

SEWER AUTHORITY MID-COASTSIDE
Staff Report

Subject / Title

Review and Possibly Take Action on Wet Weather Flow Management Program

Staff Recommendation:

Review and Possibly Take Action on Wet Weather Flow Management Program

Fiscal Impact:

\$1.3 Million per the 2004 Carollo report; this value will be updated and provided at the July 28 Board meeting.

Discussion/Report:

On July 14, 2008, the Wet Weather Flow Management Program (WWFMP) Committee met. At that meeting, the committee stated they had identified a better, more cost-effective and less expensive alternative Wet Weather Flow Management project to pursue. The identified project does not preclude any future work on SAM's IPS, such as bypass portals and is better for SAM employee safety than other alternatives. This identified project uses good basic engineering principles and construction and is not complicated electronically. This project could be expanded later. The specific alternative project was identified in a October 2004 Carollo WWFMP facilities update report as Alternative 1A-2. The report states:

“Alternative 1A-2 consists of installing two parallel 60-inch RCP pipes immediately to the east of the existing Montara Interceptor pipeline. The parallel pipeline arrangement would be 700 feet in length, for a total length of 1,400 feet. This configuration would yield approximately 205,000 gallons of storage.”

The Committee authorized the SAM Manager to have SRT Consultants, based on Alternative 1A-2:

- Develop a project description
- Develop a budget
- Develop a timeline

At the time of publishing this staff report, these items were still being developed. When they are available, they will be posted on SAM's website at:

<http://www.samcleanswater.org/agendas/2008/080728/0807286Bc.pdf>

Committee also directed staff to comment on SAM reserves available for this project. Attached is a report on funds collected for SAM's WWFMP. Further, hard copies of SRT Consultants' report will be distributed at the Board Meeting.

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**SAM FY 2004-05, 2005-06, 2006-07 & 2007-08 WWCIP Payments & Expenditures
As of June 30, 2008**

	GSD	MWSD	HMB	TOTAL
Total Assessed FY 2004-05	\$0	\$129,349	\$280,798	\$410,148
Total Assessed FY 2006-07	\$73,750			\$73,750
Total Assessed FY 2007-08	\$55,974			\$55,974
Total Assessment	<u>\$129,724</u>	<u>\$129,349</u>	<u>\$280,798</u>	<u>\$539,871</u>
Total Expenditures	<u>(\$91,709)</u>	<u>(\$61,772)</u>	<u>(\$134,098)</u>	<u>(\$287,579)</u>
Balance Remaining	<u><u>\$38,015</u></u>	<u><u>\$67,577</u></u>	<u><u>\$146,700</u></u>	<u><u>\$252,292</u></u>

Total Expenditures by FY

Expenditures for WWCIP 2004-05	\$0
Expenditures for WWCIP 2005-06	\$117,764
Expenditures for WWCIP 2006-07	\$71,978
Expenditures for WWCIP 2007-08	\$16,866
Total:	<u><u>\$206,608</u></u>

Expenses Breakdown

Tanks	\$64,105 Payments to Rain for Rent after 5/22/07 (before was coded to WWCIP expenditures)
CEQA Project	\$16,866 Payments to ESA

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DRAFT Wet Weather Flow Management Project Description

Introduction

The Sewer Authority Mid-Coastside (SAM) proposes implementation of the Wet Weather Flow Management Project in Half Moon Bay, California. SAM provides sewerage collection, treatment, and ocean discharge services to approximately 12 square miles on the western edge of San Mateo County. Approximately half of the service area is within the boundaries of the city of Half Moon Bay, with the remainder divided between Montara Water and Sanitary District (MWSD) and Granada Sanitary District (GSD) service areas. The proposed project would provide facilities to contain stormwater infiltration and inflow during storm events that overwhelm the existing system and help prevent untreated sewage discharges and resulting potential contamination of the Pacific Ocean, beaches and sensitive biological habitats.

Project Goals and Objectives

SAM proposes to implement the Wet Weather Flow Management Project for the following key reasons:

- The existing conveyance and treatment facilities lack the ability to convey excess stormwater received by the system during wet seasons; and
- Sewage overflows and potential raw sewage discharge into the Pacific Ocean adversely impacting the Monterey Bay National Marine Sanctuary, a sensitive biological habitat and a recreational beach area.

The project objectives include:

- Assist in preventing untreated sewage overflows impacting Midcoast Region sensitive biological resources in the Monterey Bay National Marine Sanctuary;
- Provide efficient management of sewage flows and prevent sewage overflows; and
- Establish increased capacity to contain stormwater infiltration and inflow during storm events.

