SEASIDE COUNTY SANITATION DISTRICT

Sewer Master Plan and Rate Study

MAY 10, 2011

PREPARED BY

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SEASIDE COUNTY SANITATION DISTRICT

SEWER MASTER PLAN AND RATE STUDY

MAY 2011

<u>District Board</u>

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES
(Under Separate Cover)

Seaside County Sanitation District

Sewer Master Plan - List of Acronyms

May 2011

ADF	Average Daily Flow
AMBAG	Association of Monterey Bay Area Government
BLVD	Boulevard
CC	Community Commercial
CDI	Coastal Dependent Industrial
CEQA	California Environmental Quality Act
CFS	Cubic Feet per Second
CIMIS	California Irrigation Management Information System
CIP	Capital Improvement Project
DESC	Description
DIA	Diameter
EIR	Environmental Impact Report
EIT	Engineer-In-Training
ELEV	Elevation
ETC	et cetera
FOG	Fats, Oils, and Grease Program
FORA	Fort Ord Reuse Authority
FPS	Feet per Second
FRM	Fluid Resource Management
FT	Foot
GAL	Gallon
GIS	Geographic Information System
GISP	Geographic Information System Professional
GPD	Gallons per Day
GPM	Gallons per Minute
GPS	Global Positioning System
HC	Heavy Commercial
HM	Habitat Management
HP	Habitat Reserve
HP	Horsepower
I/I	Infiltration and Inflow
ID	Identification
IN	Inches
IR	Industrial Research
ISMND	Initial Study and Mitigated Negative Declaration
LF	Linear Foot
LS	Lift Station
MDDWF	Maximum Day Dry Weather Flow
MDF	Maximum Day Flow
MGD	Million Gallons per Day
MH	Manhole

MRWPCA	Monterey Regional Water Pollution Control Agency
MST	Monterey Salinas Transit
MPUSD	Monterey Peninsula Unified School District
MX	Mixed Use
NA	Not Applicable
NAD	North American Datum
NAVD	North American Vertical Datum
ND	Negative Declarations
No.	Number
O&M	Operations and Maintenance
OP	Office Professional
PE	Professional Engineer
PC	Planned Community
PHDWF	Peak Hour Dry Weather Flow
PHWWF	Peak Hour Wet Weather Flow
PI	Public/Institutional
POS	Parks and Open Space
PVC	Polyvinyl Chloride
RC	Recreational Commercial
RGC	Regional Commercial
RH	High Density Residential
RLS	Low Density Single-Family Residential
RM	Medium Density Residential
RMS	Medium Density Single-Family Residential
RMS	Root Mean Square
RTK	Real Time Kinematic
SCSD	Seaside County Sanitation District
sec.	Second
SF	Square Foot
SMP	Sewer Master Plan
SSMH	Sanitary Sewer Manhole
SSMP	Sanitary Sewer Management Plan
ST	Street
TGO	Trimble's Geomatic Office
TOC	Table of Contents
VCP	Vitrified Clay Pipe
VFD	Variable Frequency Drive
VS	Visitor Serving Residential
vs.	Versus
VSC	Visitor Serving Commercial
w/	With
WWF	Wet Weather Flow
WWTP	Waste Water Treatment Plant

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CHAPTER 1

INTRODUCTION

This report presents the Sewer Master Plan for Seaside County Sanitation District (SCSD). SCSD is located in Monterey County to the north of the Monterey Peninsula adjacent to Monterey Bay. SCSD is a special district formed on March 1, 1950 and is currently responsible for the maintenance and operation of the sewer collection system serving the Cities of Del Rey Oaks, Sand City, and Seaside (excluding the Former Fort Ord Military Installation). SCSD is governed by a Board of Directors made up of the Mayors of the three cities. Each city is vastly different in composition and size.

Preparation of the Sewer Master Plan will assist SCSD in prioritizing both existing and future collection system needs through repair, rehabilitation, replacement, or new facilities. The master planning process will also tie the needs assessment, both existing and future, to the budgeting process.

ENVIRONMENTAL REVIEW

In accordance with Title 14, California Code of Regulations, Chapter 3, Article 18 (Statutory Exemptions), this Sewer Master Plan is considered a planning study and therefore adoption of this document is exempt from the requirements to prepare Environmental Impact Reports (EIR) or Negative Declarations (ND). However, on a project-specific basis, CEQA must be satisfied for any major capital improvement project described in this report that will be implemented by SCSD in the future, through the preparation of an appropriate Categorical Exemption, ND, or EIR.

AUTHORIZATION AND SCOPE OF WORK

On January 20, 2009, SCSD authorized Wallace Group to prepare a comprehensive Sewer Master Plan and Rate Study. The scope of work is as follows:

Sewer Flow Monitoring: Conduct sewer flow monitoring for a one-month period in 8 different locations within Region “A”. Depending on weather conditions, this monitoring will provide information on existing dry weather and wet weather conditions. Flows will be analyzed to determine the diurnal peaks, estimate inflow and infiltration, and prepare a memo summarizing the findings for SCSD.

Lift Station Evaluation: Conduct evaluations of the four lift stations. The evaluation will assess the condition of the pumps, controls, wet well (excluding structural integrity), and coatings. Pump test will be conducted at each location to confirm flow and head. The assessment will reviewed and recommendations for upgrades to the lift stations will be provided. A memorandum discussing the findings of the evaluation will be provided to SCSD.

Survey: Record information to be used in the GIS Database will be reviewed. Manholes critical for the development of the sewer model will be surveyed in the field.

The field work will include elevations of the rim, dipping to the invert, and taking pictures of each of the manholes identified.

GIS Map and Database: An ESRI ArcGIS® 9.3 geodatabase for Region "A" will be developed. The first step in the development of the geodatabase will be to utilize ESRI's sewer system database design or create a simplified database design to store attribute information required to store/model the sewer system inside a GIS geodatabase.

The sewer geodatabase will be developed to allow for integration with the sewer modeling software. This will allow SCSD to efficiently transfer sewer collection system changes between the GIS and the sewer modeling software.

Updated maps for the Study Area that delineate sewer pipes, sewer structures, tributary areas, etc. for existing and future systems will be generated. These maps will be compiled from the newly developed sewer geodatabase, sewer modeling results, and locations of future development. These maps will be properly scaled and formatted for SCSD's use.

Atlas maps of the collection system will be prepared. These maps are 11"X17" in size at a legible scale (typically 1"=200') that can be placed in operators' vehicles. These atlas maps are useful for documenting daily activities, identifying problem locations, and noting changes to the database.

Land Use Evaluation and Wastewater Flow: Population and density information from the various City General Plans, previous wastewater flow estimates, and data from the sewer flow monitoring to will be used to determine the existing and future dry weather and wet weather flow characteristics for Regions A, B, C, and D.

Sanitary Sewer Management Plan and Ordinance Review: The effort SCSD has already completed for compliance with the Sanitary Sewer Management Plan (SSMP) will be evaluated. The requirements from Monterey Regional Water Pollution Control Agency (MRWPCA) to confirm future programs and the financial impact of these requirements and SCSD's ordinances and legal authority to complete the task needed will be reviewed.

Collection System Modeling: The HYDRA® sewer model developed from the 2004 Sanitary Sewer Master Plan Update will be converted to MWH Soft® InfoSWMM sewer modeling program to re-evaluate the condition of the existing collection system. The collection system will be modeled under dry and wet weather conditions for the existing and future loadings. Only the 8-inch sewer mains and larger, with some exceptions will be modeled. The exceptions would be 6-inch trunk mains that collect or carry a reasonable amount of wastewater.

Sanitary Sewer Master Plan: The information determined in the previous tasks will be used to prepare a Sewer Master Plan. The master plan will provide a summary of the existing facilities, wastewater flows, identified system capacity deficiencies for existing and future conditions, recommended capital improvement projects (CIP), recommended operation and maintenance practices, and recommended inspection programs. The CIPs will be grouped into two categories;

- Near Term - those projects that require immediate attention due to existing deficiencies;
- Long Term - those projects that are required due to future development (duration depending on future development).

A cost estimate will be determined for each of the CIPs and Operations and Maintenance (O&M) Activities, which will include construction and soft costs.

Rate Study: Based on the CIPs and O&M Activities identified in the Sewer Master Plan, a rate study will be prepared to identify the number and type of connections, current financial status of the District, and funding alternatives based on the needs of the District.

ACKNOWLEDGEMENTS

Wallace Group thanks and gratefully acknowledges the following SCSD, City of Monterey, and Monterey Regional Water Pollution Control Agency staff for their efforts, involvement, input and assistance in preparing this Sewer Master Plan and Rate Study:

Seaside County Sanitation District Board of Directors
Kristin Clark, City of Del Rey Oaks
David Pendergrass, City of Sand City
Felix Bachofner, City of Seaside

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This Sewer Master Plan and Rate Study was completed with the help of many team members. They include:

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CHAPTER 2

LAND USE AND POPULATION

This Chapter presents the land use and existing and future population forecasts for Seaside County Sanitation District (SCSD). The purpose of establishing the existing populations and land uses is to better understand the existing wastewater flow characteristics throughout SCSD, which would then help forecast the wastewater flows that will be contributed in the future by vacant or under-utilized land. All figures and tables for Chapter 2 are located at the end of this chapter.

LAND USE

For this report, the SCSD service area and surrounding areas are divided into seven Regions: "A", "B", "C", "D1", "D2", "E", and "F". Figure 2-1 depicts the various study regions for SCSD. Region "A" is comprised of the existing developed portion of SCSD, and encompasses the existing SCSD wastewater service area. The service area is bounded on the north by Military Avenue, General Jim Moore Boulevard to the east, Monterey Bay to the west and City of Monterey to the south. Regions "B" and "C" are comprised of vacant land that is known as the Former Fort Ord area. This area will be developed in the future and may ultimately be served by SCSD. Region "D" is split into two different regions: Regions "D1" and "D2". Both regions are within the City of Monterey. Region "D1" is served by the City of Monterey. An alternative for SCSD to serve this area has been proposed. An evaluation of the improvements required for SCSD to serve this region is provided in Chapter 8. Region "D2" is part of the Former Fort Ord area. Although this area is within the City of Monterey, there is a possibility this area could be served by SCSD. Regions "E" and "F" are currently served by Marina Coast Water District and will not be evaluated in this Sewer Master Plan.

Region "A"

Region "A" is comprised of primarily residential development with the commercial core along the coast line, which has a wide variety of uses including heavy commercial, institutional, low density residential and high density residential. The SCSD service area is comprised of a total of 2,400 acres, with grades typically dropping from east to west towards the Monterey Bay. Table 2-1 provides a summary of the land uses within Region "A", the total number of parcels, the total parcel acreage for each zoning, and the square footage of commercial building. Figure 2-2 depicts the land uses within Region "A".

To determine wastewater flows in Chapter 4, the zoning has been combined to identify key parcel types that have higher impact on wastewater flows. These key parcel types are presented in Table 2-2.

Region "A" does not contain a significant portion of vacant land that can be developed in the future; however, there are areas throughout Region "A' that will experience re-development. This re-development will densify existing partially developed property, add

mixed use, and/or change uses on the properties. Several new developments have also been identified that may be developed within Region "A" that could impact the collection system. The timing for construction of these projects is unknown. The developments may include:

- Del Monte Hotel on Del Monte Blvd. This is a new hotel with 95 proposed rooms[1].
- King Venture "Collections on Monterey Bay" Project, located in Sand City on Sand Dunes Drive. This project is proposed to include 342 new residential units[2].
- Security National Guarantee, "Monterey Bay Shores" Project, located in Sand City off of California Avenue and Sand Dunes Drive. This new project is proposed to include 161 hotel rooms, 88 commercial condos, and 92 ownership condos[2].
- Orosco's "South of Tioga" Project is proposed to include new residential condo/apartment units, commercial development and a new hotel. The size of the development is unknown.
- The West Broadway Specific Plan, which proposes redevelopment of the existing commercial development on Broadway[3]. This project is proposed to include an additional 523 residential units, 406,800 sq. ft. of commercial, which includes a public library and hotel with up to 250 rooms and a convention center.

Figure 2-3 illustrates the locations of these anticipated projects. The development potential provided is only preliminary and will most likely change prior to the projects being approved. The development potential above is only used as guidance for estimating future loading for the collection system evaluation and has no bearing on the projects' ability to be approved by its local governing agency. It is recommended that a detailed engineering study be completed on the collection system for each project prior to it being approved.

Regions "B" and "C"

Regions "B" and "C" are part of the Former Fort Ord Area and have been re-zoned by the Fort Ord Reuse Authority (FORA). Regions "B" and "C" are completely undeveloped at this time. SCSD may provide sewer service to both Regions. FORA completed a Base Reuse Plan, adopted June 13, 1997, which has subsequently been incorporated into the City of Del Rey Oaks and City of Seaside's General Plans. The anticipated land uses for each region are as follows:

<u>Region B</u>
Region "B", located within the City of Del Rey Oaks, is approximately 420 acres of developable land. There is also additional land that is designated for open space. Under the FORA Reuse Plan, the developable area is designated for business park/light industrial and visitor servicing facilities, including either a hotel or golf course. The City of Del Rey Oaks Draft Initial Study and Mitigated Negative Declaration (ISMND), dated

[1] Information provided by City of Seaside.
[2] Information provided by City of Sand City.
[3] Schaaf & Wheeler. September 19, 2008. *Draft Technical Memorandum – Subject: Implementation of Water Resources Infrastructure for the West Broadway Urban Village Specific Plan.*

November 17, 2006 has proposed a mixed use overlay of the Former Fort Ord Area (see Figure 2-4). Figure 2-4 has the following land uses for Region "B":

- 55 acres of Office Professional
- 25 acres of Community Commercial
- 320 acres of Visitor Serving Commercial
- 20 acres of Open Space

Region "C"

Region "C", located in the City of Seaside is comprised of primarily low density residential with open space and some recreational uses. There are approximately 325 acres of low density residential, which equates to approximately 2,600 residential units. Figure 2-5 illustrates the land uses for Region "C".

Region "D1"

Region "D1" is located within the City of Monterey. An evaluation of Region "D1" is provided in Chapter 8.

Region "D2"

Region "D2" is located within the City of Monterey. It is comprised of land designated for Industrial Research (67 acres), Planned Community (34 acres), and Parks and Open Space (34 acres). It is estimated that there will be approximately 272 residential units in the Planned Community area. Figure 2-6 illustrates the land uses for Region "D2"[4].

POPULATION

Two sources of data were used to determine the existing and future population served by SCSD. The first population source was the General Plan and Housing Element for each of the three cities. Each city's General Plans were completed at different times and therefore the existing date that determines the existing population varied between all three cities. The second source was the Association of Monterey Bay Area Government (AMBAG) 2008 Regional Forecast. This AMBAG 2008 Regional Forecast was for the Counties of Monterey, San Benito, and Santa Cruz. The report broke down the number of housing units, population and employment for each of the cities within these counties. AMBAG provides 30 years of population forecasts every five years, starting at 2005.

To compare against the General Plans from each of the three cities, Year 2010 from the AMBAG report was used as the base year defining existing population. Year 2030 was used to determine the planning horizon for this document, which may or may not coincide with full build-out. The following describes each of the three cities and their specific attributes.

[4] Information provided by City of Monterey.

City of Del Rey Oaks

General Plan

The City of Del Rey Oaks is located along the south side of SCSD. Del Rey Oaks updated their General Plan in January 1997; however, the Housing Element was not included in this update and thus refers back to the Housing Element dated April 1993. The City of Del Rey Oaks did prepare an updated Housing Element in 2006, but it has not been adopted by the City Council. Even though the Housing Element has not been adopted, it provides the most recent population data and will be used to compare to AMBAG's projections. Based on the number of existing units within the City of Del Rey Oaks and a household density of 2.34 persons per household, the City of Del Rey Oaks estimated existing population is approximately 1,700 persons. Based on the 2006 Final Draft Housing Element, the 20-year forecasted population is only 60 persons greater than year 2000. Therefore, the future build-out population for City of Del Rey Oaks, based on the General Plan is approximately 1,760 persons.

AMBAG

For the City of Del Rey Oaks, AMBAG notes an estimated Year 2010 population of 1,627 persons and a future Year 2030 build-out population of 3,197 persons.

City of Del Rey Oaks Population Summary

Based on the above analysis, Table 2-3 provides a summary of the population projections for the City of Del Rey Oaks.

City of Sand City

General Plan

The City of Sand City is located along the bay on the west side of SCSD with approximately 1.5 miles of ocean frontage. The City of Sand City's General Plan was adopted in 2002. This city is mainly comprised of commercial and industrial development with a small residential population.

Based on the 2000 census, the population of Sand City was approximately 260 persons. Table 2-3 of the February 2002 General Plan notes that the City of Sand City projects the build-out population to be 1,295 persons. This is based on household densities ranging between 2.0 and 2.5 persons per household.

AMBAG

AMBAG notes that the estimated Year 2010 population for City of Sand City is 447 persons and the future Year 2030 population will be approximately 1,498 persons.

City of Sand City Population Summary

Based on the above analysis, Table 2-4 provides a summary of the population projections for the City of Sand City.

City of Seaside

The City of Seaside comprises the majority of SCSD. The SCSD boundary, however, does not include all of the City of Seaside. The lands to the north, Regions "E" and "F" are within the City of Seaside boundary, but wastewater collection services are currently

served by the Marina Coast Water District. This study does not evaluate the potential for SCSD to serve these two regions.

SCSD's boundary within the City of Seaside is bordered on the north by Military Avenue, on the east by General Jim Moore Boulevard, on the west by City of Sand City, and on the south by Cities of Del Rey Oaks and Monterey. The lands east of General Jim Moore Blvd. (Regions "B" and "C") are anticipated to be developed in the future and may ultimately be served by SCSD.

General Plan

The City of Seaside adopted their General Plan on August 5, 2004. The General Plan does not provide an estimate of the existing population, but does provide the population projections at full build-out. Based on the General Plan, the build-out population is estimated with a household density of 3.29 persons per household. Since the General Plan includes areas outside of the SCSD boundary, the population within SCSD had to be extrapolated based on land use densities. The information was extrapolated by calculating the total area of residential zoning on the City of Seaside's GIS Parcel Mapping versus the total area of residential zoning within SCSD's boundary and then multiplying by the density for each zone. Table 2-5 provides a summary of the estimated build-out population in the City of Seaside, excluding Regions "E" and "F" per the General Plan. However, the population projection does include the re-development of West Broadway per its Specific Plan. The projected build-out population for the portion of the City of Seaside to be served by SCSD, excluding Regions "E" and "F" is estimated at 24,784 persons. The General Plan does not estimate when the build-out population will occur.

AMBAG

AMBAG notes that the estimated Year 2010 population in the City of Seaside is 34,666 and the future Year 2030 population is projected to be 35,017. This is not much population growth within the City of Seaside in the next 20 years. Since AMBAG does not break out the SCSD boundary from their population estimates, it is assumed that the ratio of SCSD acreage to total acreage is indicative of population and therefore, the population of SCSD from AMBAG's population projections are 55 percent of the total population or approximately 19,060 persons for existing and 19,260 persons in the future. AMBAG projection does not include the re-development of West Broadway. Therefore, the total future population is estimated at 19,260 persons plus 1,720 persons or 20,980 persons.

Region "C"

In addition to the population noted above, SCSD may serve Region "C", which is within the City of Seaside city limits. Based on a density of 3.29 persons per household and a total of 2,600 units, the estimated population for Region "C" is 8,554 people.

City of Seaside Population Summary

Based on the above analysis, Table 2-6 provides a summary of the population projections for the City of Seaside that is served by SCSD.

City of Monterey – Region "D1"

The population for Region "D1" was not established. An evaluation of Region "D1" is provided in Chapter 8.

City of Monterey – Region "D2"

Region "D2" is currently undeveloped, therefore existing population is zero. The household density for the City of Monterey is 2.10 persons (2000 California State Census). Based on this density and 272 units to be constructed in Region "D2", the estimated future Year 2030 population for Region "D2" is 571 persons.

Population Summary

Table 2-7 provides a summary of estimated existing Year 2010 population, and the estimated future Year 2030 population projections for each city based on their General Plan and AMBAG's 2008 Regional Forecast.

The estimated existing populations from the General Plans are approximately the same as the AMBAG 2008 Regional Forecast. The future population from the General Plans is less than 10% higher than the AMBAG 2008 Regional Forecast, excluding Region "D2". For the purposes of the SCSD Sewer Master Plan Update, the population estimates from the General Plans will be used since they are slightly more conservative. Therefore, the existing population is estimated at 21,020 persons and the future population is estimated at 36,964 persons.

