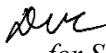


EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: October 8, 2026

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager 

FROM: Serge V. Terentieff, Director of Engineering and Construction 
for SVT

SUBJECT: Follow-up to Pipeline Rebuild Program

SUMMARY

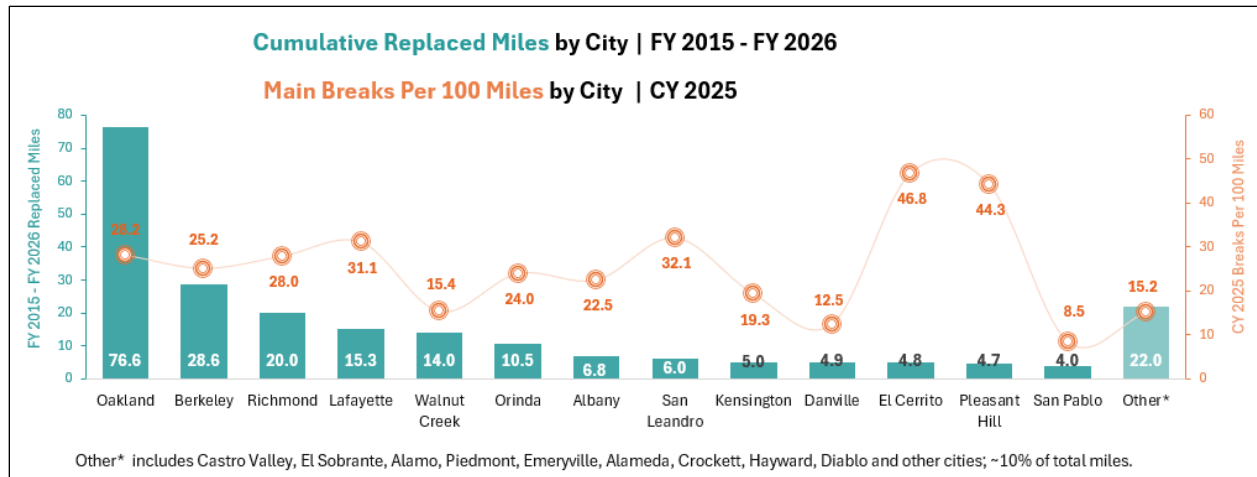
This memorandum provides additional information requested by the Planning Committee at its September 8, 2026 meeting on the Pipeline Rebuild Program. The Committee asked for additional information on how annual main breaks are changing geographically over time, adjustments to pipeline cost per mile due to inflation, the impacts of deferring pipeline replacements, and the cost of adding another pipeline installation crew.

DISCUSSION

Geographic Changes in Main Breaks

Main breaks from 2015 to 2026 were concentrated primarily in the West of Hills area, particularly in the cities of Richmond, Berkeley, and Oakland. Attachment 1 shows two-year snapshots of break density within a one-mile radius, where red areas represent higher concentrations of breaks in locations with more brittle pipeline materials, such as cast iron and asbestos cement (AC), as well as areas subject to geohazards such as fault zones and landslides. These locations have been a focus of the District's Pipeline Rebuild Program (Figure 1). Planned pipeline replacements in these cities target higher-risk pipelines identified through break history, the District's Likelihood of Failure (LOF) model, and other risk and project-selection criteria. Figure 1 also shows the break rates per 100 miles of pipe within each city in calendar year (CY) 2025. While the heat maps show a gradual reduction in the extent and intensity of higher-density break areas over time, continued pipeline replacements, monitoring, and analysis are needed to determine long-term trends.

Figure 1. Miles Replaced by City, Fiscal Year (FY) 2015 – FY 2026



Pipeline Replacement Cost per Mile, Adjusted for Inflation

The cost per mile of pipe replaced increased from \$2.94 million per mile in FY 2020 to \$4.36 million per mile in FY 2026. Adjusting for inflation highlights some of the underlying cost trends by removing the effects of general price escalations, such as pipeline material changes, increase in equipment usage, or project complexity. During this period, the District increased staffing, made a significant change in materials, transitioning from steel and PVC to ductile iron pipe (DIP) and earthquake resistant DIP (ERDIP), installed more miles of pipeline, and expanded direct hauling of trench soils.