Project Background

SAM is a Joint Power Authority formed in 1976 by three member agencies: the City of Half Moon Bay, MWSD, and GSD. Each agency acts independently under the direction of its respective governing board and/or city council and owns, operates, and maintains sewer collection systems in its respective service area. SAM's regional system includes an Intertie Pipeline System (IPS) consisting of four pumping stations (Portola, Montara, Vallemar and Princeton); gravity sewer and force main pipelines including an 8,860-foot, 14-inch-diameter wastewater conveyance line along Highway 1; a wastewater treatment plant (WWTP) in Half Moon Bay; and an ocean outfall.

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Sewage collected from the MWSD and GSD service area is conveyed by the 14-inch-diameter force main to the SAM WWTP for treatment. The effluent is then discharged to the Pacific Ocean via an ocean outfall west of Pilarcitos Creek. The treated wastewater is discharged under SAM's National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB). The outfall consists of a discharge pipe and a submerged diffuser extending approximately 37 feet deep and 1,900 feet from the shoreline. The discharge occurs within the Monterey Bay National Marine Sanctuary.

History of Sanitary Sewer Overflows

The U.S. Environmental Protection Agency (USEPA) issued an NPDES Compliance Evaluation Report to SAM in August 2006. The report described the existing SAM system and the sanitary sewer overflows (SSOs) that have occurred through 2005, and made recommendations to eliminate SSOs. According to the report, a total of 23 spills were reported in 2005 out of which ten were reported in the MWSD service area, eight in the GSD service area, and five in Half Moon Bay. There were no spills reported in 2005 from the SAM IPS or pump stations.

According to the USEPA report, SAM reported 174 SSOs from its collection system between the years 2000 and 2004 out of which 14 SSOs flowed directly into the Pacific Ocean (i.e., the Monterey Bay National Marine Sanctuary). It is possible that other SSOs may have entered storm drains and surface waters, eventually flowing into the sanctuary. Five of the spills of 10,000 gallons or more were associated with pump stations, and two of the five occurred as a result of lack of capacity at the Portola and Montara pump stations. The spills that exceeded 9,000 gallons were due to grease blockages in Half Moon Bay in 2002 and 2003. All of these spills entered the ocean and/or creeks. Nine spills that were reported from the SAM IPS were caused by equipment failure (pump station or force main) or insufficient capacity. According to a report on the *Intertie Pipeline System Capacity Evaluation, Phase II* by SAM, the Portola Pump Station is a bottleneck because the IPS downstream has a rated capacity of only 4 million gallons per day and cannot accommodate wet weather flows. Spills from the pump stations were mostly related to insufficient pump or force main capacity.

The USEPA report stated that the SAM sewer system does not have sufficient capacity to convey peak flows during the winter rains. The capacity shortages are manifested most noticeably in the large-volume overflows at the Montara Pump Station and from manholes upstream of the Portola Pump Station. The excess wet weather flow can cause spills within the member agencies systems. The largest spills, however, have occurred when the excess wet weather flow reached bottlenecks in the SAM IPS at the Montara and Portola Pump Stations. Capacity assessment studies conducted by SAM indicate that the capacity problems stem primarily from excess infiltration and inflow (I/I) in the member agencies' sewer systems. Capacity limitations caused by I/I can be managed either by reducing the I/I, conveying the excess flow through larger sewers and storage basins, or a combination of these basic approaches.

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Improvements Completed To Date

SAM has developed and implemented various plans and policies focusing on the SSO prevention to improve its Operation and Maintenance Program, Overflow Emergency Response Plan, Fats, Oils, and Grease (FOG) Control Program, and Capital Improvement Plan. Moreover, SAM has implemented several capital improvement projects to address the SSOs, including:

1. WWTP upgrade in 1999, and
2. Construction of the 430,000-gallon Montara stormwater storage tank in 2003.

However, despite all measures implemented, the stormwater runoff and SSO problems persist and cost SAM approximately \$0.1 million dollars every year to implement precautionary activities to avoid sewage spills in the communities. SAM has continued to reduce the number of annual SSOs through its SSO Elimination Program and has achieved this reduction primarily through its aggressive cleaning program and the aforementioned capital improvements. SAM also performs SSO response, record keeping, and reporting for all of the member agencies.

Alternatives Considered to Address SSOs

SAM conducted a series of studies to evaluate wet weather flows in the IPS and developed recommendations for relieving capacity restrictions in the IPS. The studies made general recommendations to install off-line flow storage on the IPS, expand the capacity of the IPS downstream of the Portola Pump Station, and conduct a comprehensive I/I evaluation and corrective measures in each of the member agency collection systems.

As stated earlier, the Portola Pump Station is a bottleneck due to inadequate capacity of the IPS downstream. The alternatives evaluated to correct this situation are either to construct a storage facility at or near the pump station, or to enlarge the IPS downstream of the Portola station. SAM conducted a study to evaluate several alternatives, consisting of storage facilities of varying capacities, additional pipelines, and pump station improvements.