Table 2-1. Region "A" Land Use Designations

Zoning	Description	Number of Parcels[1]				Parcel Acreage[2]				Square Footage[2]			
		Del Rey Oaks	Sand City	Seaside	Total	Del Rey Oaks	Sand City	Seaside	Total	Del Rey Oaks	Sand City	Seaside	Total
CC	Community Commercial	49	1	207	**257**	34	1	50	**85**	316,593	105,265	780,172	1,202,029
HC	Heavy Commercial	NA	NA	32	**32**	NA	NA	6	**6**	NA	6,927	77,323	84,250
MX	Mixed Use	NA	96	208	**304**	NA	42	36	**78**	NA	519,108	524,066	1,043,175
PI	Public/Institutional	13	2	18	**33**	78	5	82	**165**	NA	11,675	671,789	683,464
POS	Parks and Open Space	10	3	38	**51**	49	18	102	**169**	NA	NA	NA	NA
RGC	Regional Commercial	NA	37	207	**244**	NA	66	90	**156**	NA	679,094	5,588	684,682
RLS	Low Density Single-Family Residential	754	NA	2,294	**3,048**	163	NA	415	**578**	1,226,387	NA	5,287,631	6,514,018
RH	High Density Residential	NA	NA	162	**162**	NA	NA	56	**56**	NA	NA	880,181	880,181
RM	Medium Density Residential	63	1	344	**408**	11	3	52	**66**	81,978	37,748	716,792	836,518
RMS	Medium Density Single-Family Residential	NA	NA	3,068	**3,068**	NA	NA	349	**349**	NA	NA	5,643,733	5,643,733
Total		**879**	**140**	**6,578**	**7,607**	**286**	**135**	**1,238**	**1,708**	**1,624,958**	**1,359,817**	**14,587,274**	**17,572,049**

NA - Not Applicable

[1] The number of parcels in City of Seaside based on City of Seaside GIS parcel base map and only includes the portion of Seaside that is within SCSD. The number of parcels in Cities of Del Rey Oaks and Sand City are based on number of buildings.

[2] Acreage and square footage totals in City of Seaside based on City of Seaside GIS parcel base map and only includes the portion of Seaside that is within SCSD. Acreage totals in the City of Del Rey Oaks and City of Sand City are based on draft 2006 Amendments to the General Plan and 2002-2017 General Plan, respectively.

Table 2-2. Parcel Types of Highest Wastewater Significance

Parcel Type	Estimated Quantity		Source
Residential	21,020	persons	Chapter 2, Population Summary
Hotel Rooms	698	rooms	Based on data from SCSD staff
Commercial	2,974,898	sf	Square footage totals in City of Seaside based on City of Seaside GIS parcel base map and only includes the portion of Seaside that is within SCSD. Square footage totals in the Cities of Del Rey Oaks and Sand City are based on outlines of buildings. Does not include schools or hotels.
School	3,215	students	Student population provided by SCSD staff.

Table 2-3. City of Del Rey Oaks Population Summary

	General Plan	AMBAG
Existing	1,700	1,627
Future	1,760	3,197

Table 2-4. City of Sand City Population Summary

	General Plan	AMBAG
Existing	260	447
Future	1,295	1,498

Table 2-5. City of Seaside Build-out Population Extrapolations

Land Use Zone	Total Acreage	Total Population	SCSD Acreage	SCSD Population
Low Density Single Family Residential	801	15,297	414	7,906
High Density Residential	161	9,297	57	3,291
Medium Density Residential	104	4,100	52	2,050
Medium Density Single Family Residential	423	11,126	348	9,153
Mixed Use	153	3,083	33	664
West Broadway Redevelopment	NA	1,720	NA	1,720
Total	**1,642**	**44,623**	**904**	**24,784**

Table 2-6. City of Seaside Population Summary

	General Plan	AMBAG
Existing	NA	19,060
Region "A" Future	24,784	20,980
Region "C" Future	8,554	8,554
Total Future	**33,338**	**29,534**

NA – Not Available

Table 2-7. Population Projection Summary

	Del Rey Oaks	Sand City	Seaside	Monterey	Total
General Plans					
Existing					
Region "A"	1,700[1]	260[1]	19,060[2]	0	**21,020**
Future					
Region "A"	1,760	1,295	24,784[3]	0	27,839
Region "B"	0	0	0	0	0
Region "C"	0	0	8,554	0	8,554
Region "D2"	0	0	0	571	571
Total	**1,760**	**1,295**	**33,338**	**571**	**36,964**
AMBAG 2008 Regional Forecast					
Existing					
Region "A"	1,627	447	19,060[3]	0	**21,134**
Future					
Region "A"	3,197	1,498	20,980[3]	0	24,238
Region "B"	0	0	0	0	1,437
Region "C"	0	0	8,554	0	8,554
Total	**3,197**	**1,498**	**29,534**	**0**	**34,229**

[1] Existing population based on 2000 census.

[2] Assumed an estimated existing population of 19,060 persons for City of Seaside based on AMBAG's existing population for comparison purposes only.

[3] Population based on extrapolated acreage from parcels within SCSD boundary only. This population does not include population outside of SCSD boundary. Population also includes population increase for West Broadway re-development.

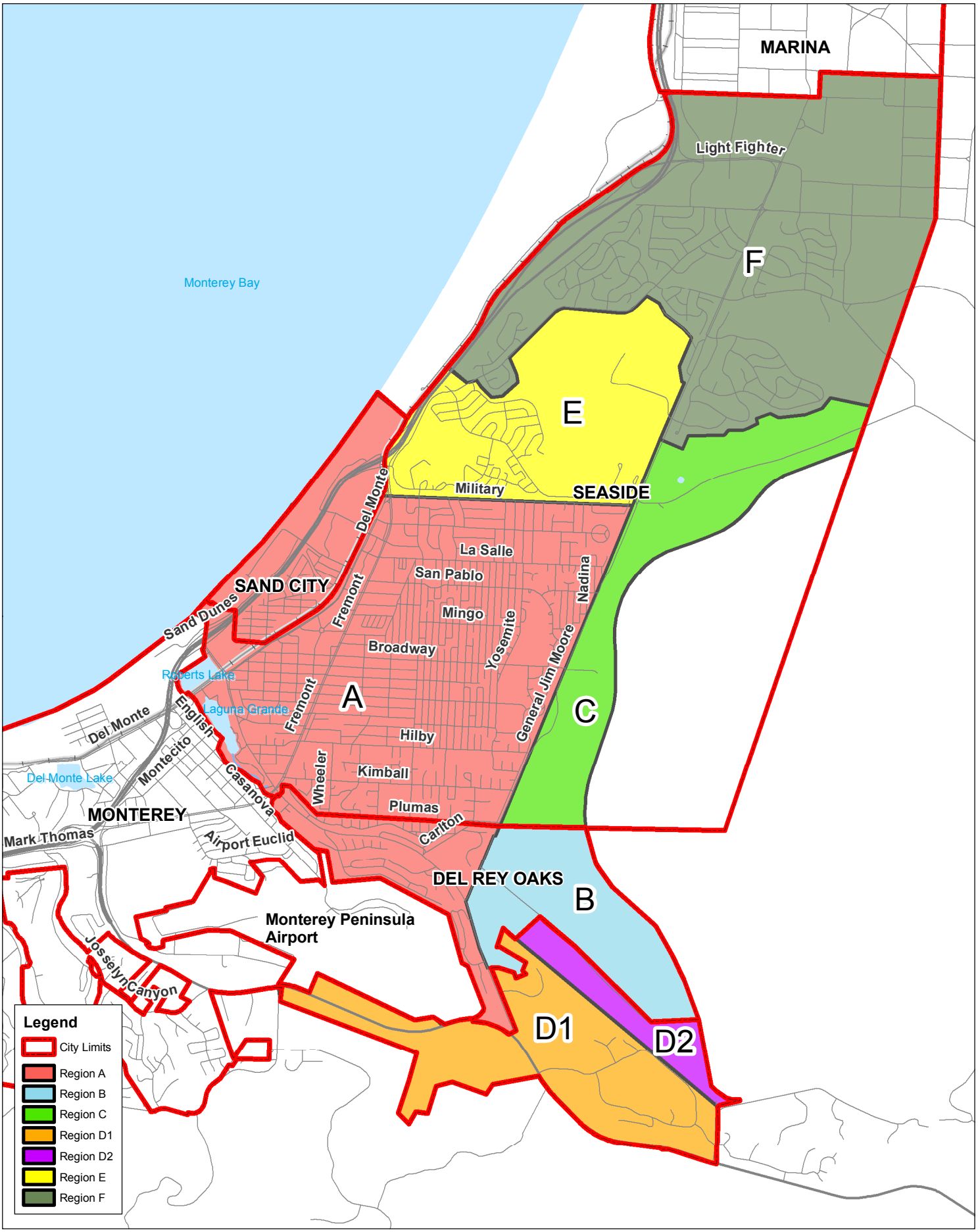

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FIGURE 2-1: REGION MAP

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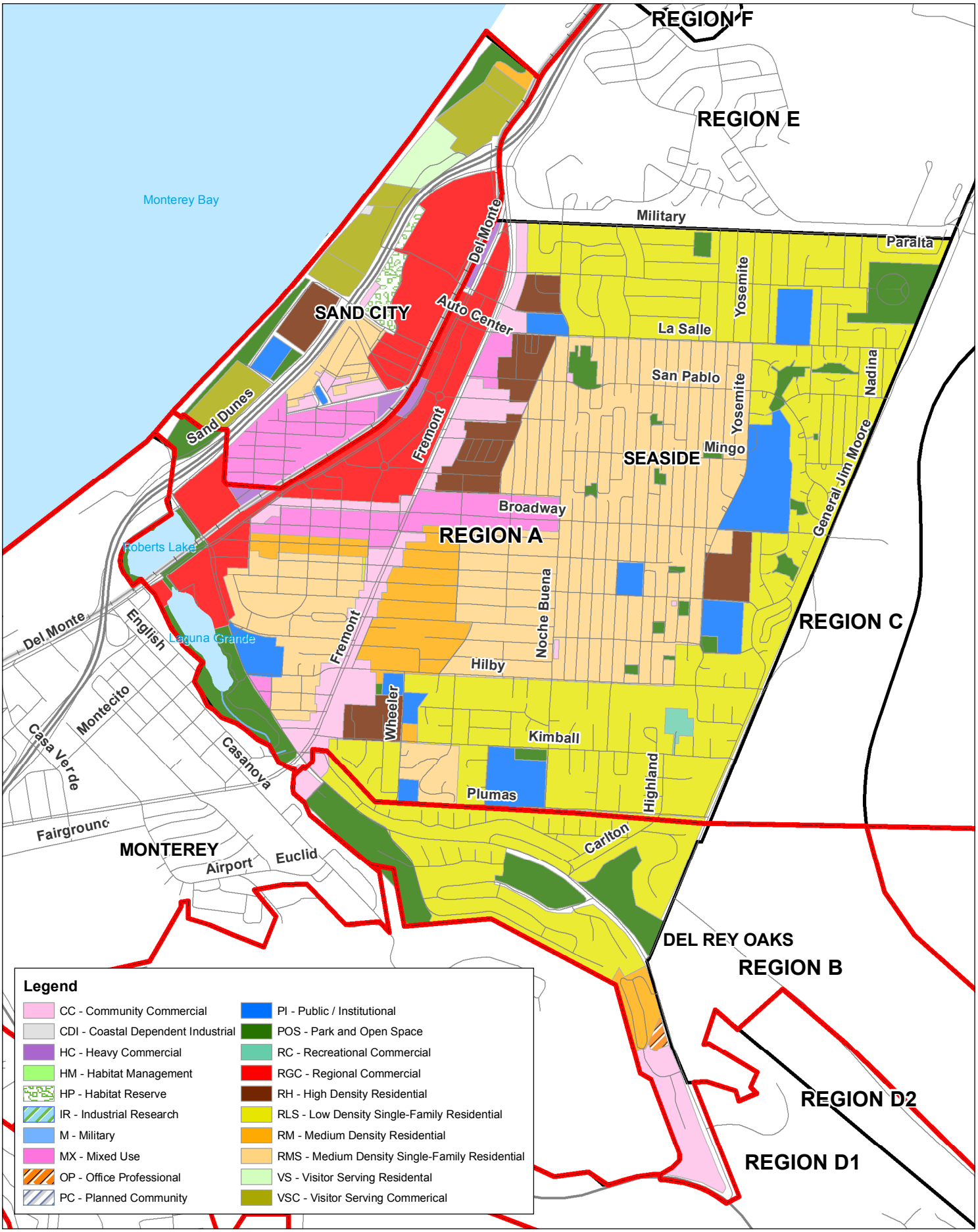

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FIGURE 2-2: REGION A LAND USE MAP

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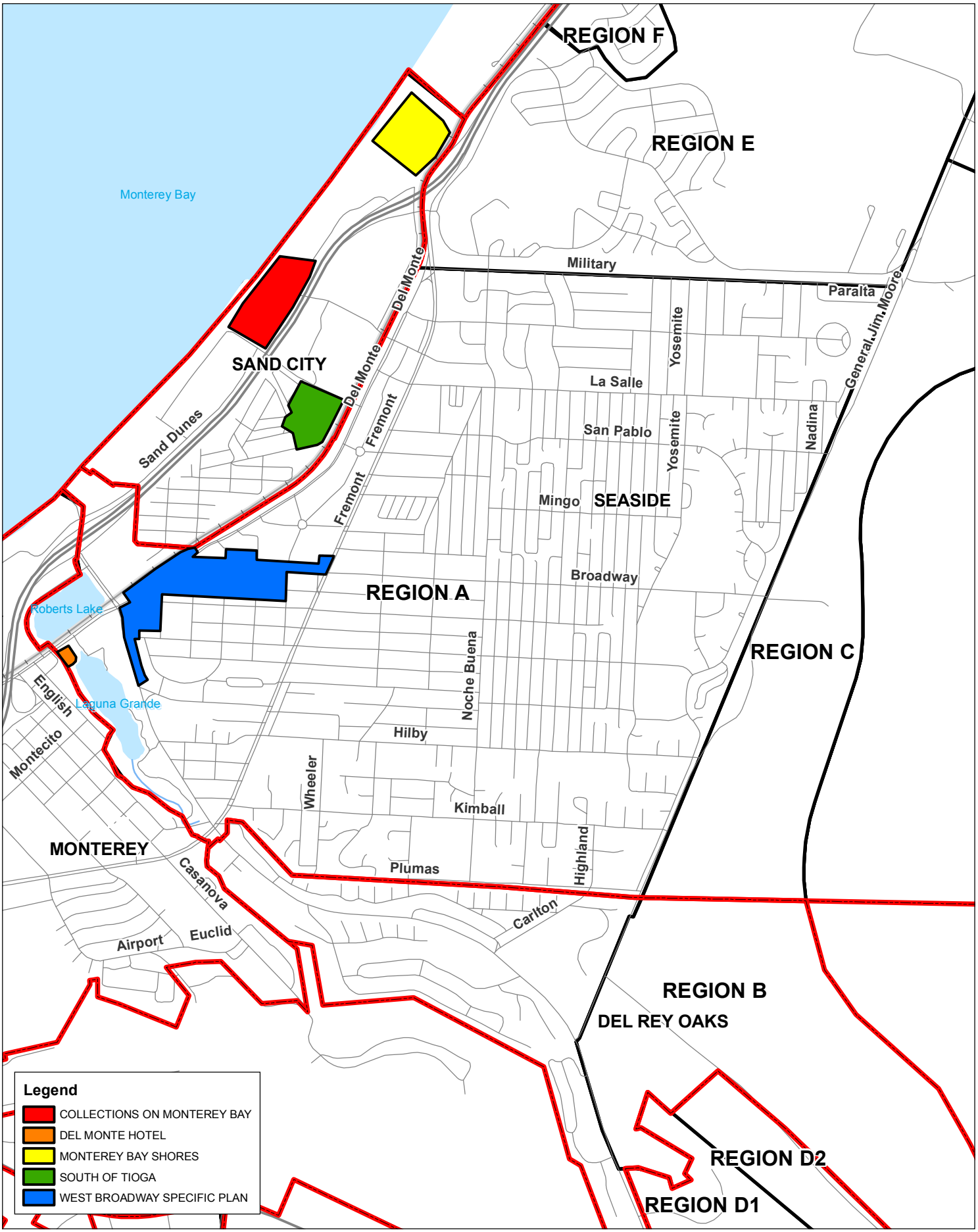

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FIGURE 2-3: REGION A
FUTURE DEVELOPMENT MAP

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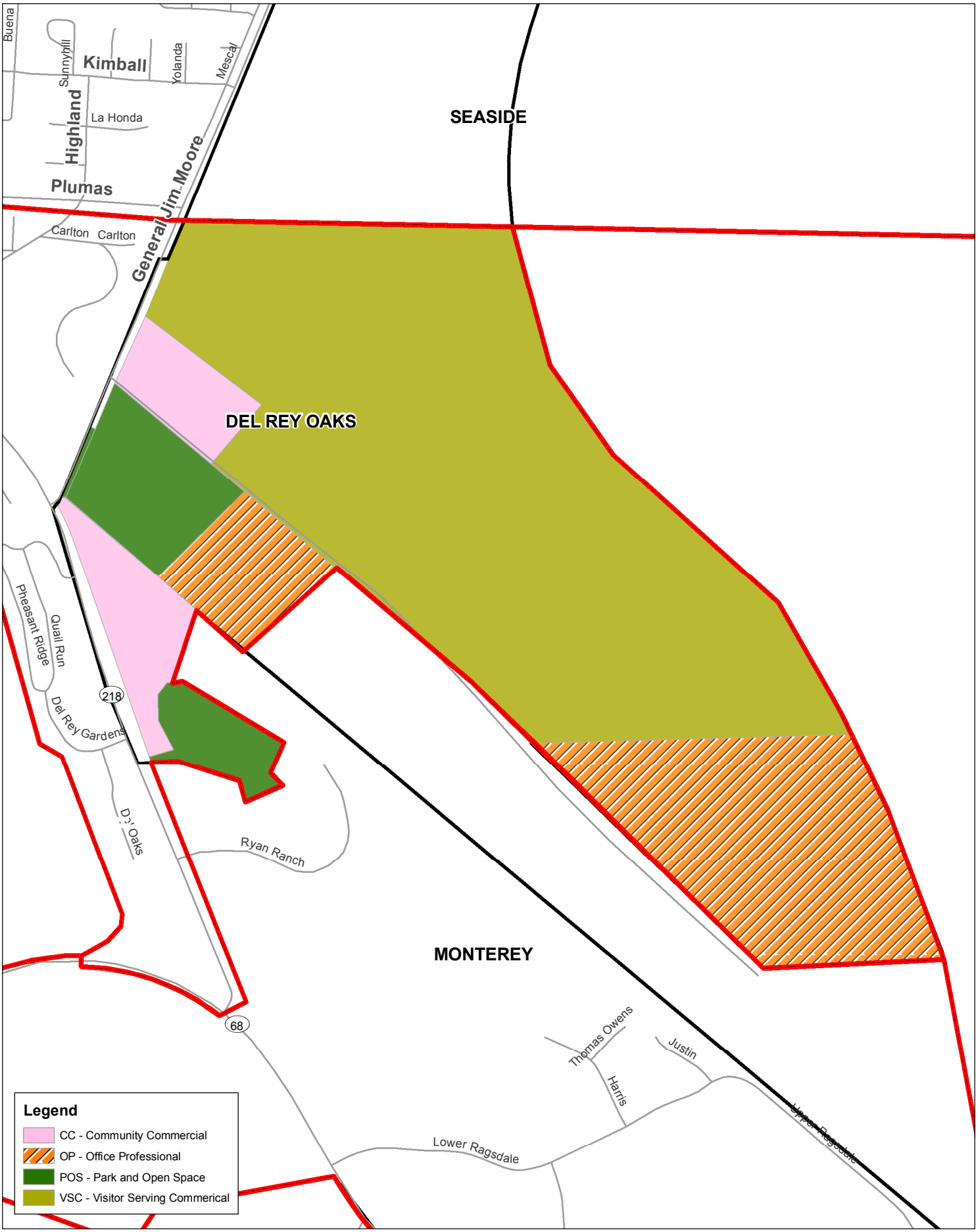

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FIGURE 2-4: REGION B LAND USE MAP