The revised figure (Figure 2) shows both the nominal and inflation adjusted unit cost. In FY 2026 dollars, the FY 2020 unit cost was approximately \$3.84 million per mile representing an inflation-adjusted increase of approximately 14 percent through FY 2026. This indicates that the cost increase is attributable mainly to changes in labor costs, materials, production, equipment, and construction practices.

Figure 2. IR Cost Per Mile, Adjusted for Inflation

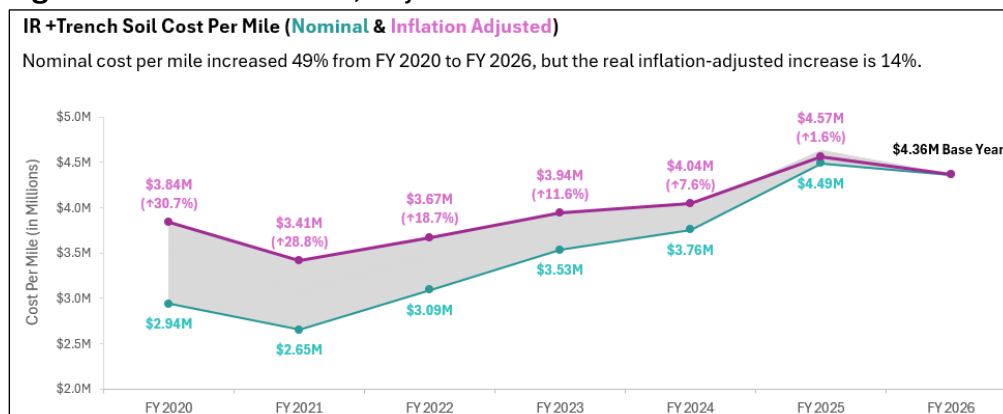
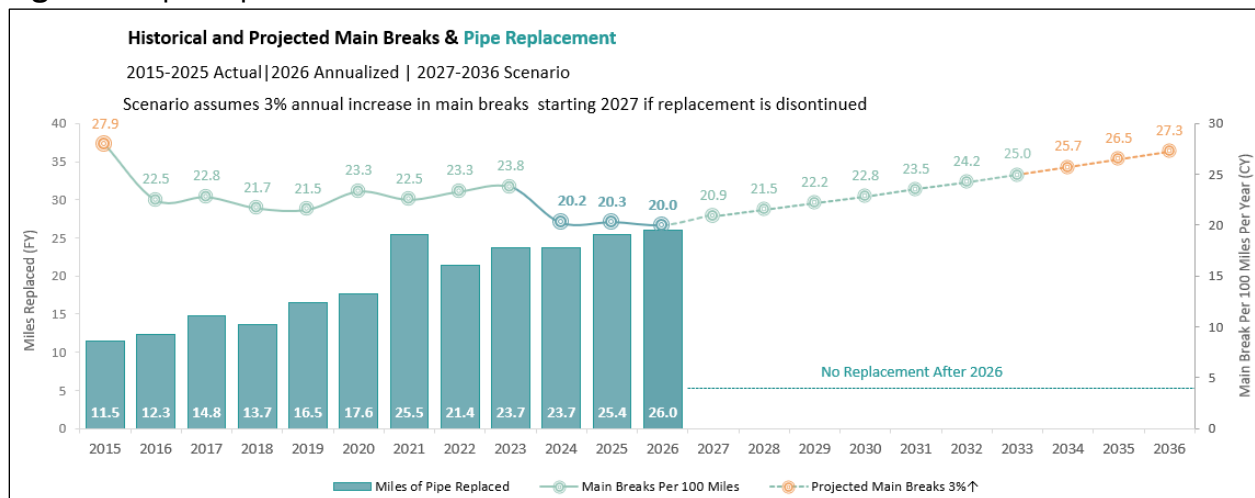


Figure 2 also shows that inflation-adjusted unit costs peaked at approximately \$4.57 million per mile in FY 2025 before declining to \$4.36 million per mile in FY 2026. The FY 2026 decline suggests that costs are beginning to stabilize following several years of program expansion and material transition.