Proposed Project

SAM conducted a series of studies to evaluate wet weather flows and developed alternatives for relieving stormwater capacity restrictions. The proposed project is one of the alternatives, and involves increasing the existing capacity of SAM's collection system by installing two parallel 60-inch reinforced concrete pipe (RCP) storage pipes to temporarily store excess sewage during a storm event. As the peak flows subside, the pipes will drain by gravity to the Portola Pump Station wet well. The storage pipe arrangement would be 700 feet in length immediately east of the Montara interceptor pipeline, and would yield approximately 205,000 gallons of storage. A plan view of this alternative is shown in Figure 1.

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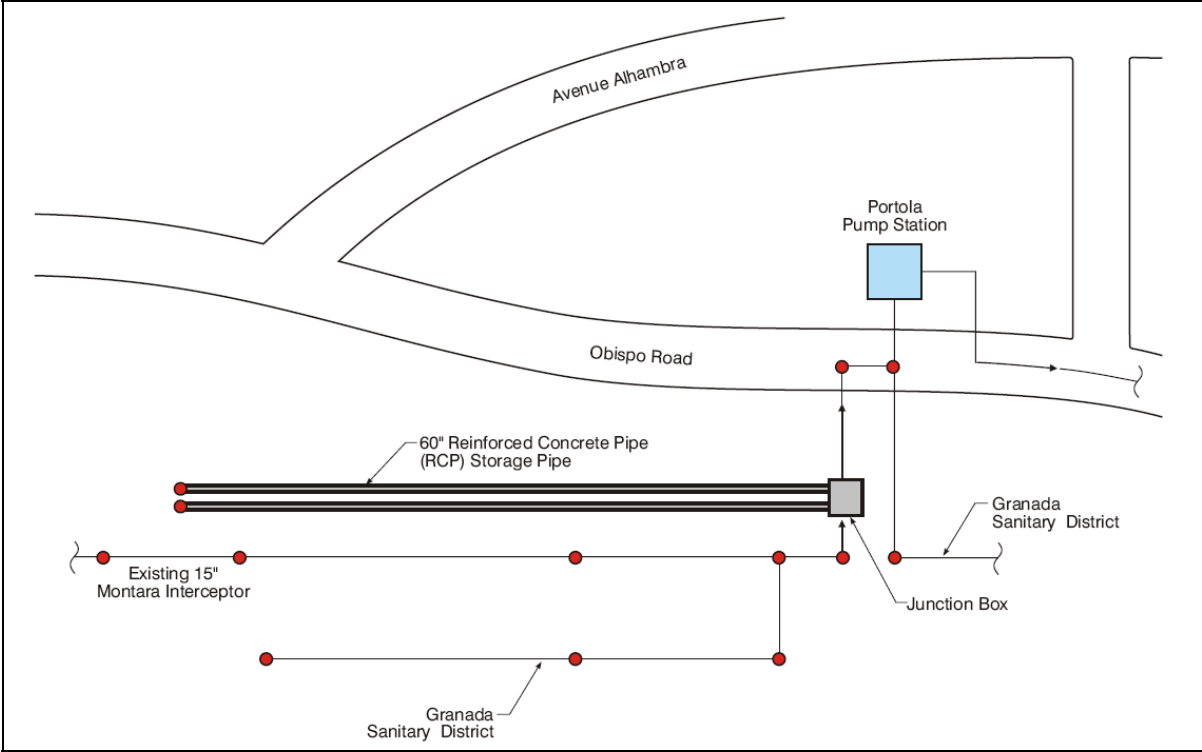


Figure 1 Plan View of Proposed Project

The parallel pipes would be sloped at 0.5 percent to allow self-draining to the existing 15-inch interceptor. SAM’s interceptor drawings indicate that this is the maximum slope that can be achieved. At this slope, sediments (sand and grit) may accumulate over a wet weather season, and, therefore, the pipes would require annual flushing at the end of each wet weather season. The parallel storage pipes will intersect the existing 15-inch Montara Interceptor 20 to 25 feet east of Manhole No. 7 (also marked as 4A). The pipes would be installed at a distance from the existing pipelines to allow for sloped trenching, which reduces the need for shoring. The storage pipes and the existing interceptor pipeline would be connected with a new concrete junction box. Manholes would extend from the top of the junction box to the ground surface. Figure 2, below, shows a section of the proposed parallel pipe storage system.