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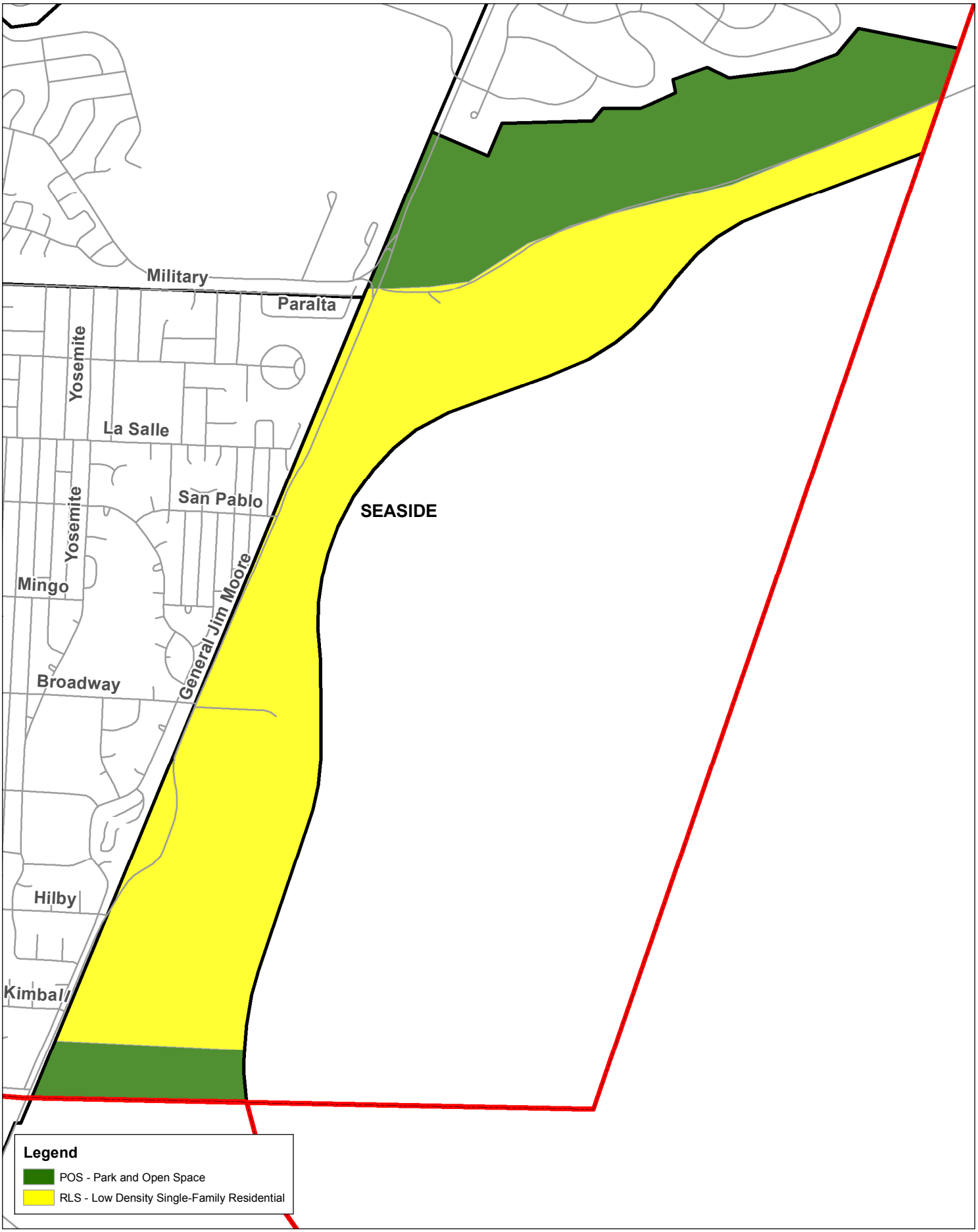

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FIGURE 2-5: REGION C LAND USE MAP

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FIGURE 2-6: REGION D2 LAND USE MAP

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CHAPTER 3

COLLECTION SYSTEM OVERVIEW

This Chapter provides an overview of the existing sewerage collection system for the Seaside County Sanitation District (SCSD). SCSD provides sanitation services (collection system only) to the Cities of Seaside, Del Rey Oaks, and Sand City. Monterey Regional Water Pollution Control Agency (MRWPCA) provides wastewater treatment. All tables and figures for Chapter 3 are located at end of this chapter.

COLLECTION SYSTEM OVERVIEW

The SCSD sewerage collection system consists of gravity sewer pipes ranging in diameters from 6-inch to 27-inch. SCSD also owns and operates four (4) lift stations with corresponding force mains. There is also one private lift station and force main located at La Salle Avenue in the City of Seaside. This lift station serves customers on Primrose Circle and Sandpiper Court. The La Salle Avenue lift station is incorporated into the sewer model to correctly model the flow coming from the development, but was not inspected or reported on as part of this master plan project. MRWPCA owns and operates the Seaside Lift Station that pumps all the wastewater from SCSD to the MRWPCA wastewater treatment plant.

Since the majority of SCSD collection system was constructed in the 1950's and 1960's, the pipe material throughout the system consists primarily of Vitrified Clay Pipe (VCP). A small percentage of Polyvinyl Chloride (PVC) pipe has been installed in newer construction. An inventory of existing sewer pipe diameters and materials are summarized in Tables 3-1 and 3-2 and shown on Figure 3-1.

The collection system has approximately 740 concrete manholes and approximately 295 brick manholes. Of these manholes, 47 of the concrete manholes and 45 of the brick manholes are drop manholes. Figure 3-2 shows an overview of the manhole material types throughout the system. There are also approximately 557 rod holes (cleanouts) located throughout the system.

Manholes

The manholes within the collection system pose several concerns to the operations and maintenance staff. These concerns include the following:

- The collection system has approximately 295 brick manholes located throughout the service area. Although the majority of these manholes are structurally sound, most are not coated and ultimately are a source of infiltration of water and sand. It is not cost effective to replace these manholes with concrete manholes unless the entire sewer main is being replaced; however, it is recommended to coat each of the manholes with an epoxy lining to protect the manholes from hydrogen sulfide corrosion as well as prevent infiltration of water and sand.

- The collection system has 47 concrete and 45 brick drop manholes located throughout the service area. Many of these drop manholes are constructed improperly, with pipes that enter the manhole above the manhole invert, resulting in cascading flow. Due to this construction, the wastewater in the manholes has severe turbulence, which produces gas byproducts and erodes the manholes. In addition, it is difficult for operators to enter the manhole without being exposed directly to the wastewater. It is recommended that all drop manholes be evaluated and identify and replace the manholes that are improperly constructed.

- Water and sand infiltration also appear to come through the lids of the manholes as well as through the sides of the manholes. It is recommended to install solid manhole lids in the locations where sand and/or water can be present over the manhole lid. There are approximately 73 manholes in the Sand City area suspected of being susceptible to water/sand infiltration. An alternative and less costly repair in some instances may be is to install plastic manhole inserts that are placed just under the manhole lid and capture sand and water instead of entering the manhole.

  In addition, there are 3 manholes downstream of the Military Avenue LS that have potential for overflowing due to the shallow depth of these manholes and undersized sewer mains downstream of the force main. It is recommended to install sealed manhole lids at these three manholes to reduce the risk of sewage spills (in addition to upgrading the undersized mains as discussed in Chapter 7).

- Since the majority of the collection system was constructed in the 1950's and 1960's, the spacing of the manholes does not meet current standards. If the spacing is too great, it is difficult for operation and maintenance crews to clean the sewer mains properly. There are approximately 207 pipe segments that are greater then 400 ft in length throughout the collection system. It is recommended that a manhole be installed mid-length between two manholes that are greater than 400 feet apart. These pipes should be evaluated on a case-by-case basis; in some instances recommended pipe upgrades would allow for new construction to correct the excessive pipe length or the pipe lengths may be close enough to 400 feet to not warrant the cost of a new manhole installation.

- In addition to manhole separation, often times, only rod holes were installed at the end of sewer mains instead of full manholes. These rod holes are similar to cleanouts and limit access for operation and maintenance crews to inspect and clean the sewer mains. There are approximately 557 rod holes throughout the collection system. It is recommended that all rod holes be upgraded with an 8-inch riser to allow for routine O&M activities including video inspection. It is recommended that SCSD identify the most critical rod holes (areas that need to be cleaned routinely) to be upgraded due to sewer problems first and then upgrade the remaining rod holes over a longer duration of time.

Operation and Maintenance Problem Areas

Staff from the SCSD operations department identified the known problem areas throughout the collection system. Routine maintenance tasks performed by operations staff consist of the following:

- Treating problem sewer pipes for root intrusion
- Power jetting problem sewer pipes with grease buildup on a monthly or semi-annual basis utilizing Jet Power II®
- Vacuuming problem sewer pipes on a yearly basis
- Checking problem sewer manholes on a weekly basis
- Treating problem manholes with Triple X Cleaner® for grease removal on a monthly basis

Figure 3-3 shows an overview of SCSD's trouble spots that require continuous maintenance operations and attention. It is recommended that SCSD work with MRWPCA to enhance the fats, oil, and grease (FOG) program specifically in the areas where known grease problems occur. This should include educational pamphlets, inspections, and enforcement actions when necessary.

Based on discussions with SCSD operation and maintenance staff, the following segments of the collection system are continual maintenance problems that need to be addressed:

<u>942 Angelus Way Sewer Main Upgrade</u>
There is an existing 6-inch VCP sewer main in the side yard of a private residence at Angelus Way just before the south side of Del Rey Park, which crosses a creek. The sewer main transitions to steel at the creek crossing. The steel main was constructed to span the creek without a casing, which means the steel sewer main is exposed to the atmosphere. SCSD operation and maintenance crews have identified a pinhole leak at the top of the sewer main. SCSD has provided a temporary fix to this condition by installing a sleeve over the pinhole location.

<u>Del Rey Park Sewer Main Upgrade</u>
There is an existing 6-inch VCP gravity sewer main that conveys wastewater from the homes on Los Encinos Drive and Via Verde in Del Rey Oaks along the south side of the park to the west before crossing a creek and connecting to the sewer main on Angelus Way. This 6-inch sewer main is prone to maintenance problems due to inaccessibility caused by the location near to and under the creek. There may also be some operations problems due to pipe offsets and root intrusion caused by trees and shrubs growing above the sewer main.

<u>Root Intrusion Sewer Main Replacement</u>
SCSD has over 19,300 lineal feet of sewer main that are treated yearly for continual root intrusion. Once a root has found access into the sewer main through a small crack or joint, the root will continue to grow and eventually block the flow through the sewer main. SCSD can slow the process down by cutting the roots back and treating the pipe with chemicals to kill the roots, but this effort is time consuming and costly for SCSD. It is recommended that the known problem areas be videoed to determined the condition of

the pipe and replace the segments of sewer main that appear to be in poor condition. At this time it is estimated that approximately 30 percent or 5,800 lineal feet of the existing sewer mains that have root intrusion problems will need to be replaced. If the identified mains are 6-inch diameter it is recommended they are upsized to 8-inch at the time of replacement to meet current SCSD standards.

Lift Stations

SCSD owns four lift stations located throughout the collection system; however, they contract with MRWPCA to maintain the lift stations. These lift stations are briefly summarized in this chapter. Refer to Chapter 6 for detailed descriptions and the complete evaluation of the four lift stations and corresponding service areas.

- Station #19 – Del Monte Lift Station: Del Monte Lift Station is located at the intersection of Del Monte Boulevard and Canyon Del Rey Boulevard, in the City of Seaside. The lift station receives flow from customers along Canyon Del Rey Boulevard, Del Monte Boulevard from Roberts Avenue, and Rosita Lift Station. The lift station discharges through a 12-inch diameter cast iron force main to manhole #A9-23 at the intersection of Del Monte Boulevard and Palm Avenue.

- Station #20 – Rosita Lift Station: Rosita Lift Station is located at the intersection of Rosita Road and Angelus Way, in the City of Del Rey Oaks. The lift station receives flow from customers along Canyon Del Rey Boulevard at Highway 68 to Angelus Way. The lift station discharges through a 6-inch diameter cast iron force main to manhole #B12-2 at the intersection of Canyon Del Rey Boulevard and Rosita Road.

- Station #21 – Military Avenue Lift Station: Military Avenue Lift Station is located north of Military Avenue within a lot dedicated for the lift station, in the City of Seaside. The lift station receives flow from approximately 47 residential customers along Military Avenue. The lift station discharges through a 4-inch diameter cast iron force main to manhole #D7-5 in the southeast corner of Metz Park.

- Station #22 – Tioga Lift Station: Tioga List Station is south of Tioga Avenue in a lot dedicated for the lift station, in Sand City. The lift station receives flow from approximately two (2) residential customers and six (6) commercial customers. The lift station discharges through a 4-inch diameter cast iron force main to manhole #B8-53 at the intersection of Tioga Avenue and California Avenue.

O&M RELATED CAPITAL IMPROVEMENT PROGRAM RECOMMENDATIONS

Based on operation and maintenance problems described in this chapter, the following are recommendations for capital improvement projects:

Brick Manhole Inspection

See Figure 3-2 for brick manhole locations. Inspect 250 brick manholes and identify those brick manholes that have infiltration of water and/or sand and/or are showing signs

of corrosion. Based on the results of this inspection, it is recommended to install an epoxy lining on the brick manholes that were identified as problem brick manholes.

Drop Manhole Inspection

See Figure 3-2 for drop manhole locations. Inspect 92 drop manholes and identify those drop manholes that are improperly constructed and are causing high turbulence within the manhole. Based on the results of this inspection, it is recommended to replace or re-construct the drop manholes that are improperly constructed. It is estimated that 30 percent, or approximately 30 drop manholes, will need to be reconstructed.

Manhole Lid Replacement

See Figure 3-4 for locations of new manhole lids and inserts. Install 76 solid manhole lids in the locations where sand and/or water can be present over the manhole lid. This is primarily in the flatter regions closer to the bay. An alternative and less costly repair in some instances may be to install plastic manhole inserts that are placed just under the manhole lid to capture sand and water, preventing material from entering the manhole.

New Manhole Installations

See Figure 3-4 for the locations of the sewer mains greater than 400 feet. Install 207 new manholes where the span between existing manholes is greater than 400 feet.

Rod Hole Replacement

See Figure 3-4 for the locations of the Rod Hole locations. Upgrade 557 rodholes with an 8-inch riser. It is recommended to compile a priority list of manholes prior to replacement based on operations and maintenance problems. Purchase a new video camera for sewer inspections that fits within the newly installed 8-inch risers.

FOG Program

Work with MRWPCA to enhance the fats, oil, and grease (FOG) program targeting the known high grease areas. The program should include an educational program, inspection program, and enforcement program.

942 Angelus Way Sewer Main Upgrade

See Figure 3-5. It is recommended to replace the existing 6-inch steel sewer main with a new 8-inch (SCSD minimum recommended pipe diameter) ductile iron sewer main for a total length of 80 feet. It may also be necessary to sleeve the portion of the sewer main that crosses the creek. This reach would span between Manholes # B12-52 and #B12-53.

Del Rey Park Sewer Main Upgrade

See Figure 3-5. It is recommended to replace the existing 6-inch VCP main with 8-inch PVC, from Los Encinos Drive to Via Verde (Manhole C12-31 to Manhole C12-29), and construct a new 8-inch PVC sewer main that crosses Del Rey Park, from Via Verde at Los Encinos Drive (manhole #C12-29) to the existing 12-inch VCP sewer main located on the north side of the park (between manhole #'s C12-23 and C12-39). Total project length is approximately 425 feet. After completion of the new main, it is recommended to abandon the existing sewer main from manhole C12-29 to manhole B12-52.

Root Intrusion Sewer Main Inspection and Replacement

See Figure 3-3 for the sewer mains that SCSD currently treats for root intrusion problems. It is recommended to video inspect these sewer mains (19,300 ft) to identify mains that require replacement. It is estimated that 30 percent or approximately 5,800 feet of these sewer mains will need to be replaced.

Table 3-1. Existing Pipeline Inventory by Material

Material	Length	
	Feet	**Miles**
VCP	379,827	72.0
PVC	6,433	1.2
Total	**386,260**	**73.2**

Table 3-2. Existing Pipeline Inventory by Diameter

Diameter (inches)	Length	
	Feet	**Miles**
6	337,620	64.0
8	20,567	3.9
10	8,978	1.7
12	14,292	2.7
15	221	0.0
18	2,129	0.4
21	1,124	0.2
27	1,329	0.3
Total	**386,260**	**73.2**

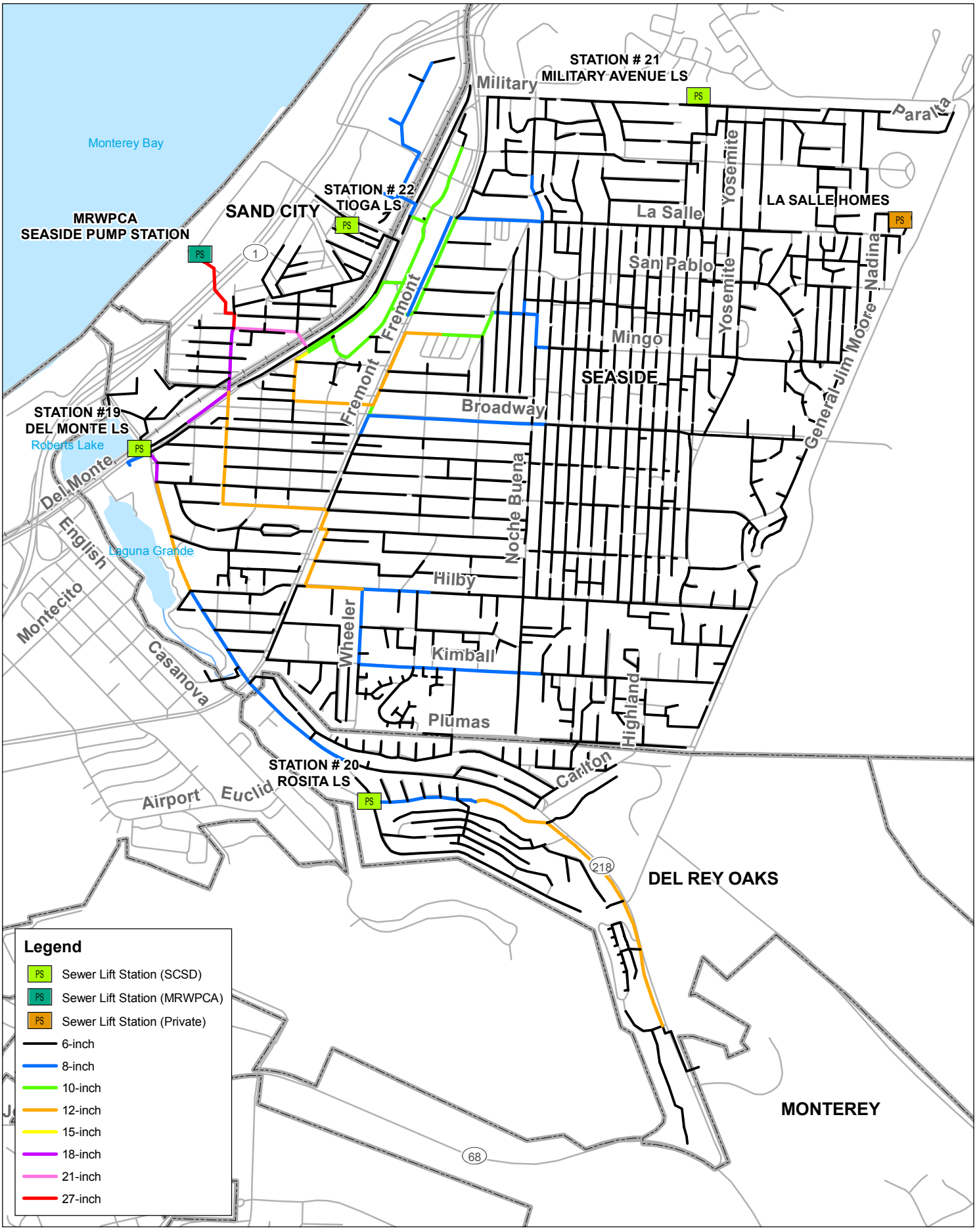

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FIGURE 3-1: COLLECTION SYSTEM OVERVIEW MAP