Impacts of Deferring Pipeline Replacement

The District relies on a combination of planned pipeline replacements and main break repairs to manage the distribution system. A shift towards reducing or deferring pipeline replacement would have social, environmental, and economic consequences even though it may reduce near-term costs. Figure 3 shows that between 2015 and 2026, the District's main break rate decreased at an average annual rate of approximately 3 percent. Figure 3 also presents a scenario where pipeline breaks increase by 3 percent annually beginning in FY 2027 assuming a similar increase to the percent decrease since 2015. Under this scenario, the break rate would increase from approximately 20 breaks per 100 miles in FY 2026 to 27 breaks per 100 miles by FY 2036.

Figure 3. Pipe Replacement Deferral vs Main Breaks



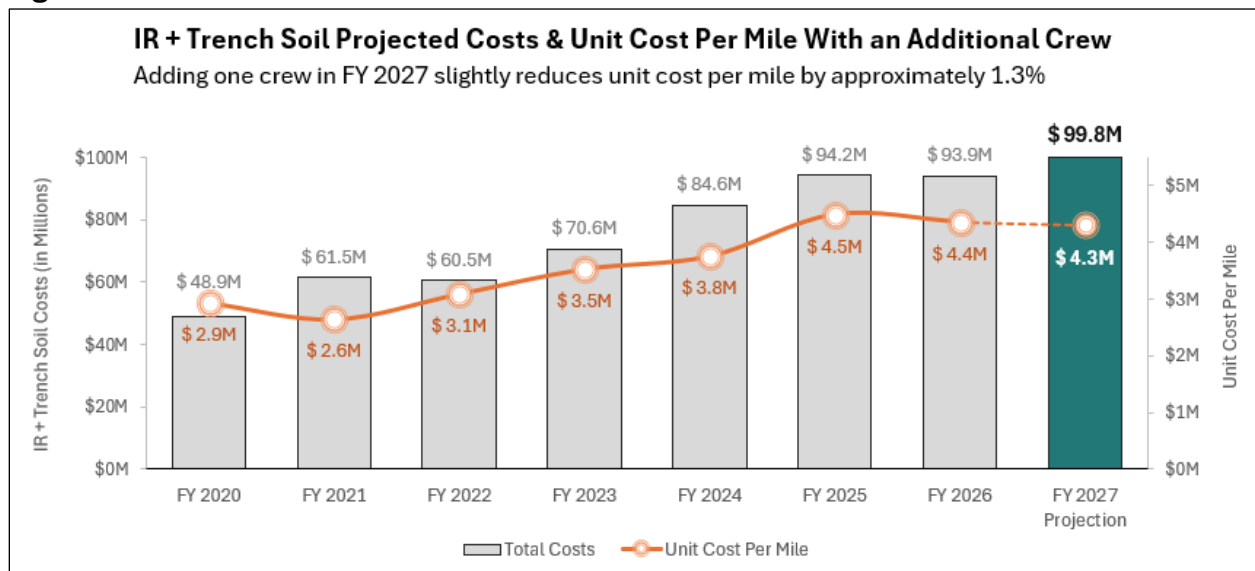
A balanced approach of replacing higher-risk pipelines and maintenance can help reduce recurring failures and demonstrate to the community and regulators that infrastructure risks are being actively managed.

Cost of an Additional Crew

Adding a thirteenth mainline crew would increase overall Pipeline Rebuild Program costs approximately \$3.5 million per mile per year reflecting labor, materials, equipment, rentals, paving, and construction support. Based on an estimated production rate of 1.67 miles per year per crew (average rate from FY 2020-2026) for infrastructure replacement

only, not including system improvements, relocations, or removals from service, the total miles replaced would increase to roughly 22 miles, raising the annual program spending from approximately \$93.9 million to \$99.8 million in FY 2027 (Figure 4). The District is implementing the Pipeline Rebuild Efficiency initiative to reduce replacement costs, lower main break rates, and maintain the capacity to achieve annual pipeline replacement goals. Some of these initiatives include enhancing staff training, improving installation best practices, increasing the direct haul of trench soils, and leveraging the Maintenance and Construction department reorganization. If key initiatives are achieved, the District could increase the annual miles replaced and reduce unit costs without significantly increasing the overall program spending.