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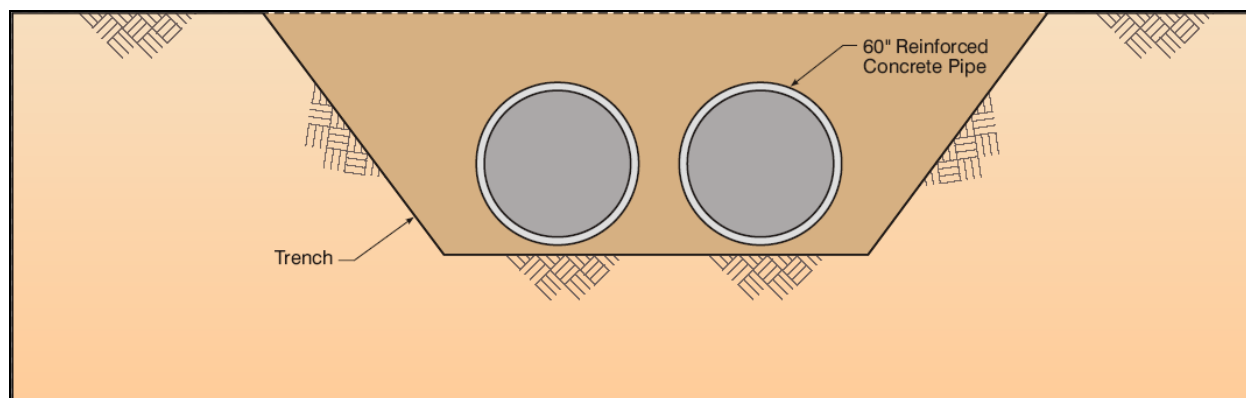


Figure 2 Section of Pipe Storage System

Project Construction

The 60-inch pipes would be constructed in the field the west of the existing Portola Pump Station. The field is a grassy area known as Burnham Strip between Highway 1 and El Granada, from Coronado Avenue to Capistrano Avenue, shown in Figure 3. The strip is partly privately owned and partly owned by the San Mateo County Harbor District. The latter has put the property for sale in 2007.

Construction activities expect to include site preparation, excavation, installation of the storage pipes, and backfilling of the site. Excavation would occur up to a depth of 9 feet. Following construction, the ground surface would be restored to its existing condition. There is potential for a public recreational facility on the ground surface above the storage facility.

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Figure 3 Project Construction Site

Operation and Maintenance

Access to the north end of the storage pipelines for maintenance and cleaning would be provided by two manholes, one for each pipe. The manholes would be covered with grating to allow airflow through the storage system during the filling and draining cycles.

Project Cost

A current planning level opinion of probable project cost has been prepared to include the following project cost elements and assumptions:

1. Land Acquisition estimated at \$1.0 Million;
2. Permitting, including California Environmental Quality Act and California Coastal Act compliance, design, legal, and administrative cost allowance at 20 percent of estimated construction cost;
3. Opinion of probable construction cost, including materials and labor, with an estimating contingency of 20 percent.

The probable project cost of approximately \$2.54 million is outlined below in Table 1.

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Table 1 Storage Pipe Alternative - Opinion of Probable Project Cost

Item	Estimated Cost
Storage Pipe, 60-inch RCP, 700 feet	\$169,000
Excavation	\$415,000
Soil Hauling	\$127,000
Trenching, Backfill, Compaction	\$125,000
Junction Boxes	\$80,000
Subtotal, Labor and Materials	\$916,000
Estimating Contingency @ 20%	\$183,200
Subtotal	\$1,099,200
Engineering, Legal and Administration @ 40% of subtotal	\$439,680
Subtotal	\$1,538,880
Land Acquisition	\$1,000,000
Total Probable Project Cost	\$2,538,880

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Draft Wet Weather Flow Management Project Timeline and Cash Flow – STORAGE PIPES ALTERNATIVE

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WWFMP Event/Activity	Start	Finish	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Project Total, \$1,000
Board Adoption of Project Description	Jul-08	Jul-08	X																				
CEQA Work	Aug-08	Mar-09		■	■	■	■	■	■	■													
Complete Initial Study Elect	Aug-08	Sep-08		■																			
Prepare DRAFT Neg Dec	Sep-08	Jan-09			■	■	■	■															
Public Review	Jan-09	Feb-09							■														
Incorporate Comments	Feb-09	Mar-09								■													
Adopt Neg Dec	Feb-09	Mar-09								■													
Acquire Land	Jul-08	Mar-08	■	■	■	■	■	■	■	■	■												
Submit CDP Application to SM County	Mar-09	Sep-09									■	■	■	■	■	■							
Procure Design Engineer; Design	Nov-08	May-09					■	■	■	■	■	■											
Apply for CBI Funding	Oct-08	Dec-08				■	■																
Advertise for Bids	May-09	Jul-09											■	■									
Procure Contractor; Construction	Jul-09	Feb-10													■	■	■	■	■	■	■	■	■
Monthly Cash Flow Projection. \$1,000	Jul-08	Feb-10	\$15	\$10	\$12	\$30	\$40	\$40	\$36	\$36	\$1,000	\$5	\$8	\$8	\$100	\$50	\$200	\$300	\$300	\$200	\$100	\$50	\$2,540
											land			\$1,240									\$1,100 construction