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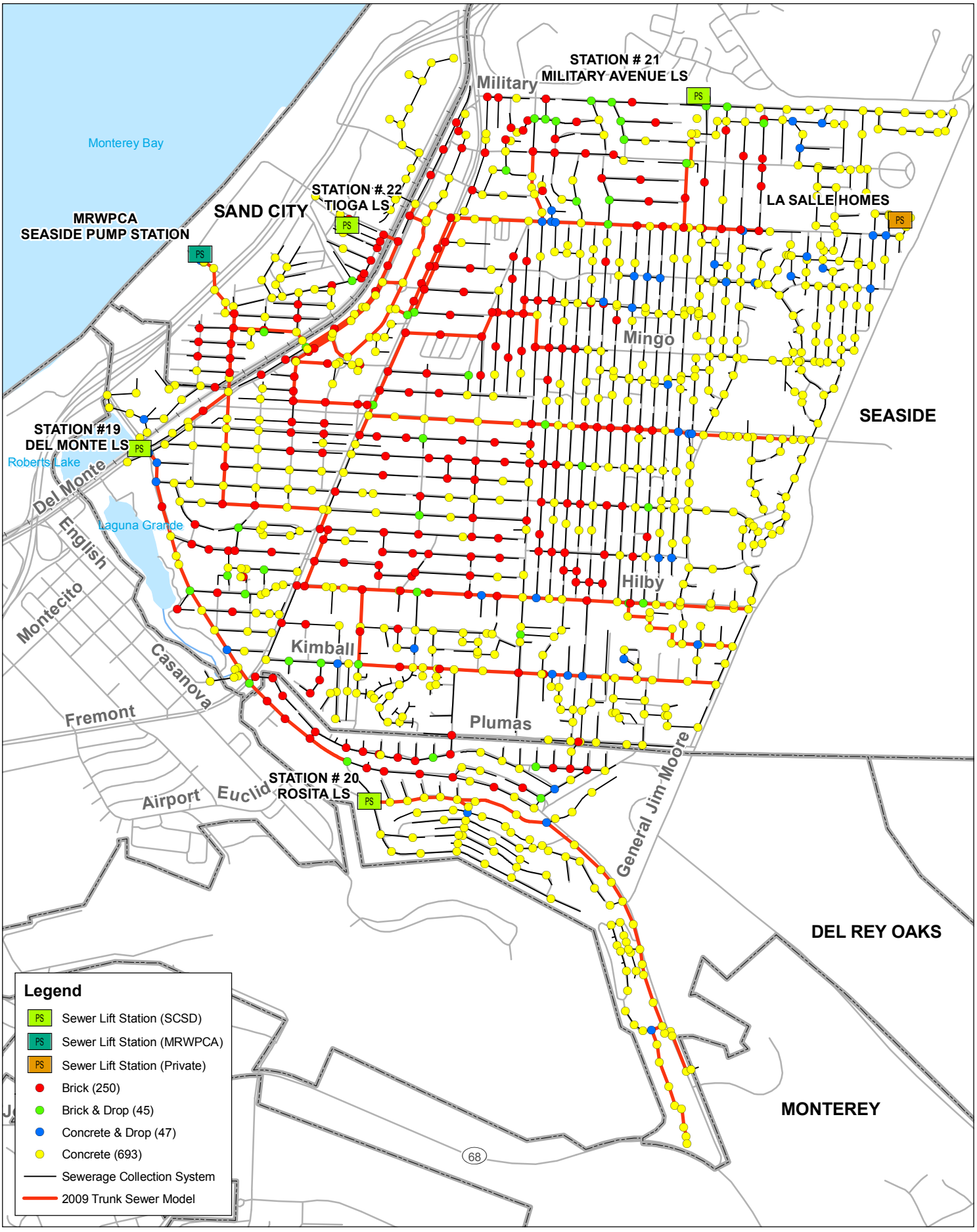

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FIGURE 3-2: SEWER MANHOLE OVERVIEW MAP

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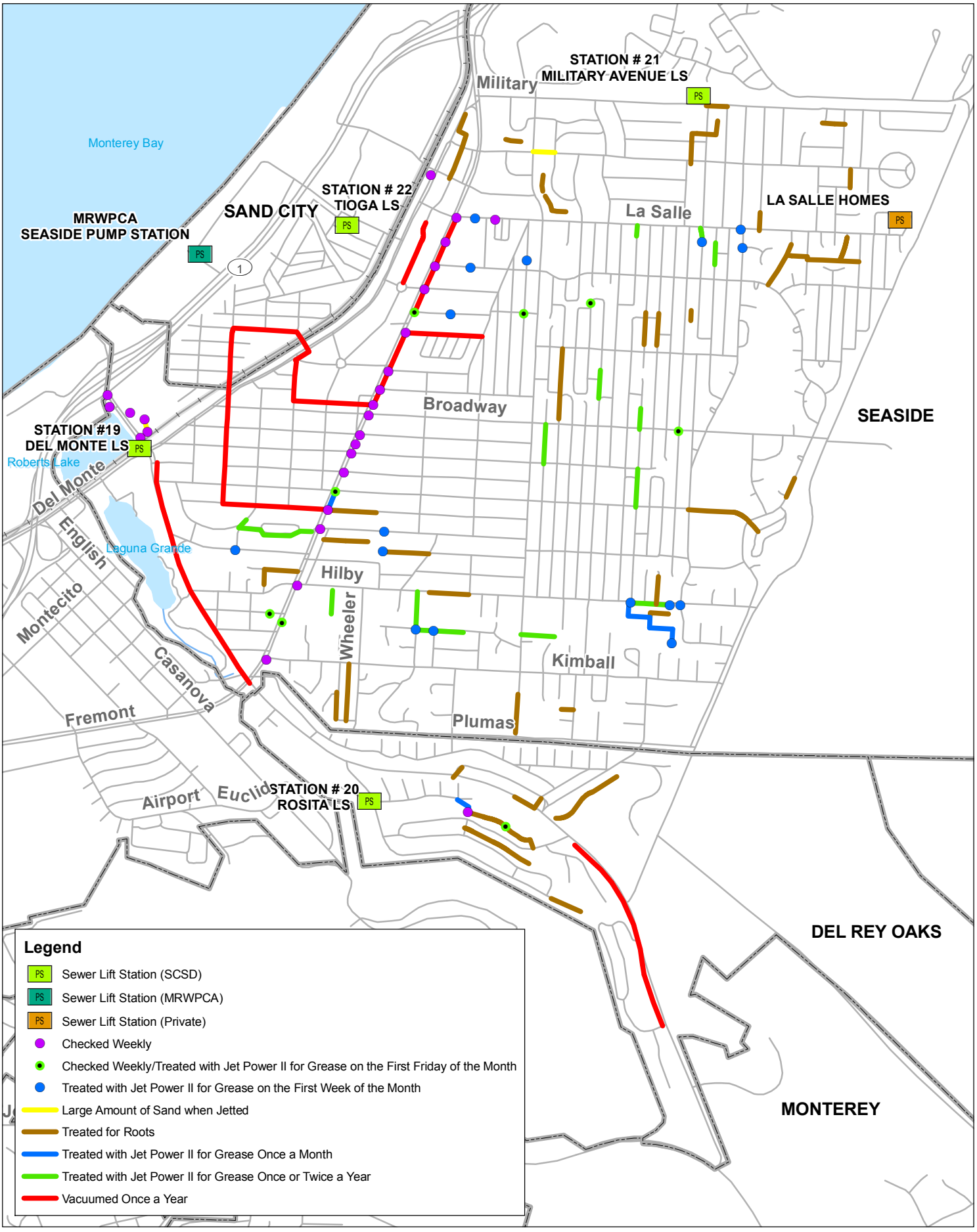

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FIGURE 3-3: SEWER MAINTENANCE OVERVIEW MAP

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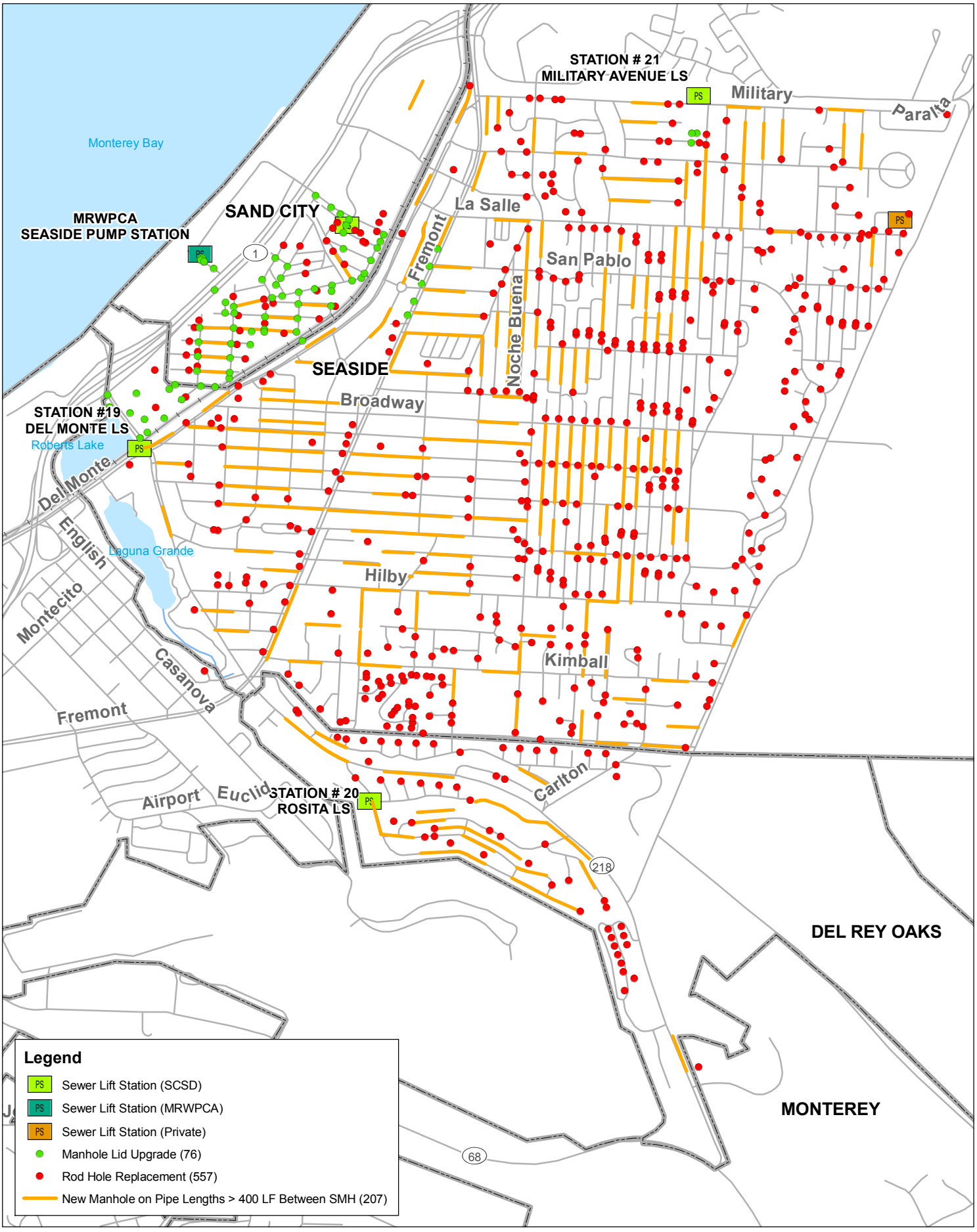

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FIGURE 3-4: PROPOSED MANHOLES, ROD HOLES, AND MANHOLE LIDS MAP

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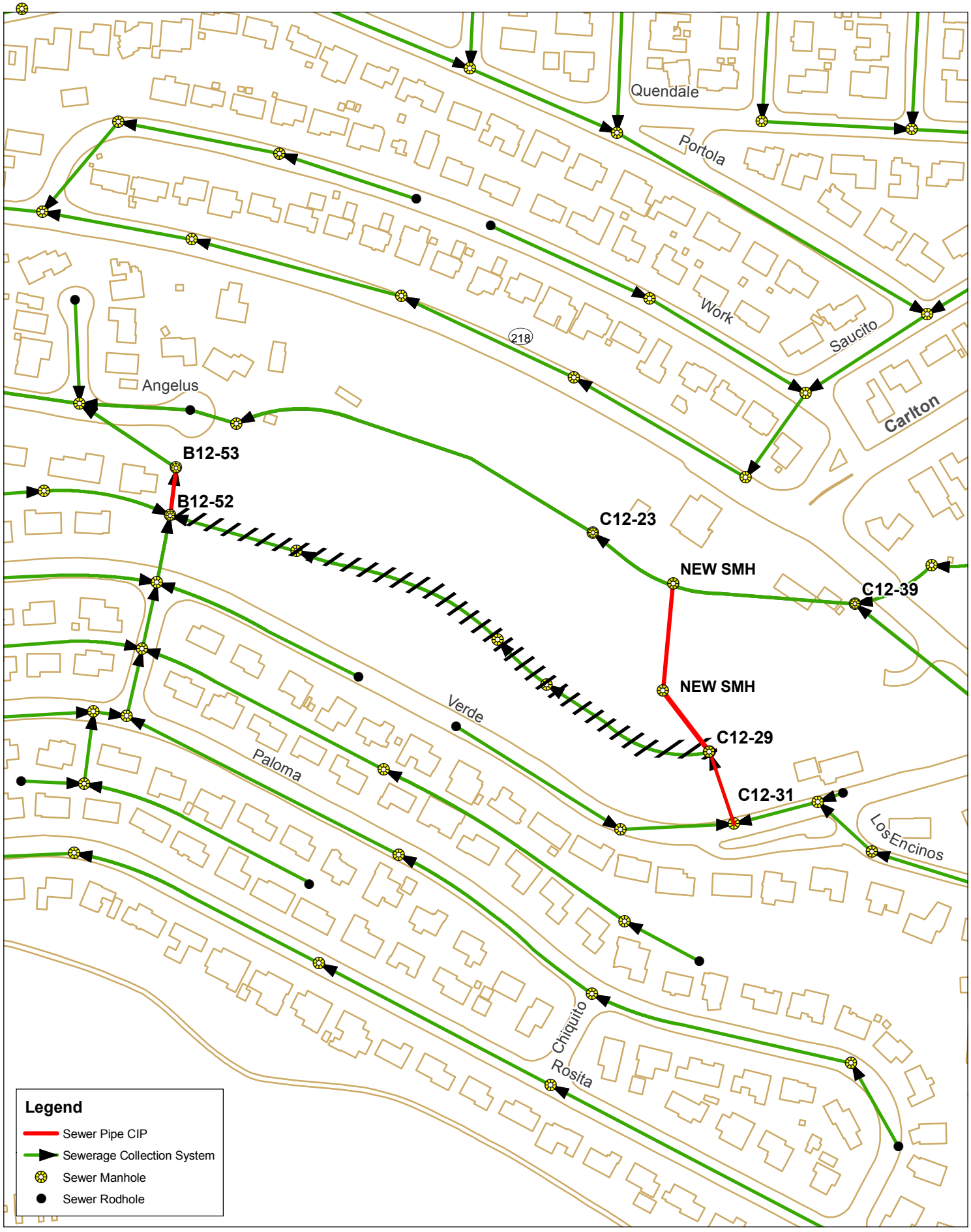

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1 INCH = 200 FEET

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FIGURE 3-5: 942 ANGELUS WAY AND DEL REY PARK SEWER UPGRADES

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CHAPTER 4

WASTEWATER FLOWS

This Chapter presents the results of the sewer flow monitoring and the development of the wastewater flow characteristics to be used for the analysis of the collection system for Seaside County Sanitation District (SCSD). Information pertaining to inflow and infiltration is provided in Chapter 5. All tables and figures for Chapter 4 are located at the end of this chapter.

INTRODUCTION

Historical wastewater flows were examined throughout the SCSD collection system by utilizing the following sources of data:

- Sewer flow monitoring results
- MRWPCA daily flow records from the Seaside Lift Station

A description of each is provided in the following sections.

SEWER FLOW MONITORING

To develop a better understanding of the existing wastewater flows from SCSD, in-line flow monitoring was conducted at eight different locations on main trunk lines throughout SCSD. The flow monitoring locations are as follows:

- **27-inch:** Located on Bay Avenue at Seaside Lift Station
- **Amador:** Located on Canyon Del Rey @ Amador Avenue
- **Rosita:** Located on Rosita Road @ Angelus Way
- **Contra Costa:** Located on Contra Costa Street @ Palm Avenue
- **Victory Toyota:** Located on Del Monte Boulevard @ Victory Toyota
- **Broadway:** Located on Broadway Avenue, just east of Fremont Blvd
- **Cypress Ford:** Located on The Mall @ Cypress Ford
- **Love Chevrolet:** Located on The Mall @ Love Chevrolet

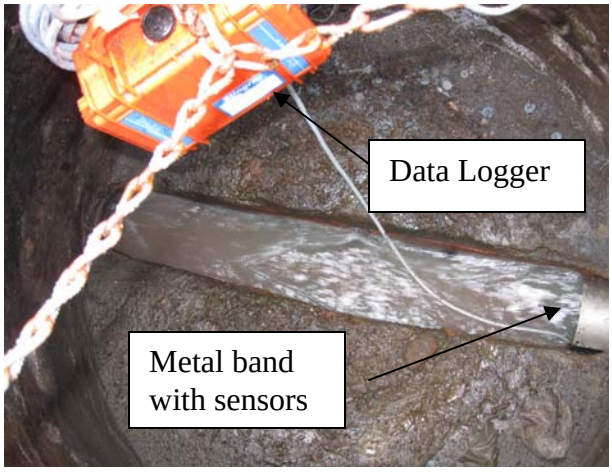
The locations of the flow meters and their corresponding tributary areas are depicted on Figure 4-1. The flow meters were installed February 10, 2009 and removed March 26, 2009 to allow for a total of 44 days of monitoring.

The sites chosen to install the flow meters were based on the proposed sewer model development. The flow meters were set to monitor and characterize large tributary areas that would provide information about the characteristics of the collection system.

Flow Meters

The flow meters are insertion flow meters that consist of a circular metal band with sensors that are installed inside the sewer main in a manhole (see adjacent picture). They are installed so that the wastewater entering the manhole travels over the band with the sensors, which then reads the wastewater temperature, depth, and velocity every 5 minutes.

Flow Meter Installation



Since sewer flow monitoring does not record continuous flow, it only provides an estimate of the amount of wastewater flow generated by various areas of the community. It provides useful information about the diurnal patterns of the community and can show the impacts of inflow and infiltration. Additional information regarding inflow and infiltration is provided in Chapter 5. The following provides a summary of the benefits and the limitations with sewer flow monitoring:

Benefits

- Provides reasonably accurate measurements of hourly and daily wastewater flow averages for various tributaries within the community.
- Evaluates diurnal trends within the community, which will help estimate the peaking factors that are required to size the collection system and evaluate the remaining capacity within the existing collection system.
- Evaluates the impacts of inflow and infiltration and identifies where further detailed inflow and infiltration studies may be warranted.

Limitations

- The flow meters record flow every 5 minutes. This flow reading is averaged over the 5 minutes. The averages are then totaled for the day to get total daily flows. Therefore, there are possibilities that the flow meter could miss higher peaks that may come through the collection system in between readings.
- Since wastewater is not a clean liquid, debris travels over the sensors, which causes blockages in the sewer mains and ultimately can change the levels and velocities in the sewer main producing inaccurate readings. If debris such as rags gets stuck on the bands, often times the level reading becomes zero, which reads as no flow in the manhole, which is incorrect.
- The flow meters need a minimum level, typically at least 1 inch over the sensor in order for the sensor to read the depth. If the level is less than 1-inch over the band, the sensor can only read velocity and cannot provide estimates of the flow. Through additional manipulation, flows can be estimated with only velocity readings, but these are typically not reliable.

Flow Meter Results

A summary of the results from each of the flow monitoring stations is provided below. A graph of the average day demand versus daily rain totals are provided on Figures 4-2 through 4-6. The rain data was obtained through the Carmel Weather Station maintained by the California Irrigation Management Information System (CIMIS). More information about the rain data is provided in Chapter 5, Inflow and Infiltration.

27-inch

The 27-inch flow meter was installed to catch all flow from SCSD prior to it entering the Seaside Lift Station and being pumped to the MRWPCA Regional Treatment Plant. The flow meter was installed in manhole A8-05, receiving flow from a 27-inch concrete pipe that is extremely flat through this section of the collection system. In addition, this sewer main has a significant amount of sand accumulation. The 27-inch sewer receives flow from the entire SCSD tributary area.

Unfortunately, the flow results from this flow meter were not valid. Due to the sand traveling over the flow meter and sometimes depositing on top of the sensor, often times, level or velocity readings were not provided. This resulted in a total daily flow ranging from 0 gal/day to 640,000 gal/day. It was anticipated that total daily flows were expected around 1.8 mgd, based on review of the MRWPCA flow records. In addition, the diurnal curve for the 27-inch did not reflect what was expected. Therefore, the data from this flow meter will not be used.

