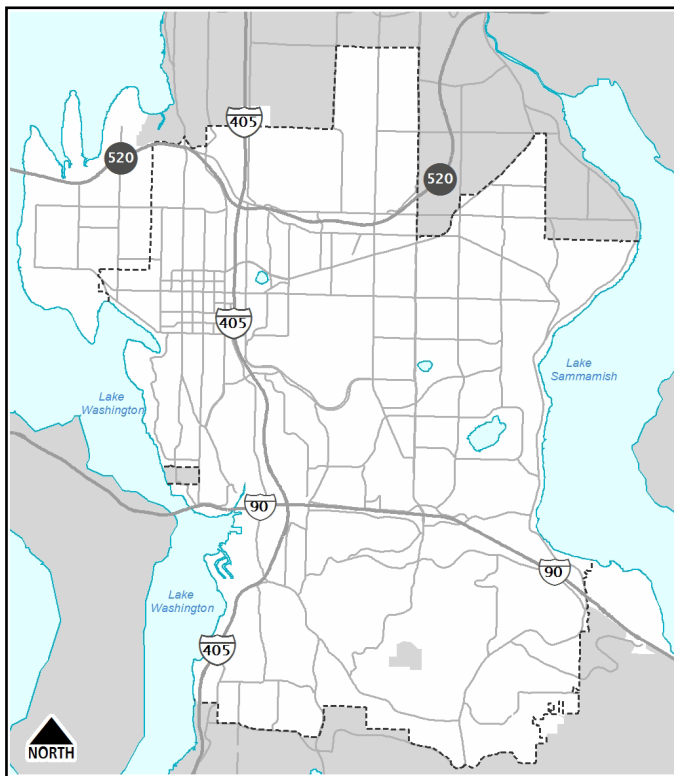
Small diameter AC pipe accounts for a disproportionate share of water main breaks. Besides size and material, soil corrosiveness, moisture content, and original construction quality affect pipe life. As budgeted, most 4-inch AC pipe will be replaced by 2017, reaching a maximum pipe age of 61 years. Replacement 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



## Schedule of Activities

Project Activities	From - To	Amount
Project Costs	1982 - 2021	110,117,885

**Total Budgetary Cost Estimate:** 110,117,885

## Means of Financing

Funding Source	Amount
Intergovernmental Contributions	180,000
Judgements/Settlements	42,000
Miscellaneous Revenue	769,000
Utility Rates/Fees	109,126,885

**Total Programmed Funding:** 110,117,885  
**Future Funding Requirements:**

## Comments

Per the Amended MOU with Sound Transit, Utilities will be replacing 400 linear feet of 6" AC water main with 8" DI pipe to provide fire flow capacity at the South Bellevue light rail station. This additional work is not currently included in the 2015-2016 budget for project W-16 Small Diameter Water Main Replacement. The \$180,000 cost is being fully funded by Sound Transit and was added to the FY 2016 budget.