Figure 4. Total and Unit Costs of Additional Crew

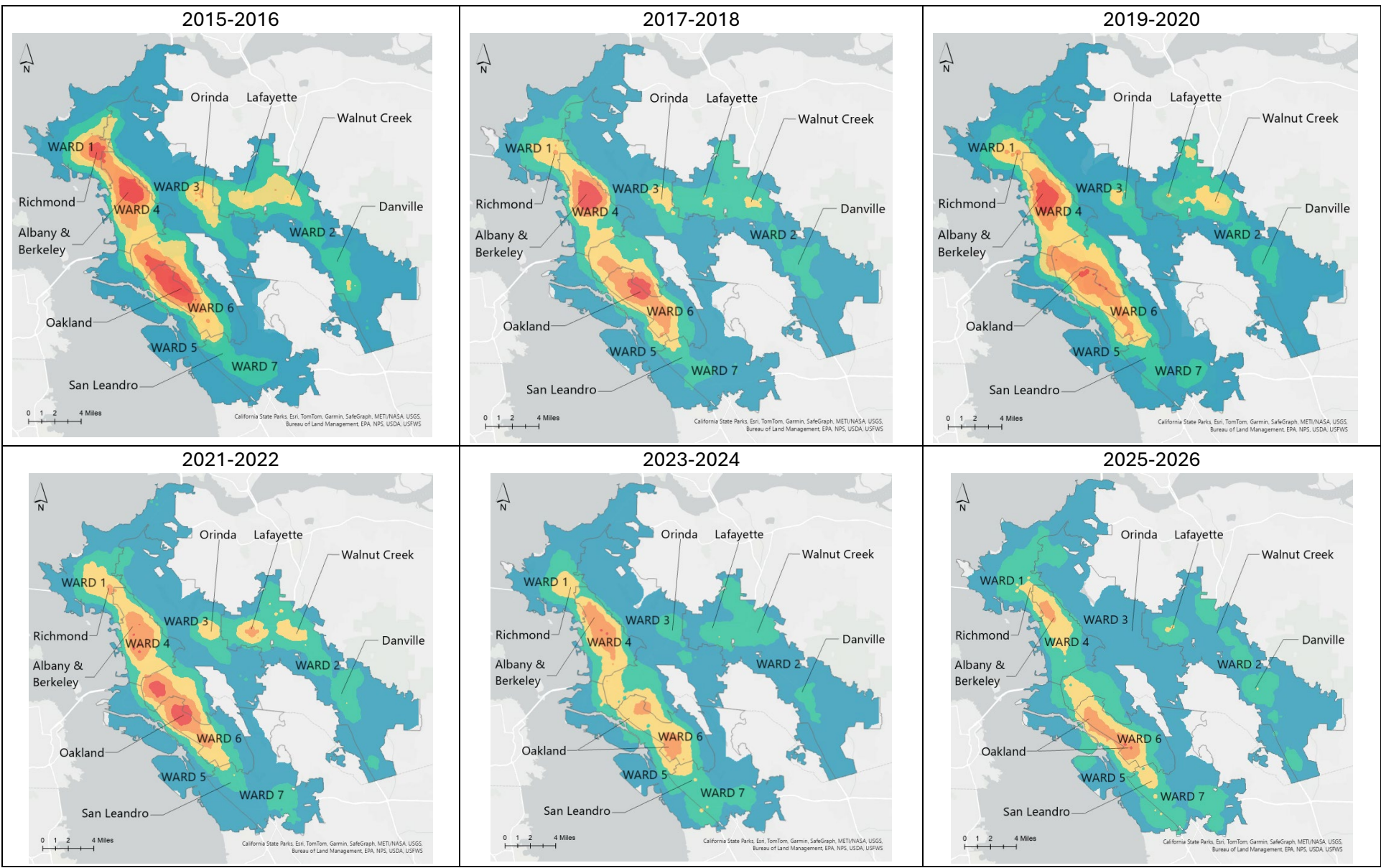


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Attachment: Main Break Density Heat Map 2015 – 2016

Main Break Density Heat Map 2015-2026

Breaks per 1-mile radius



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