Amador

Canyon Del Rey @ Amador Avenue flow meter was installed at manhole A10-05 in an 18-inch diameter pipe just upstream of the Del Monte Lift Station. This flow meter received all of the flow from the south end of SCSD, primarily City of Del Rey Oaks, which includes the Rosita Lift Station.

The flow results from the Amador flow meter appeared to have no significant problems. Velocities and levels were good until the last seven days (March 20 through March 26th, 2009). Figure 4-2 depicts the daily flows versus the rain totals.

The daily flows at the tail end of the flow monitoring (March 11th to March 19th) were fairly consistent, depicting slightly higher flows on the weekend, which is to be expected since this is primarily a residential tributary area. Between March 11 and March 19, 2009, there was no rain and infiltration appeared to stable. Based on these 9 days, the average daily flow in the Amador Tributary was approximately 259,000 gal/day or 180 gpm with a diurnal peaking factor of 1.5 or approximately 275 gpm.

Rosita

The Rosita Flow meter was installed just upstream of the Rosita Lift Station in manhole B12-08 in an 8-inch diameter sewer main. This flow meter was installed to capture the flow from the residential homes in City of Del Rey Oaks. This flow meter isolated the flow readings from this tributary area prior to reaching the Amador flow meter.

The flow meter at Rosita was problematic. The flow level in the manhole was less than 1-inch and therefore, flow levels were not reading. Flows were not able to be determined for this tributary area.

Contra Costa

The Contra Costa flow meter was installed on Contra Costa at Palm Avenue in manhole A9-45 in a 12-inch diameter sewer main. This tributary area primarily receives its flow from Hilby Avenue and Kimball Avenue, which is predominantly residential with the lower portion of the collection system commercial.

Figure 4-3 depicts the total daily flows versus rain totals. This exhibit shows interesting results. The total daily flow at the start of the metering was near 100,000 gal/day. Flows continued to rise steadily until February 22 where flows then stayed fairly constant at approximately 460,000 gal/day. These flows continued on throughout the duration of the flow monitoring with peaks as high as 510,000 gpd.

It is estimated that the population in this tributary area is approximately 5,200 people, plus some commercial and institutional services. At a minimum, the lowest flows in this tributary area would be a minimum of 300,000 gpd. Therefore, the total daily flow readings from February 11 through February 24, 2009 will not be used for this analysis.

The flows from March 9th through March 19th, 2009 were fairly consistent with no influence from any rain days. The average daily flow during this time period was 446,000 gpd or 310 gpm with a diurnal peaking factor of 1.9 or approximately 310 gpm.

Victory Toyota

The Victory Toyota flow meter on Del Monte Blvd. was installed in manhole B9-28 in a 15-inch sewer main receiving flow primarily from Broadway Avenue and Phoenix Avenue, which are primarily residential with some commercial at the lower end of the tributary area.

The results for the Victory Toyota flow meter fluctuated from 600,000 gpd to 750,000 gpd with higher flows typically seen on the weekends, which is to be expected. There is one anomaly on February 26th. Readings appear to be too low on this day, likely due to debris caught on the flow meter. Figure 4-4 depicts the total daily flow versus rain totals. Based on the dry period from March 9th through the 19th, the average daily flow for the Victory Toyota tributary area was 684,000 gpd or 475 gpm with a diurnal peaking factor of 1.6 or 775 gpm.

Broadway

The Broadway flow meter was installed on Broadway just upstream of Fremont Boulevard in manhole B9-72 in an 8-inch sewer main. This flow meter contributes to the Victory Toyota Tributary. This flow meter was installed to isolate the amount of flow coming down Broadway to assist with determining the collection systems' ability to handle future growth from the former Fort Ord area.

The flow meter was installed on February 10, 2009. However, before data was downloaded, the meter was washed out during routine flushing by SCSD staff. The meter was re-installed on March 20, 2009. Figure 4-5 depicts the total daily flow versus the rain totals from March 20, 2009 through March 26, 2009.

The final week of flow monitoring was fairly consistent. There was a slight rise in total flow during the small rain events (0.19 inches), but this also occurred on the weekend

when one would expect slightly higher flow totals. The average daily flow for this period was 171,000 gpd or 120 gpm with a diurnal peaking factor of 2.5 or 300 gpm. This peaking factor is higher then the other tributary areas. This is most likely due to the fact that it is a smaller tributary area with predominantly all residential.

Love Chevrolet

There were two flow meters installed on The Mall. The first was installed in front of the Love Chevrolet dealership in manhole B9-59 in a 12-inch diameter sewer main. This flow meter receives all the flow from the northwest section of SCSD, which is predominantly residential and includes Military Lift Station. Figure 4-6 depicts the total daily flow versus the rain totals.

The average daily flow between March 9th and 19th, which does not have any influence from rainfall, was 392,000 gpd or 270 gpm with a diurnal peaking factor of 2.2 or 600 gpm.

Cypress Ford

The meter at the Mall at Cypress Ford was installed at manhole B8-60 in a 10-inch sewer main. It was installed to read the small commercial tributary area. This flow meter had significant problems throughout the duration of the flow metering. This flow meter continuously was hung up with shop rags that would get trapped on the meter and the flow levels were not significant enough to provide depths. Therefore, flows were not able to be determined for this tributary area.

Flow Meter Summary

Table 4-1 provides a summary of the average daily flows from each tributary and their corresponding peaking factors based on review of the actual field flow measurements, where the data was confirmed to be valid. Additional information regarding inflow and infiltration for each tributary area is provided in Chapter 5, Inflow and Infiltration. Based on the flow meters from Amador, Contra Costa, Victory Toyota, and Love Chevrolet, the estimated average daily flow for SCSD is approximately 1,781,000 gpd. This estimate does not include flow that should be contributed by the Cypress Ford and the 27" tributary areas since flow meter data was not obtained from these two tributaries. Therefore, the estimated average daily flow is approximately 5 to 10 percent low.

SEASIDE LIFT STATION DAILY FLOW RECORDS

MRWPCA provided daily wastewater flow data from January 2002 through May 2009 for the Seaside Lift Station. This lift station however, also receives flow from the Cities of Monterey and Pacific Grove and continues to pick up flow from Fort Ord Lift Station and Fort Ord Treatment Plant prior to reaching MRWPCA's WWTP. Based on information provided from MRWPCA staff, in the past, the flow meter at the Seaside Lift Station force main has typically been unreliable, reading flows considerably higher than what is truly coming from SCSD. Therefore, to determine the total flows from SCSD, the flows from the Monterey lift station, Fort Ord lift station, and Fort Ord Treatment Plant were subtracted from MRWPCA's total wastewater plant flow. There were some discrepancies in this methodology since this analysis is relying on the accuracy of four lift station flow meters to obtain SCSD flows. Therefore, when determining the true daily

flow from SCSD, all wastewater flows that appeared to be abnormally low or high were removed from the database selection. Table 4-2 provides a summary of the average annual flows for SCSD from 2002 through 2009 as well as the minimum and maximum daily flows for each year.

EXISTING WASTEWATER FLOWS

Based on the information from the sewer flow monitoring, MRWPCA's record information, and reliable wastewater resources such as Metcalf & Eddy, Wastewater Engineering Treatment and Reuse, fourth addition, the wastewater generation characteristics of various existing development types within SCSD were developed and are presented in Table 4-3. In addition, Table 4-4 breaks down the flow characteristics of the various tributary areas based on the wastewater generation factors.

Peaking Factor Analysis

When discussing wastewater flows, it is important to define some of the terminology commonly used to describe and analyze wastewater flows.

Average Daily Flow (ADF) is the average daily wastewater flow over the course of a year and is generally obtained by averaging the mean monthly flows conveyed to a WWTP through the course of a year. In the case of this report the ADF is based on flow records from the Monterey Regional Water Pollution Control Agency's (MRWPCA) record lift station data. The ADF was determined using only the average annual flows from January 2006 through May 2009 since flows appeared to have increased slightly during this time period. Therefore, the ADF for SCSD is estimated at 1.80 mgd.

Maximum Day Dry Weather Flow (MDDWF) reflects the maximum day flow rate during the peak summer months. This condition reflects the seasonal variation in dry weather flow. For the purposes of this study, the recent historical MDDWF is 2.72 mgd based on flow records from MRWPCA's record lift station data, and this occurred on October 25, 2008, which results in a peaking factor of 1.5.

Peak Hour Dry Weather Flow (PHDWF). In order to appropriately design wastewater collection system facilities, peak flow conditions must be quantified. Peak flow was determined based on flow monitoring that was conducted from February 10, 2009 through March 26, 2009. The peaking factor for the diurnal peak does not include inflow/infiltration (I/I) flow contributions to the collection system. Additional information pertaining to I/I is provided in Chapter 5 and in the description of peak hour wet weather flow below. Figure 4-7 provides a residential and commercial diurnal curve of the collection system with a dry weather peaking factor of 2.0 for residential and 2.1 for commercial.

Peak Hour Wet Weather Flow (PHWWF) is the maximum flow rate that occurs in a single hour during wet weather (a significant rain storm event). This factor is derived from standard engineering methodology and judgment combined with actual flow monitoring data. This flow condition may govern the design of the sewage collection system as it may represent the maximum flow rate that the

system must convey. PHWWF is derived by multiplying ADF times the diurnal peaking factor, then adding the wet weather flow component. The I/I flow amounts were determined as a fixed flow based on the flow monitoring results of each tributary area. This I/I factor is assumed constant and will not increase for future conditions. The existing PHWWF for SCSD varies depending on tributary area and is described in more detail in Chapter 5.

Table 4-5 provides a summary of the existing average daily flow and the peaking factors used for this report.

FUTURE WASTEWATER FLOWS

Projection of wastewater flow is tied closely to population projections and anticipated development. As noted in Chapter 2 of this report, the future flows for this collection system may be comprised of not only infill and re-development within Region "A", but potentially receiving flow from Regions "B", "C", and "D2". Region "D1" also has potential for being diverted to SCSD's collection system and will be analyzed in Chapter 8 of this report.

Although it is assumed that water conservation measures will be taken, such as low flow plumbing fixtures for all future development, to determine the future flows, the existing flow factors, noted in Table 4-3 will be used. In addition, the existing peaking factors noted in Table 4-5 will also be used for estimating future development MDDWF and PHDWF. Tables 4-6 through 4-9 provide a breakdown of the land uses and the estimated wastewater flows from each region. Table 4-10 provides a summary of the estimated future wastewater flows from each region.

Region "A"

Region "A", the core of SCSD's collection system has several new developments projected for in the future. Table 4-6 provides a summary of the future wastewater flows anticipated for Region "A". It is estimated that the future ADF for SCSD Region "A" will be 2.36 mgd.

Region "B"

Region "B" is anticipated for some neighborhood commercial and public facilities, as well as potentially a hotel and/or golf course. Since the development type for this region is unknown at this time, assumptions were made to the intensity of the commercial development. It is assumed that the general commercial will be constructed with a 25 percent floor to area ratio and that a 150 room hotel will be constructed. Table 4-7 provides a summary of the future wastewater flows anticipated for Region "B". Based on these assumptions, it is estimated that the ADF for Region "B" is 0.09 mgd.

Region "C"

Region "C", located along General Jim Moore Boulevard will be comprised of all residential development. It is anticipated that there will be approximately 2,600 residential units or an increase in population of over 8,500 persons. This will result in an

ADF for Region “C” of approximately 0.56 mgd. Table 4-8 provides a summary of the future wastewater flows anticipated for Region “C”.

Region “D2”

Region “D2” is also within the Former Fort Area and is designated for Industrial Research and Planned Community. It is estimated that there will be 535 residential units in the Planned Community zoning and approximately 25% floor to area of commercial development in the Industrial Research zoning. Based on these values, it is estimated that the ADF for Region “D2” is 0.11 mgd. Table 4-9 provides a summary of the future wastewater flows anticipated for Region “D2”.

Table 4-1. Flow Meter Summary of Average and Maximum Day Flows

Tributary Areas	Average Day Flows		Maximum Day Flow	
	gpd	gpm	Peaking Factor	gpm
27”	Unable to be determined			
Amador	259,000	180	1.5	275
Rosita	Unable to be determined			
Contra Costa	446,000	310	1.9	310
Victory Toyota	684,000	475	1.6	775
Broadway	171,000	120	2.5	300
Love Chevrolet	392,000	270	2.2	600
Cypress Ford	Unable to be determined			

Table 4-2. SCSD Average Annual Flow Summary from MRWPCA

Year	Actual Minimum Day Flow[1] (gpd)	Actual Maximum Day Flow[1] (gpd)	Modified Minimum Day Flow[2] (gpd)	Modified Maximum Day Flow[2] (gpd)	Average[3] (gpd)
2002	0.61	2.20	1.01	1.90	1.61
2003	0.82	2.06	0.99	2.06	1.46
2004	-1.61	2.30	0.96	1.61	1.24
2005	-0.91	2.48	0.74	2.09	1.47
2006	1.23	3.38	1.23	2.31	1.79
2007	0.33	3.46	0.94	1.64	1.34
2008	-0.57	2.72	1.13	2.72	2.15
2009	1.32	2.93	1.32	2.93	1.90

[1] Actual flows calculated.
[2] Modified Minimum and Maximum flows based on reasonable flow meter results. Arbitrarily low or high flow readings were removed from the data selection.
[3] Average based on daily flows from modified flow summary. Does not include flows that appeared to be arbitrarily low or high.

Table 4-3. Existing Average Annual Flows By Land Use

Source of Flow	Quantity	Unit	Flow Factor (gal/day/unit)	Total Average Annual Flow (gal/day)
Residential	21,020	persons	65	1,366,300
Hotel Rooms	698	rooms	100	69,800
Commercial	2,974,898	sf	0.10	297,490
School	3,215	students	20	64,300
			Existing Average Daily Flows	**1,797,890**

Table 4-4. Existing Average Daily Flows By Tributary Area

Description of Tributary Area		Estimated Residential Population (Including Mix-Use)	gpd	# of Hotel Rooms	gpd	Estimated # of Students	gpd	Commercial/ Public Facility (minus schools & hotels) (sq. ft.)	gpd	Total gpd	Flow Monitoring (gpd)
Amador Tributary Area											
	Rosita	848	55,088	0	0	0	0	248,065	24,806	79,894	
	Amador	1,555	101,075	41	4,100	0	0	302,069	30,207	135,382	
										215,276	**259,000**
Contra Costa Tributary Area											
	Contra Costa	5,211	338,715	19	1,900	729	14,580	255,830	25,583	380,778	
										380,778	**446,000**
Victory Toyota Tributary Area											
	Toyota	6,580	427,705	0	0	1,039	20,780	407,224	40,722	489,208	
	Broadway	2,948	191,646	0	0	1,147	22,940	58,407	5,841	220,427	
										709,634	**684,000**
Love Chevrolet Tributary Area											
	Love Chevy	3,475	225,882	81	8,100	300	6,000	354,998	35,500	275,481	
	Military	118	7,638	0	0	0	0	0	0	7,638	
										283,119	**392,000**
Cypress Ford Tributary Area											
	Cypress Ford	0	0	189	18,900	0	0	790,124	79,012	97,912	
										97,912	**Not Measured**
27" Tributary Area											
	27"	285	18,525	368	36,800	0	0	558,181	55,818	111,143	
										111,143	**Not Measured**
Total		**21,020**	**1,366,273**	**698**	**69,800**	**3,215**	**64,300**	**2,974,898**	**297,490**	**1,797,862**	**1,781,000**

Table 4-5. Summary of Peaking Factor Analysis

Flow Condition	Flow (mgd)	Peaking Factor	Notes
Average Daily Flow (ADF)	1.80	--	Record daily flows from MRWPCA from January 2006 through May 2009.
Maximum Day Dry Weather Flow (MDDWF)	2.72	1.5	From October 25, 2008
Peak Hour Dry Weather Flow (PHDWF)	5.4	3.0 – Residential	Based on flow monitoring conducted between February 10, 2009 and March 26, 2009.
		3.1 - Commercial	
Peak Hour Wet Weather Flow (PHWWF)	Varies for Each Tributary Area		See Chapter 5

Table 4-6. Region "A" Future Average Daily Flows By Land Use

Source of Flow	Quantity	Unit	Flow Factor (gal/day/unit)	Total Average Annual Flow (gal/day)
Residential	27,839	persons	65	1,809,535
Hotel Rooms	1,284	rooms	100	128,400
Commercial	3,481,698	sf	0.10	348,170
School	3,697	students	20	73,945
			Future Average Daily Flows	**2,360,050**

Table 4-7. Region "B" Future Average Daily Flows By Land Use

Source of Flow	Quantity	Unit	Flow Factor (gal/day/unit)	Total Average Annual Flow (gal/day)
Residential	0	persons	65	0
Hotel Rooms[1]	150	rooms	100	15,000
Commercial[2]	762,300	sf	0.10	76,230
School	0	students	20	0
			Future Average Daily Flows	**91,230**

[1] Assumes hotel constructed on general commercial parcel. Number of hotel rooms assumed.

[2] Assumes 70 acres developed for commercial use with a 25% floor to area developed ratio.

Table 4-8. Region "C" Future Average Daily Flows By Land Use

Source of Flow	Quantity	Unit	Flow Factor (gal/day/unit)	Total Average Annual Flow (gal/day)
Residential	8,554	persons	65	556,010
Hotel Rooms	0	rooms	100	0
Commercial	0	sf	0.10	0
School	0	students	20	0
			Future Average Daily Flows	**556,010**

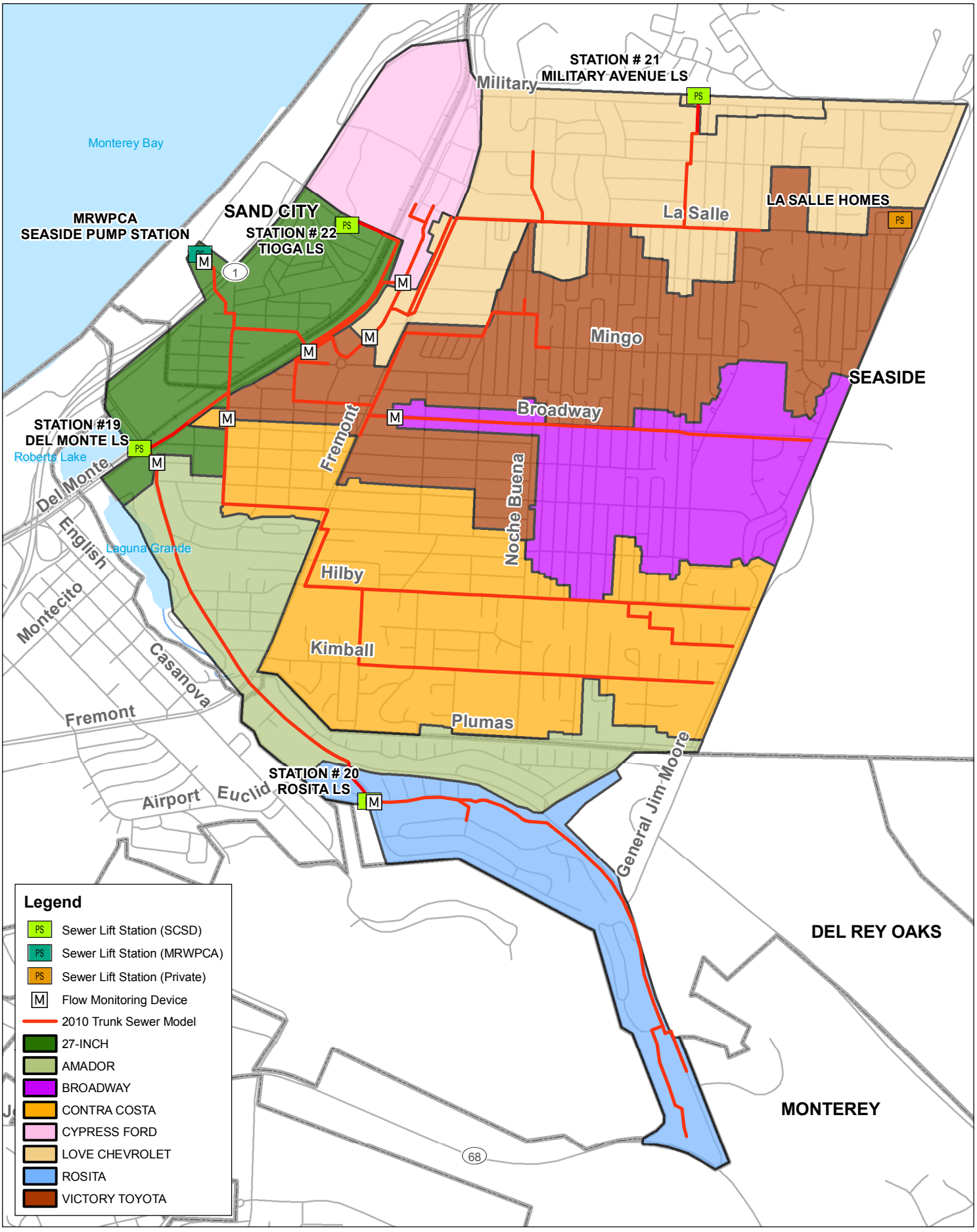
Table 4-9. Region "D2" Future Average Daily Flows By Land Use

Source of Flow	Quantity	Unit	Flow Factor (gal/day/unit)	Total Average Annual Flow (gal/day)
Residential	1,123	persons	65	72,995
Hotel Rooms	0	rooms	100	0
Commercial[1]	370,260	sf	0.10	37,026
School	0	students	20	0
			Future Average Daily Flows	**110,021**

[1] Assumes 34 acres developed for commercial use with a 25% floor to area developed ratio.

