SSMP
ELEMENT 8 – SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN
APPENDIX 8.1

HISTORIC CAPACITY ASSURANCE EFFORTS

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8.1 CAPACITY ASSURANCE EFFORTS (2009 AND PRIOR)

The City initiated its infiltration and inflow (I&I) reduction Program in the early 1980's with a Citywide flow monitoring program and I&I report prepared by ADS Consulting (1982). A focused evaluation of the area of the system found to have the most significant rainfall dependent I&I was completed in 1985 (WWI Consulting Engineers, "San Mateo Village Infiltration/Inflow Isolation Study." From 1986 through 1992, the recommended collection system rehabilitation improvements were implemented via a mainline and manhole grouting program and upgrade of pumps at the Santa Clara Sewage Pump Station. A major storm sewer/sanitary sewer cross connect near 17th Avenue and the railroad was identified and corrected in 2002.

In 1998, consultants Montgomery Watson Harza (MWH) were contracted to begin a thorough evaluation of the hydraulic performance of San Mateo's sanitary sewer collection system and develop cost-effective solutions to wet weather problems. Evaluation of the Los Prados-South Shoreview area, a hydraulically independent sewer network, was completed in 2001. Hydraulic evaluation of the balance of the City's sewer collection system was completed in June, 2005. The Mariners Island area, another hydraulically independent sewer network, was excluded from the study given its relatively newer infrastructure and lack of inflow and infiltration issues.

The 2005 City-Wide Sewer Study confirmed that San Mateo's sanitary sewer collection system experiences heavy infiltration during storm events. The report identified 35 sewer improvement projects targeting current and future capacity issues related to I&I. Results were based on flow monitoring analysis, population and land use information.

Construction was completed for two recommended improvement projects, Patricia Avenue Relief (pipe upsizing) and West Fifth Avenue Relief (pipe upsizing), between 2005 and 2009. During this period several other wet weather capacity assurance projects entered the design phase, including Dale Avenue Pump Station Easement Parallel Sewer, Lower Dale/Delaware Trunk Relief, South Delaware Parallel Phase I and II, Norfolk Relief Phase I and II, Mariner's Island Pump Station #5 and #6 Improvements, and Flint Pump Station Improvements. Consultant RMC Water and Environment was also contracted to perform additional flow monitoring and update the sewer collection system hydraulic model.

In November 2007, the City contracted with consultant Brown & Caldwell to perform a wet weather capacity analysis for the entire wastewater collection and treatment system as a whole in order to develop a more complete plan to address wet weather capacity within the entire drainage basin prior to moving forward with isolated improvements. The study expanded upon the results of the 2005 City-Wide Sewer Study and incorporated the volume constraints of the treatment processes and outfall capacity. Several alternative approaches to wet weather capacity assurance were examined and the recommended alternative was a multi-faceted approach including focused rehabilitation for I&I reduction, relief lines to provide required conveyance capacity, an equalization storage basin, and improvements to wastewater treatment plant facilities. The study (Draft Wet Weather Capacity Analysis and Alternatives Evaluation, July 2009, Brown

and Caldwell) was completed in 2009 and formed the basis for the sewer system Capital Improvement Program (CIP) at that time.

8.2 CAPACITY ASSURANCE EFFORTS FROM 2009 TO 2014

Since 2009, several collection system projects have been completed or are nearing completion in response to the CDO as shown in the table below. In addition, the Bay Meadows development completed a new pump station and force main in 2014 to convey flows from the development area directly to the wastewater treatment plant through the City's recently constructed Los Prados force main.

Project	Status
Los Prados Force Main	Complete
Flint Pump Station Upgrade	Complete
Kingridge Sewer Rehabilitation - Phase I and II	Complete
Kingridge Sewer Rehabilitation - Phase III	Completion in 2014
24th Avenue Sewer Relief	Complete
25th Avenue Sewer Relief	Complete
Mariner's Island #5 and #6 Pump Station Upgrades	Complete

In 2012 the City contracted with consultant Arcadis to perform flow monitoring City-wide and update the City's sewer collection system hydraulic model to incorporate recently completed system modifications. This modeling effort will continue to support refinement of design solutions for collection system projects.

In 2011 the City contracted with consultant Carollo Engineers to prepare an updated 20-year master plan for the WWTP. Tasks included flow projections, regulatory review, on-site storm water management, stress test, capacity analysis, energy analysis, treatment alternatives analysis, and condition assessment. The resulting WWTP master plan identified a detailed list of projects needed at the WWTP to provide capacity for year 2035 projected flows and loads, resolve existing plant conditions and treatment concerns, and meet current and anticipated regulatory requirements.

Recognizing the need for coordination between the treatment and collection system capital improvement plans, the scope of work was expanded to develop a fully integrated 20-year master plan which would meet the requirements of the most current National Pollution Discharge Elimination System (NPDES) permit issued for the WWTP in 2013. The 20-Year Integrated Wastewater Master Plan is nearing completion in 2014 and will include a prioritized capital improvement plan for the entire system.