



CITY OF MOUNTAIN VIEW

MEMORANDUM

Public Works Department

DATE: February 28, 2014

TO: Michael A. Fuller, Public Works Director

FROM: Gregg A. Hosfeldt, Assistant Public Works Director

SUBJECT: Large Sewer Main Rehabilitation Projects

The purpose of this memo is to provide background information on anticipated sewer rehabilitation projects.

BACKGROUND

The City's wastewater collection system is comprised of 157 miles of pipe ranging from 4" to 48", with 68 percent of the lines installed in the 1950s and 1960s. Wastewater collected from residential and business customers is routed to three large pipelines (trunk mains) in the North Bayshore Area, consolidated at the City's Sewage Pump Station, and pumped into an interceptor main which flows under gravity to the Regional Water Quality Control Plant in Palo Alto. Attachment 1 shows the alignment of the trunk mains, the interceptor main, and the location of the Sewage Pump Station.

The majority of the trunk main infrastructure was installed in the 1950s and 1960s, with limited segments replaced in the 1970s and 1980s. The 2010 Sewer System Master Plan included an analysis of the City's sewer infrastructure based on age, pipe materials, soil corrosivity, and accessibility for repairs. Based on this analysis, large segments of the east and west mains were identified as nearing the end of their service life (less than 25 percent remaining), with other portions having 25 percent to 50 percent of service life remaining. Because the trunk mains are a critical component of the sewer system and failures could cause significant damage, the City is conducting additional evaluations of pipe condition to determine the optimal timing and estimated costs of rehabilitation to ensure uninterrupted and reliable wastewater service. In addition to extending the service life of the mains by approximately 50 years, the rehabilitation projects reduce the infiltration of groundwater into the sewer system, preserving sewer capacity for wastewater flows. Reducing groundwater infiltration may also reduce the amount of salts and dissolved solids entering the wastewater stream, potentially reducing the salinity of the City's recycled water.

EAST TRUNK MAIN

The east trunk main extends from Highway 101 to the Sewage Pump Station, running through the NASA Ames property and the Shoreline Golf Links. The main was installed in the 1960s and includes 17,000' of pipe ranging in diameter from 27" to 42". Approximately 3,800' of this main between Stevens Creek and the Sewage Pump Station was relined in 2012, extending the service life by approximately 50 years. An additional 4,700' of pipeline east of Stevens Creek was identified in the Master Plan as having a remaining service life of 0 percent to 25 percent.

WEST TRUNK MAIN

The west trunk main extends from Highway 101 to the Sewage Pump Station, running under North Bayshore properties and the Shoreline Golf Links. The main was installed in the 1950s and includes 4,250' of pipe ranging in diameter from 30" to 33". Although the condition of this main is unknown, the pipeline was identified in the Master Plan as having a remaining service life of 0 percent to 25 percent, and staff anticipates some rehabilitation/replacement work will be necessary in the next 10 years. The west trunk main will be televised by a contractor in the next two months, after which staff will develop updated capital project recommendations.

CENTRAL TRUNK MAIN

The central trunk main extends from Highway 101 to the Sewage Pump Station, running under Shoreline Boulevard to an intersection with the east trunk line. The main was installed in the 1950s, 1970s, and 1980s, and includes 7,800' of pipe ranging in diameter from 18" to 27". Although approximately 300' of this pipe was relined in 2012 (as part of the east trunk main rehabilitation project), the condition of the majority of the pipeline is unknown but, because of its age, staff anticipates some rehabilitation/repair work near Highway 101 will be needed in the next five years. The central trunk main will be televised by a contractor in the next two months, after which staff will develop updated capital project recommendations.

INTERCEPTOR MAIN

The interceptor main extends from the Sewage Pump Station to the western City limit, and continues to the Regional Water Quality Control Plant in Palo Alto. The main was installed in the 1960s and includes 3,800' of pipe ranging in size from 36" to 42"; the main was identified in the Master Plan as having a remaining service life of 0 percent to 25 percent.

Because there are no manholes in this main, staff is unable to fully assess pipe condition. A current capital project is funding installation of four manholes; after construction is complete, the pipe will be inspected. Based on evidence of pipe damage near the Sewage Pump Station, staff anticipates planning rehabilitation/repair work will be likely in the next three years.

CAPITAL PROJECT PLAN

Based on current information, I am tentatively planning a rehabilitation/replacement design project for the interceptor main and central trunk main in Fiscal Year 2014-15 and rehabilitation of the interceptor main in Fiscal Year 2015-16. Additionally, because of concerns regarding the condition of the central trunk main near Highway 101, I anticipate a rehabilitation project will be needed in Fiscal Year 2017-18. I have also tentatively scheduled longer-term (beyond the five-year planning horizon) rehabilitation projects for the west and east trunk lines. Attachment 2 illustrates the preliminary schedule and cost for these projects.

I will continue to refine this plan as Public Services receives additional information regarding pipe conditions.

GAH/2/PSD

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- Attachments:
1. Sewer System Map
 2. Preliminary Capital Project Schedule

SEWER REHABILITATION PROJECTS - PRELIMINARY PLAN

Fiscal Year	Project	Cost
2014 / 15	Interceptor and Central Main Rehabilitation - Design <i>(replaces planned project 15-29)</i>	324,000
2015 / 16	Interceptor Main Rehabilitation - Construction	3,899,000
2016 / 17		-
2017 / 18	Central Trunk Line - Construction	3,588,000
2018 / 19		-
2019 / 20	West Trunk Line - Design / Construction	4,000,000
2020 / 21		-
2021 / 22	East Trunk Line RCP - Design / Construction	5,225,000
2022 / 23		-
2023 / 24		-
2024 / 25		-
2025 / 26	East Trunk Line VCP - Design / Construction	8,947,000
		25,983,000

Cost estimates are inflated 3% annually