Table 4-10. Summary of Future Average Daily Flows

Region	Future WW Flow (gpd)
Region "A"	2,360,050
Region "B"	91,230
Region "C"	556,010
Region "D2"	110,021
Total	**3,117,311**
Total (mgd)	**3.12**



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SEASIDE COUNTY SANITATION DISTRICT
2011 SEWER MASTER PLAN

FIGURE 4-1: FLOW MONITORING BASIN MAP

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED MAY 2011.

Figure 4-2. Amador Average Daily Flow Readings

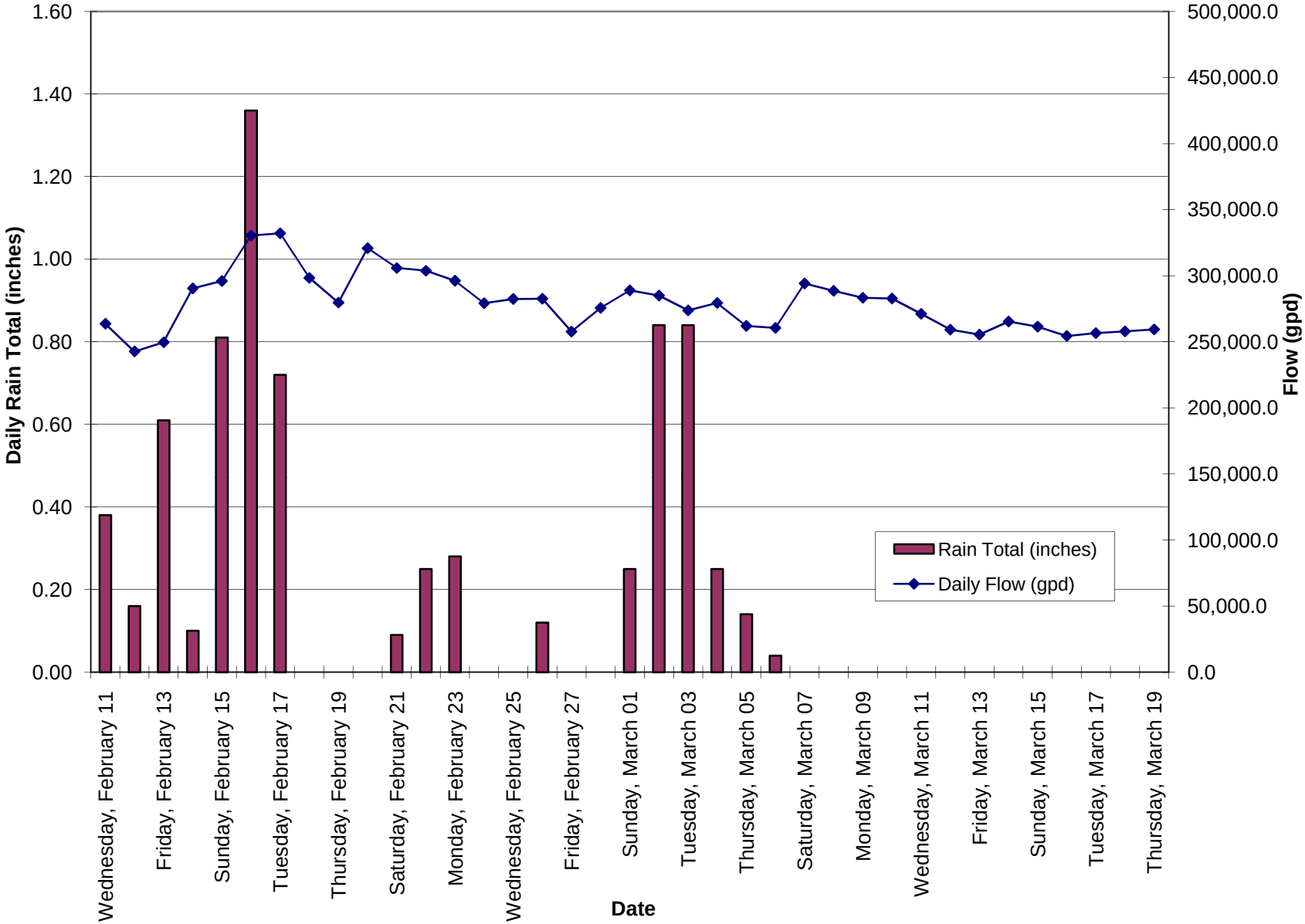


Figure 4-3. Contra Costa Average Daily Flow Readings

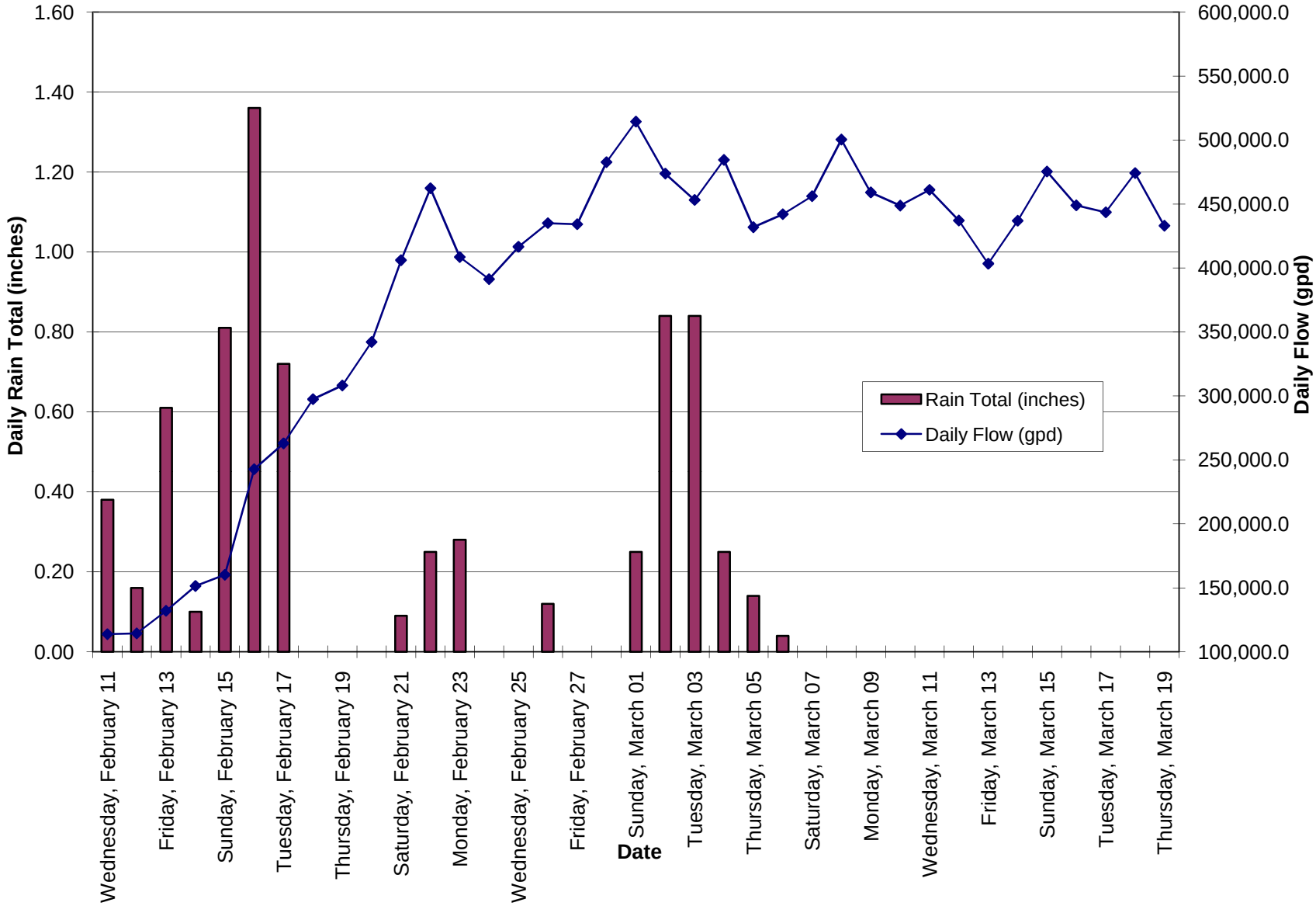


Figure 4-4. Victory Toyota Average Daily Flow Readings

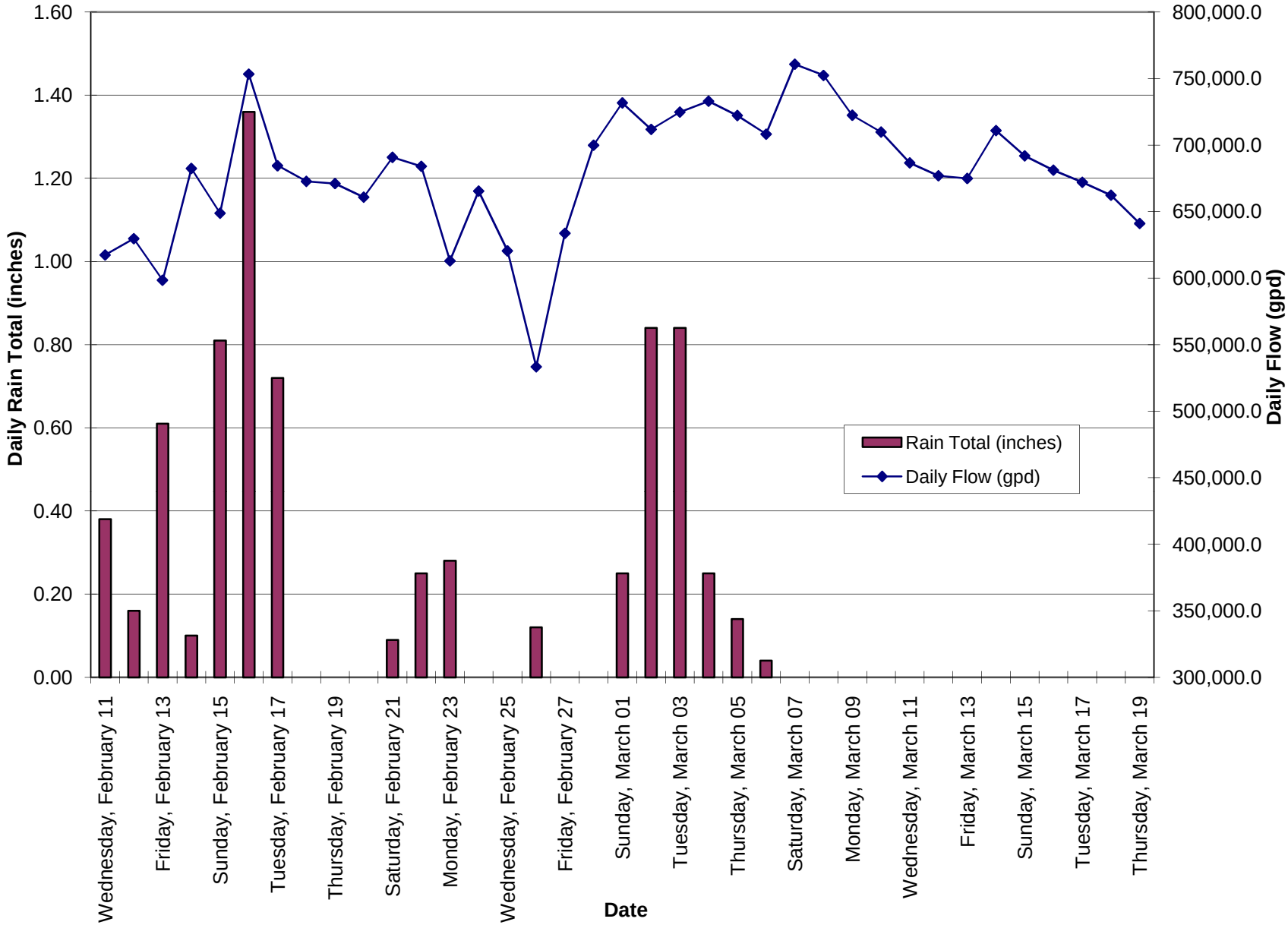


Figure 4-5. Broadway Average Daily Flow Readings

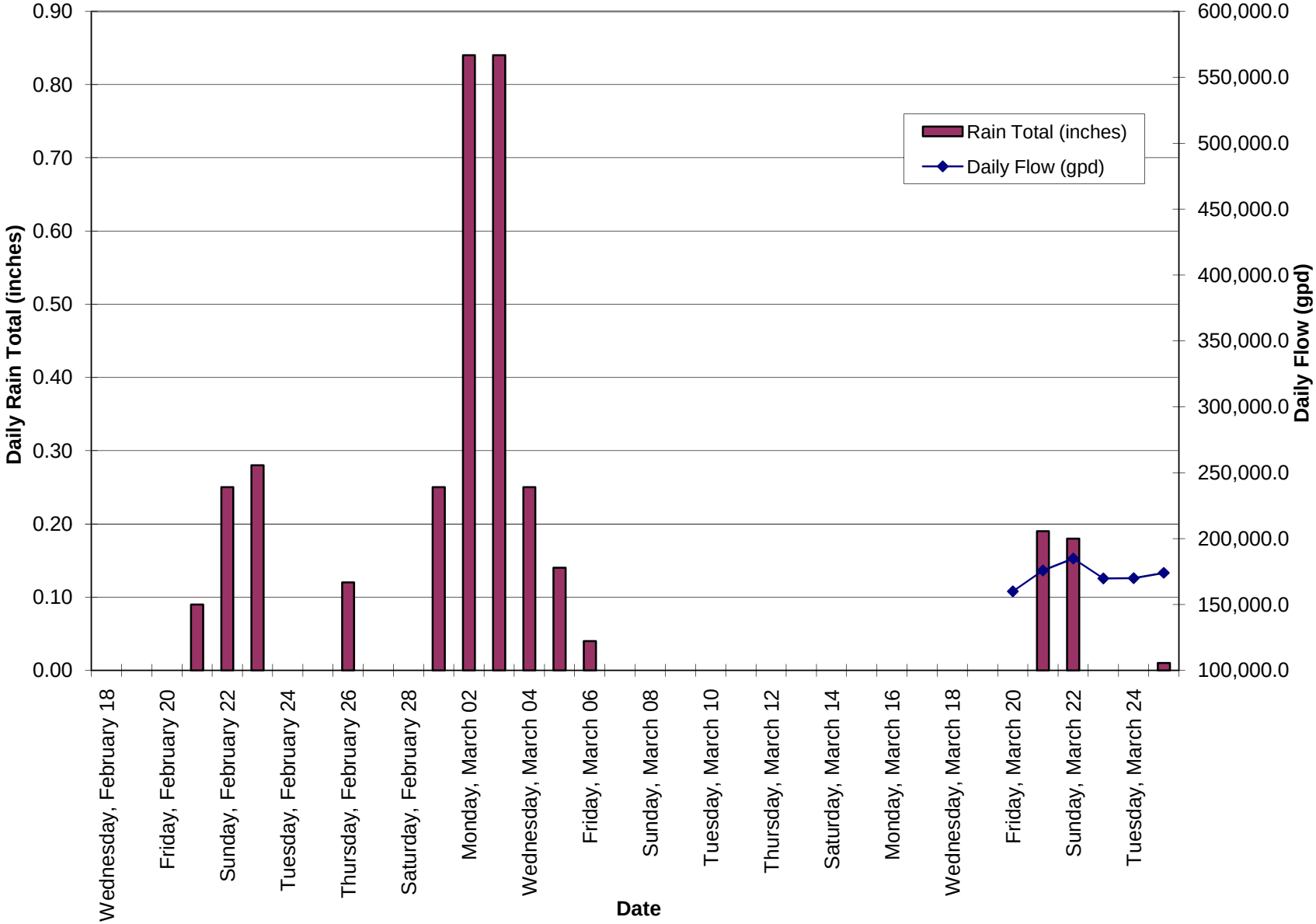


Figure 4-6. Love Chevrolet Average Daily Flow Readings

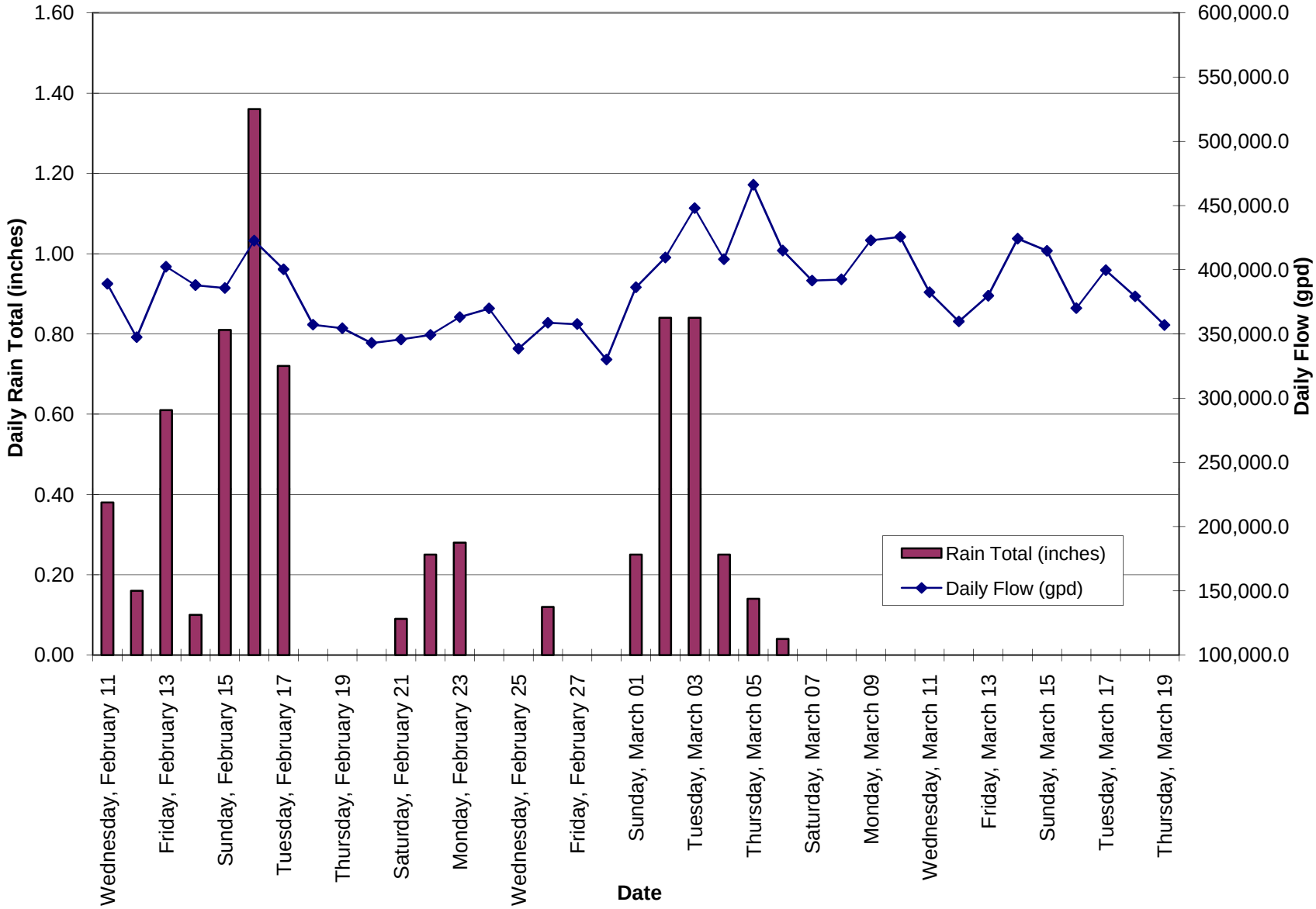
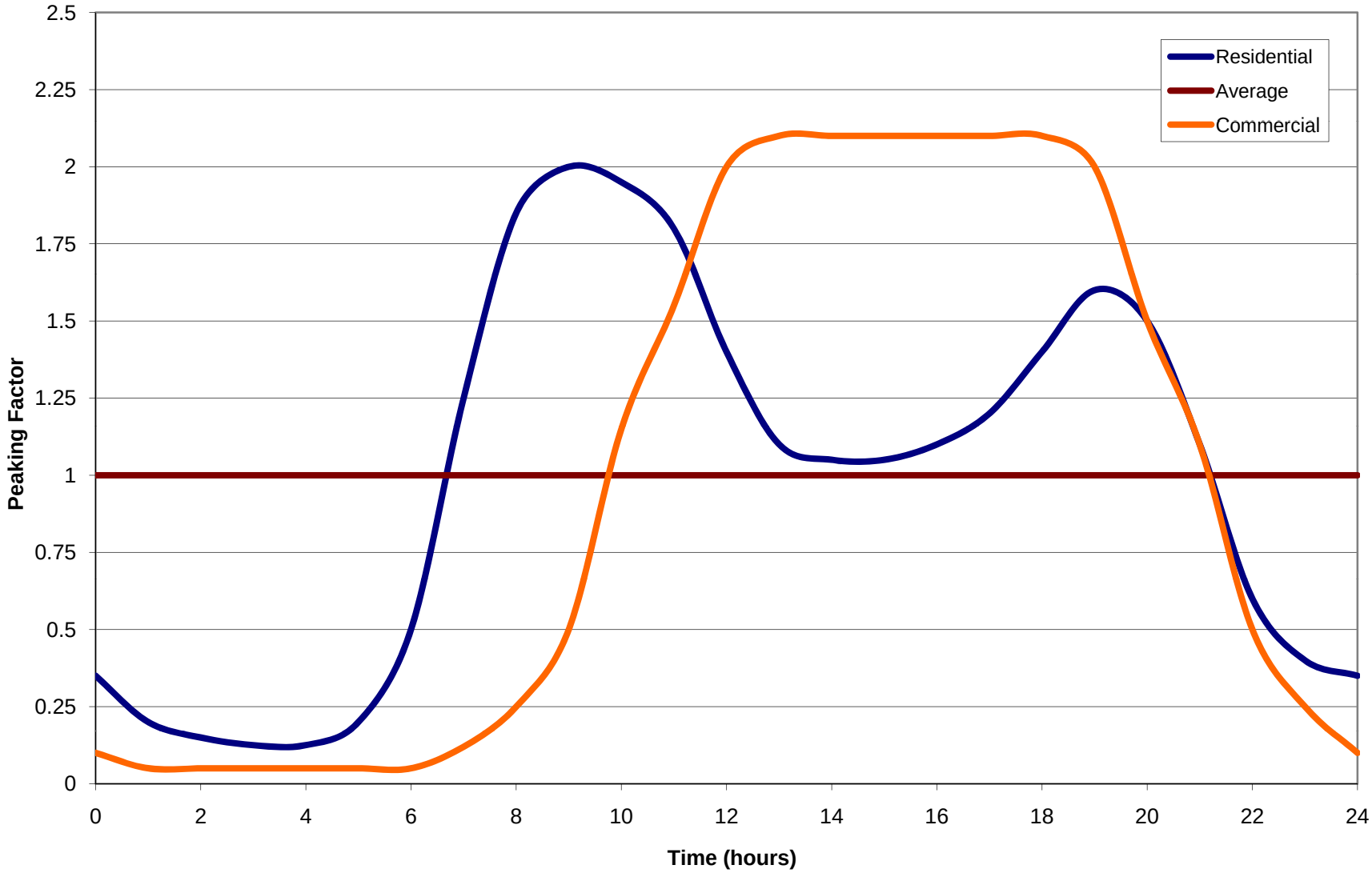


Figure 4-7. Diurnal Curve



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CHAPTER 5

INFLOW AND INFILTRATION

Chapter 5 presents the data collected during the sewer flow monitoring regarding inflow and infiltration and an evaluation of the impact inflow and infiltration has on Seaside County Sanitation District's (SCSD) collection system. All tables and figures for Chapter 5 are located at the end of this chapter.

INFLOW AND INFILTRATION

Inflow and infiltration (I/I) can cause significant issues in collection systems and wastewater treatment plants. The I/I of surface and ground water into a sewer system can result in peak flows that far exceed dry weather flow conditions. For the purposes of this report, these terms are defined as follows:

> *Infiltration* is the water entering a sewer system and service connections from groundwater, through such means as defective pipes, pipe joints, connections, or manhole walls. Infiltration does not include inflow and is relatively constant over a period of days, weeks, or even months as high groundwater conditions persist.
>
> *Inflow* is the water discharged into a sewer system and service connections from such sources as roof drains, cellar, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers, catch basins, storm water, surface runoff, or drainage. Inflow does not include infiltration. Inflow occurs and varies rapidly with rainfall conditions, with flows rising and falling within minutes or hours of a severe storm event.

SEWER FLOW MONITORING RESULTS

As noted in Chapter 4, sewer flow monitors were installed at eight locations throughout the collection system. These locations are depicted on Figure 4-1, located in Chapter 4. The flow monitoring was conducted between February 10, 2009 and March 26, 2009. The following provides a discussion of the rain data and the results of the sewer flow monitoring for each tributary area as it relates to I/I.

Rain Data

The most accurate rain data available is through weather stations that are monitored by the California Irrigation Management Information System (CIMIS). Three CIMIS stations were identified in the region of Seaside: Station 19 in Castroville, Station 116 in Salinas North, and Station 210 in Carmel. Figure 5-1 graphs the rain levels for each station over the entire duration of the flow monitoring. Station 19, Castroville had a total of 5.84 inches. Station 116, Salinas North had a total of 4.80 inches and Station 210, Carmel had a total of 7.62 inches. The exact total rainfall in Seaside is not known; however, these three stations provide a good estimate for the days that Seaside potentially saw

rainfall. Although weather patterns of storms in Carmel are not necessarily representative of rainfall duration or intensity in Seaside, for the purposes of this report, the rainfall from Carmel will be graphed against the total flows from the flow meters to determine if SCSD has any I/I problem areas.

Flow Monitoring Results

The following provides a summary of I/I results for each of the flow monitoring stations:

27-inch

As noted in Chapter 4, the 27-inch tributary did not provide valid flow results throughout the entire duration of the flow monitoring. This tributary area is expected to be more prone to I/I due to the relative flatness of this region and the age of the infrastructure. For the purposes of this report, the collection system model will be evaluated with a 2.0 wet weather peaking factor for an 8-hour duration for I/I. These peaking factors are similar to what was experienced in the Amador tributary area.

Amador

The Amador tributary area was anticipated to have one of the highest I/I factors in SCSD due to the age and condition of a large portion of the infrastructure. Figure 5-2 depicts the flow on February 16, 2009, which received 1.36 inches of rain, and March 17, 2009, which was used for dry weather flow calibration. Table 5-1 provides the hourly readings of rain on February 16. The rain was light in the morning and then stopped from 10:00 am to 3:00 pm and then increased in intensity in the late afternoon with its largest intensity, 0.25 inches in one hour, at 8:00 pm. This rain pattern correlates identically to increased flows during the entire duration of the rain event, increasing and decreasing as the storm increases and decreases throughout the day. The largest peaking factor with the 0.25 inches of rain was 1.6. This storm was less than a 10 year storm. Therefore, there is a high probability that a larger storm could produce a significantly higher peaking factor. A 25 year storm is estimated to produce 0.8 inches in one hour. Even though the rain intensity is 3 times greater for a 25 year storm, it is not estimated that the I/I will increase by a magnitude of 3. It is estimated that a 25 year storm could produce a 2.0 peaking factor. Therefore, for the purposes of this report, the collection system model will be evaluated with a 2.0 peaking factor for an 8-hour duration for I/I.

Rosita

As noted in Chapter 4, flows were not read for the Rosita flow meter. Therefore, since Rosita flows into the Amador tributary area, it is anticipated that similar peaking factors could occur in the Rosita tributary area. Therefore, the collection system model will be evaluated with a 2.0 peaking factor for an 8-hour duration for I/I.

Contra Costa

The Contra Costa tributary area was also anticipated to have influence from I/I due to its age and pipe condition. Unfortunately, the large rain event on February 16th occurred while the flow meter appeared to not be providing accurate data. Figure 5-3 compares March 3, 2009, a rain day that received 0.84 inches versus March 9, 2009, a dry day. Table 5-2 provides the hourly flow data for March 3, 2009.

March 3, 2009 received 0.25 inches in one hour at 9:00 pm, which resulted in a 1.3 peaking factor. As discussed for the Amador tributary area, 0.25 inches in one hour is

less than a 10 year storm. Although the true maximum peaking factor is undetermined, it is anticipated that the Contra Costa tributary area could see up to a 1.8 peaking factor. Therefore, for the purposes of this report, the collection system model will be evaluated with a 1.8 peaking factor for an 8-hour duration for I/I.

Victory Toyota

The majority of the Victory Toyota tributary is located on the hillside. Therefore, it is not anticipated that there would be a large I/I factor in this tributary. Figure 5-4 compares February 16, 2009, a rain day, versus March 16, 2009, a dry day used to calibrate the sewer model. Based on the comparison of the two days, there was a slight increase in flows throughout the day, resulting from that day's rainfall. Although the true maximum peaking factor is undetermined, it is anticipated that the Victory Toyota tributary area could see up to a 1.6 peaking factor. For the purposes of this report, the collection system model will be evaluated with a 1.6 peaking factor for an 8-hour duration for I/I.

Broadway

Since the flow meter was washed away, there was not sufficient data for the Broadway flow meter to evaluate the impacts of I/I. Since Broadway is upstream of Victory Toyota, the same peaking factor will be used. Therefore, for the purposes of this report, the collection system model will be evaluated with a 1.6 peaking factor for an 8-hour duration for I/I.

Love Chevrolet

As noted in Chapter 4, the diurnal pattern for Love Chevrolet tributary area was fairly flat with 300 gpm spikes throughout the day. Figure 5-5 compares February 16, 2009, a rain day, versus March 19, 2009, a dry day used to calibrate the sewer model. Based on the comparison of the two days, there are two factors that appear. The first is the average flow on the rain day increases by 60 to 70 gpm consistently throughout the day while the rain is occurring. This implies that there is inflow consistently coming into this tributary area upstream of the flow meter. Although the true maximum peaking factor is undetermined, it is anticipated that the Love Chevrolet tributary area could see up to a 1.4 peaking factor. For the purposes of this report, the collection system model will be evaluated with a 1.4 peaking factor for an 8-hour duration for I/I.

Cypress Ford

Since flows were not obtained for Cypress Ford tributary area, I/I can not be determined. This tributary area is very small, with fairly recent construction. It is not anticipated that I/I is a large factor. Therefore, for the purposes of this report, a peaking factor will not be applied to the Cypress Ford tributary area.

I/I Summary

Although flow data was not able to be obtained for all of the flow meters and several days throughout the flow monitoring were not valid, the figures provided in this chapter reflect how well some of the days correlated with rain days.

Based on flow summaries, I/I does not appear to be a large concern for the SCSD area. Table 5-3 provides a summary of the peaking factors for each of the tributary areas. These peaking factors are applied in addition to the typical diurnal curve.

Table 5-1. February 16, 2009 Rain Data

Time	Rain (inches)	Time	Rain (inches)
0100	0.04	1300	0.01
0200	0.01	1400	0.00
0300	0.07	1500	0.00
0400	0.03	1600	0.11
0500	0.01	1700	0.00
0600	0.06	1800	0.06
0700	0.19	1900	0.02
0800	0.19	2000	0.25
0900	0.07	2100	0.01
1000	0.00	2200	0.19
1100	0.00	2300	0.00
1200	0.00	2400	0.04
		Total	**1.36**

Table 5-2. March 3, 2009 Rain Data

Time	Rain (inches)	Time	Rain (inches)
0100	0.00	1300	0.12
0200	0.00	1400	0.00
0300	0.00	1500	0.02
0400	0.02	1600	0.05
0500	0.00	1700	0.02
0600	0.00	1800	0.00
0700	0.00	1900	0.00
0800	0.00	2000	0.02
0900	0.00	2100	0.25
1000	0.00	2200	0.06
1100	0.06	2300	0.02
1200	0.08	2400	0.12
		Total	**0.84**

Table 5-3. I/I Peaking Factor Summary

Tributary Area	I/I Peaking Factor
27-inch	2.0
Amador	2.0
Rosita	2.0
Contra Costa	1.8
Victory Toyota	1.6
Broadway	1.6
Love Chevrolet	1.4
Cypress Ford	1.0

Figure 5-1. CIMIS Rain Data

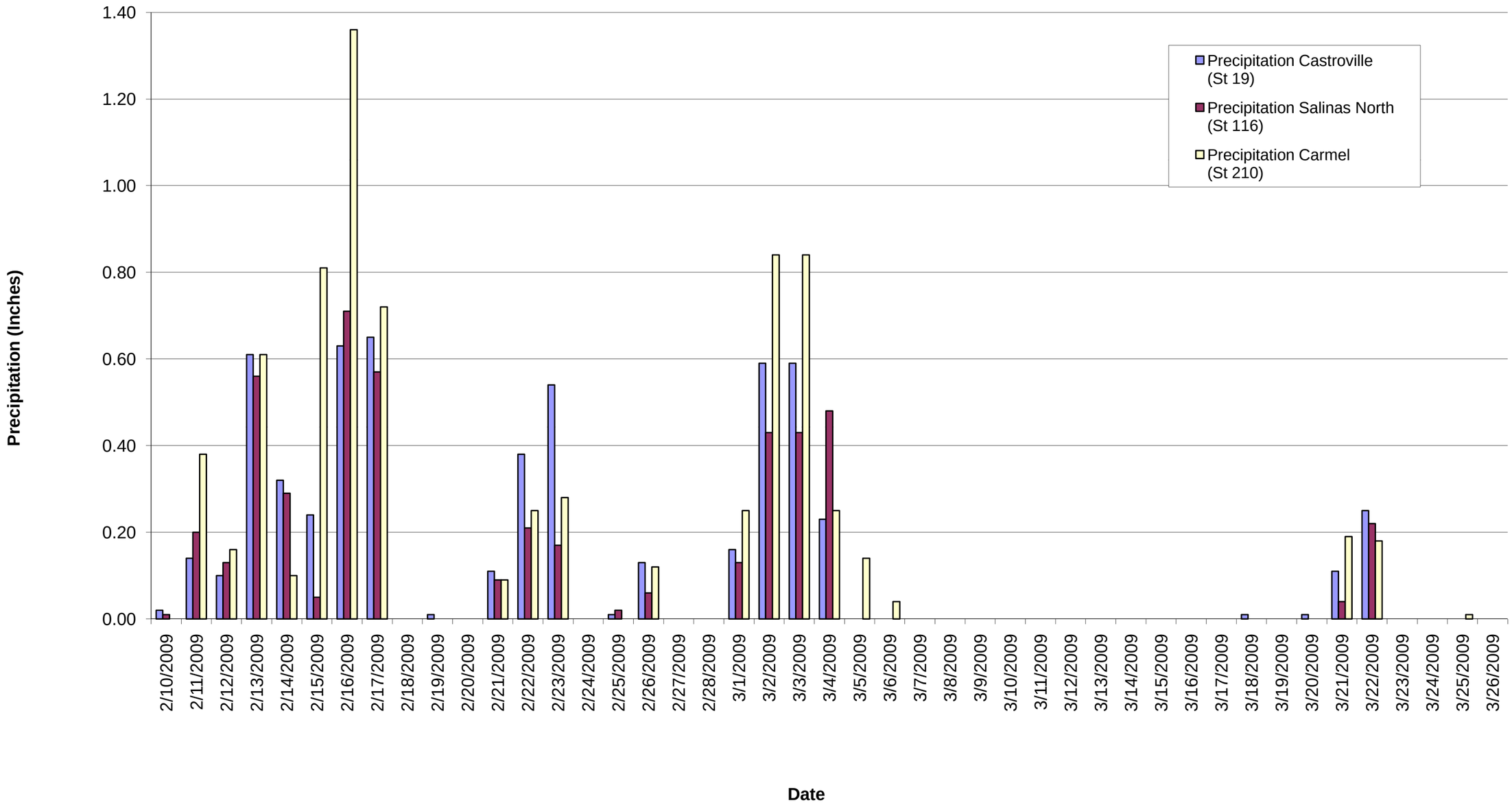

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Figure 5-2. Amador
Dry Weather vs. Wet Weather Flow

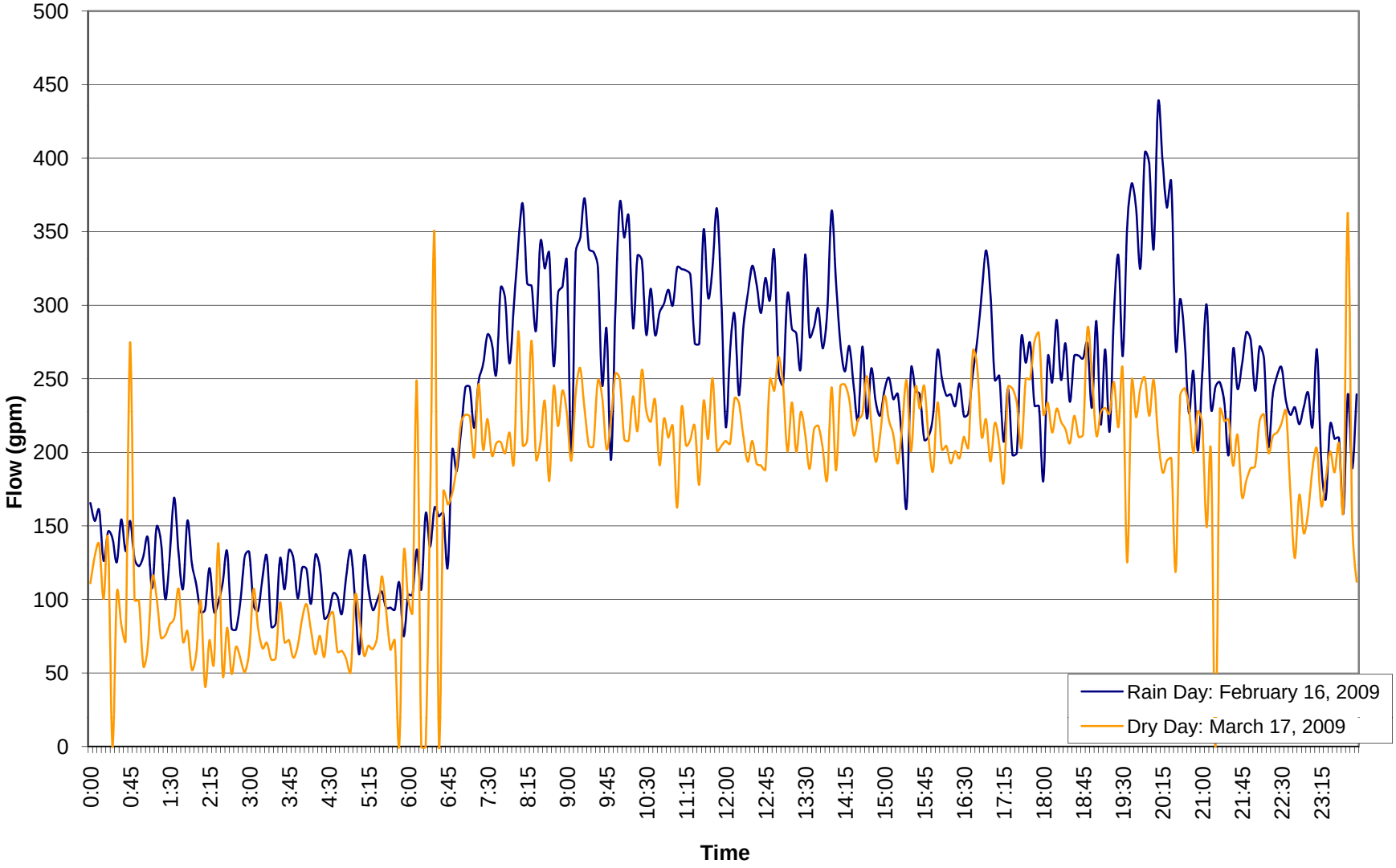


Figure 5-3. Contra Costa
Dry Weather vs. Wet Weather Flow

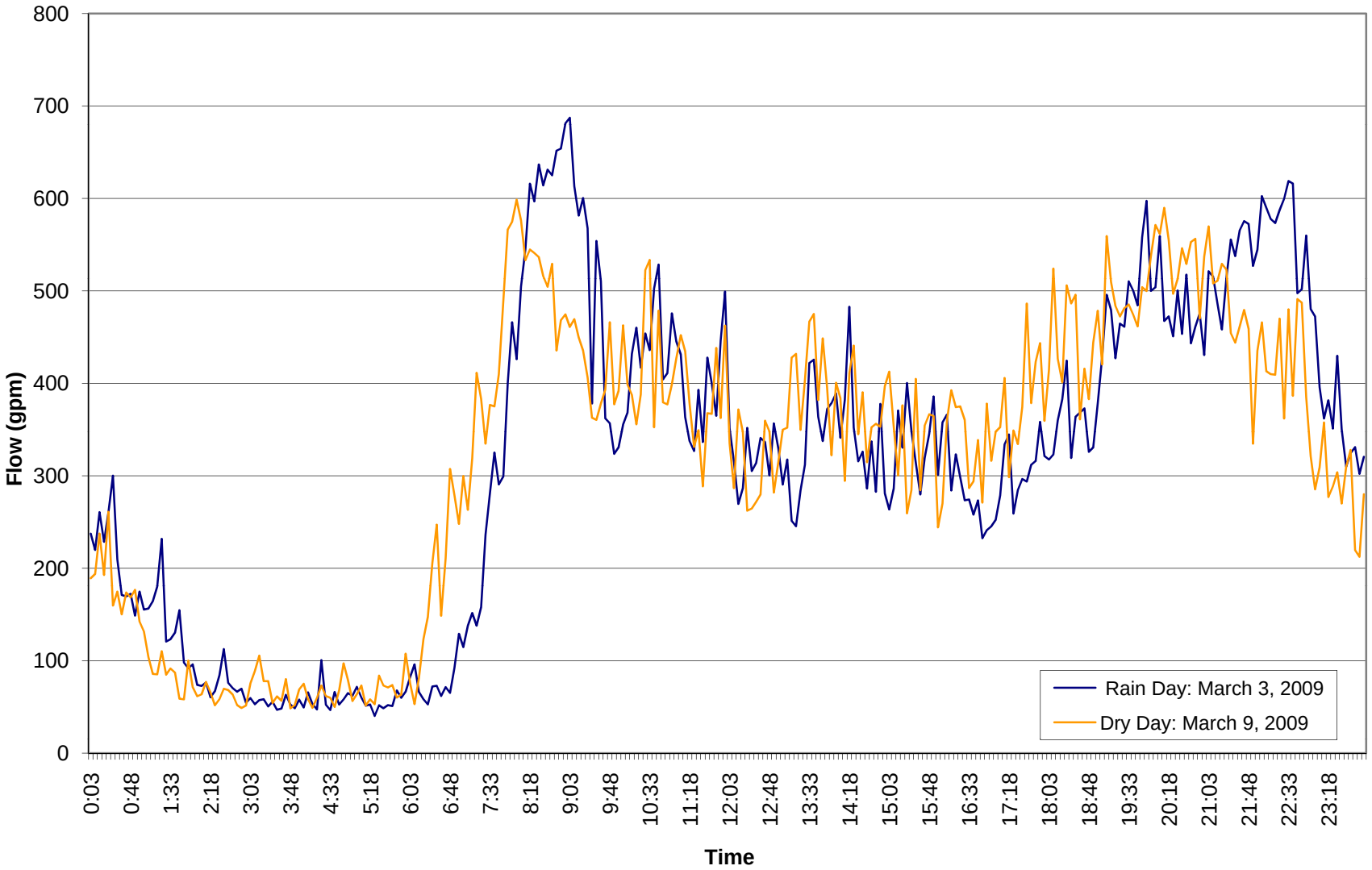


Figure 5-4. Victory Toyota
Dry Weather vs. Wet Weather Flow

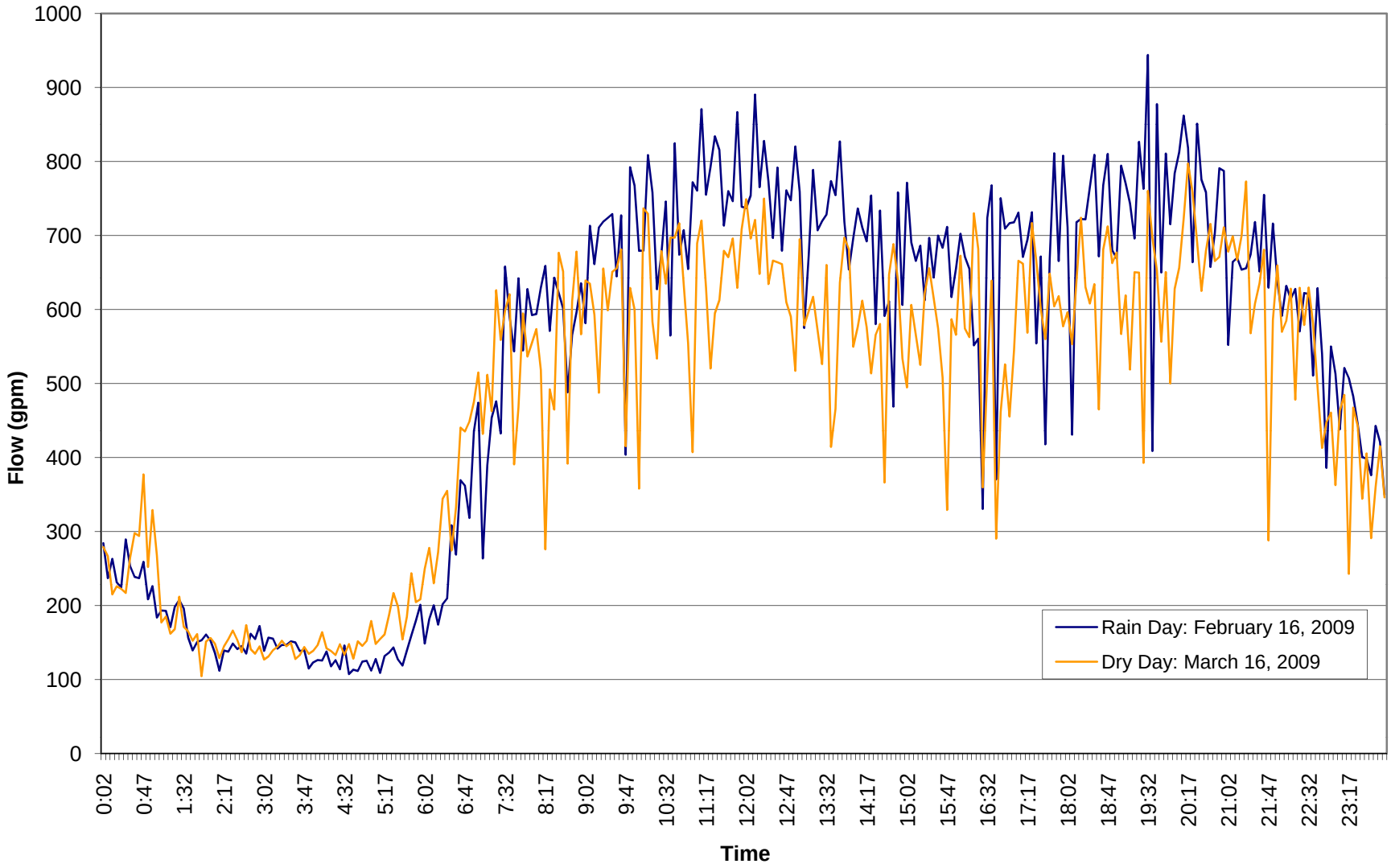
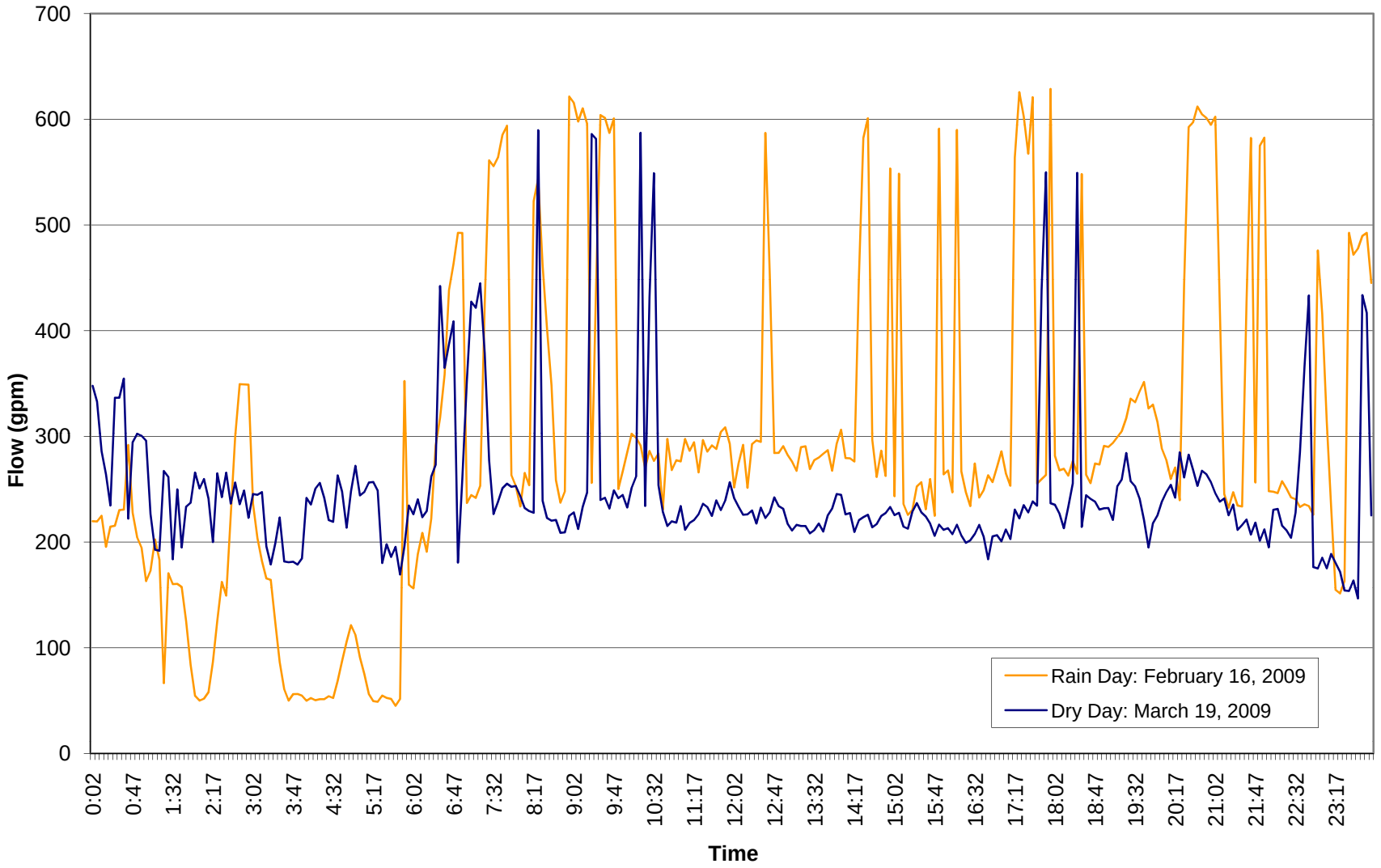


Figure 5-5. Love Chevrolet
Dry Weather vs. Wet Weather Flow



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CHAPTER 6

LIFT STATION EVALUATION

This Chapter will evaluate Seaside County Sanitation District's (SCSD) four lift stations for their physical condition and ability to meet existing and future wastewater flows. All tables and figures for Chapter 6 are located at the end of this chapter.

LIFT STATION BACKGROUND

SCSD owns four lift stations located throughout the collection system; however, they contract with Monterey Regional Water Pollution Control Agency (MRWPCA) to operate and maintain the lift stations. The service areas and locations of the lift stations are depicted on Figure 6-1 and their features are summarized in Table 6-1. The four lift stations are listed as follows:

Station #19 – Del Monte Lift Station
Station #20 – Rosita Lift Station
Station #21 – Military Lift Station
Station #22 – Tioga Lift Station

Station #19 – Del Monte Lift Station

The Del Monte Lift Station is the largest lift station for SCSD. It is a wet pit/dry pit Smith & Loveless triplex lift station. The lift station is located on the northwest corner of Del Monte Blvd. and Canyon Del Rey Blvd. The lift station pumps a short distance to a gravity main in Del Monte Blvd. It collects all of the flow from Canyon Del Rey Blvd., including flow from Rosita Lift Station.

Station #20 – Rosita Lift Station

Rosita is SCSD's second largest lift station. It is a duplex submersible lift station with Flygt pumps. The Rosita Lift Station is located on the northwest corner of Rosita Road and Angelus Way at the edge of a parking lot along a creek. The lift station collects flow from Del Rey Oaks and pumps to the gravity main in Canyon Del Rey Blvd.

Station #21 – Military Lift Station

The Military Lift Station is a small duplex submersible lift station with Flygt pumps. It is located on north side of Military Avenue just west of Highland Street. Military Lift Station collects wastewater from a small residential zone.

Station #22 – Tioga Lift Station

The Tioga Lift Station is a small duplex submersible lift station with Flygt pumps. It is located on the south side of Tioga Avenue, west of Highway 1. This lift station collects a small amount of flow from a couple of commercial businesses immediately adjacent to the lift station. It is estimated only a total of just over 16,000 sq. ft. of commercial property and maybe one or two houses flow to the Tioga lift station.

PHYSICAL EVALUATION

A thorough physical investigation of the four sewer lift stations owned by SCSD was completed. A description of the facilities and findings of the condition of the four lift stations are outlined below. **The capital improvement project recommendations for lift station upgrades are determined following the completion of both the physical and the hydraulic evaluations and the projects are described at the end of this chapter.** A full report, including pictures of the lift stations, is included as Appendix A.

On February 11, 2009, the lift station evaluations were conducted to determine their overall physical condition. As part of the investigation, flow and megaohm tests were conducted on each of the pumps. The flow tests were to confirm the production of each pump. The megaohm tests were conducted to assess the condition of each pump motor. As the motor windings deteriorate, the megaohm readings drop. The readings should be around 150 mΩ. The lower the value, the higher the likelihood that the pump will spark or burn out.

A visual check of the wet well, piping, valves, and control panels was also conducted at each lift station. A structural investigation of each wet well was beyond the scope of this study; however, signs of corrosion from sulfuric acid buildup were noted in the full report located in Appendix A. Each pump was disassembled and seals and impellers were inspected. Based on this investigation the following information was determined for each lift station.

Station #19 – Del Monte Lift Station

See Table 6-2 for comments and recommendations from the physical evaluation for Del Monte Lift Station.

The Del Monte Lift Station was refurbished in 1988, which included a new dry pit. Physically, the Del Monte Lift Station is in good condition. Additional recommendations pertaining to the hydraulic performance of this lift station are provided later in this chapter.

Station #20 – Rosita Lift Station

See Table 6-3 for comments and recommendations from the physical evaluation for Rosita Lift Station.

The Rosita Lift Station was originally constructed in 1956 and refurbished in 1988. Physically, the Rosita Lift Station is in fair to poor condition and is nearing its useful life. There is severe corrosion and deterioration throughout. Additional recommendations pertaining to the hydraulic performance of this lift station are provided later in this chapter.

Station #21 – Military Lift Station

See Table 6-4 for comments and recommendations from the physical evaluation for Military Lift Station.

Military Lift Station was originally constructed in 1960 and refurbished in 1979. Physically, Military Lift Station is in poor condition and is nearing its useful life. There is

severe corrosion and deterioration throughout, which may make it more cost effective to replace the facilities entirely instead of refurbishment. Additional recommendations pertaining to the hydraulic performance of this lift station are provided later in this chapter.

Station #22 – Tioga Lift Station

See Table 6-5 for comments and recommendations from the physical evaluation for Tioga Lift Station.

Tioga Lift Station was refurbished in 1979. The lift station currently only has one pump. SCSD has not replaced the second pump, which was pulled due to pump failure. Physically, the lift station is in fair condition. Refurbishment of the piping and wet well is needed. Additional recommendations pertaining to the hydraulic performance of this lift station are provided later in this chapter.

HYDRAULIC PERFORMANCE EVALUATION – EXISTING CONDITIONS

The hydraulic characteristics of each lift station were analyzed and deficiencies were noted. Design criteria that apply to the lift stations and force mains are summarized below.

- Force main velocities should be greater than 2.0 feet per second to maintain self cleaning properties but less than 5.0 feet per second to minimize head loss and water hammer.
- Lift Stations should be able to convey peak flows with the largest pump out of service. Station "capacity" is therefore calculated with the largest pump out of service. This means that the lift station should be capable of operating with only one pump in duplex conditions and with only two pumps in triplex conditions.
- Lift Station wet wells should be sized to limit the number of pump starts per hour to acceptable limits as defined by the pump manufacturer. Larger lift stations may require a variable frequency drive to meet this requirement.
- Lift stations should have a means of conveying peak flow during a power outage. Lift stations serving a small number of customers could use wet well storage to meet this requirement.

Existing Lift Station Flows

Table 6-6 provides a summary of the existing flows for each lift station based on the unit factors for the various land uses noted in Chapter 4. The flows for each lift station are based on gravity flow to the lift station from its tributary area. The Del Monte Lift Station also receives flow from the Rosita Lift Station, which is approximately 480 gpm under simplex conditions and approximately 700 gpm under duplex conditions.

Force Main Evaluation

The force mains were evaluated for two factors: physical capacity and physical condition.

Physical Capacity

The force main velocities were calculated using the tested single pump capacity and the force main size for Stations 20, 21, and 22 and the assumed duplex capacity was used for Station #19. The calculated velocities are provided in Table 6-7. As noted above, force main velocities should be greater than 2.0 feet per second to maintain self cleansing properties but less than 5.0 feet per second to minimize head loss and water hammer.

Based on the velocities identified in Table 6-7, the velocities within the force mains for each lift station are within acceptable ranges. The Del Monte LS under duplex conditions is at 6.2 ft/sec; however, the lift station does not run under these conditions normally. In addition, the force main velocity for the Rosita LS is just slightly over 5 ft/sec at its design point. However, based on the latest pump test, the pump is not operating at its design point and the velocities are now under 5 ft. sec.

Physical Condition

All four of the lift stations were constructed in the 1950's and 1960's, with rehabilitations in the 1970's and 1980's. However, the force mains were not replaced when the rehabilitations were completed. The force mains for each lift station were constructed of ductile iron piping with no lining. These force mains are over 50 years old and are anticipated to have severe corrosion in the interior of the force mains even though there are self cleaning velocities. It is recommended that the force mains for each lift station be replaced during the next lift station replacement or rehabilitation.

Wet Well Capacity Evaluation

To determine the sufficiency of the wet well capacity under existing conditions, each lift station was evaluated under three different operating conditions. They included:

- Worst Case Scenario – This is when the volume of flow coming into the lift station is exactly half of the flow rate of the pump.
- Average Daily Flows
- Peak Hour Dry Weather Flows

Pump run times were calculated based on the lift station volumes and tested and/or design pump flows (see Table 6-1). Table 6-8 summarizes the wet well cycle time calculations.

Lift station pumps should typically cycle not more than 5 or 6 times per hour to limit pump starts. This recommendation, however, should be based on the actual pump manufacturer's information. Often times, the smaller horsepower motors are capable of starting more often.

The following is a summary of the conclusions about the existing wet well capacity for each lift station:

Station #19 – Del Monte Lift Station

The Del Monte Lift Station, the largest lift station in SCSD's service area receives 104 gpm under average daily flows plus 480 gpm from Rosita LS. Based on Table 6-8, under worse case scenario for a simplex condition, Station #19 could run up to almost 14 times in one hour if flows were equal to 600 gpm or half of the simplex pump operation. This scenario would likely not trigger the second pump to turn on.

Since average day flow conditions are similar to the worst case scenario, it is anticipated that this lift station does cycle between 11 and 15 times per hour or whenever the Rosita Lift Station cycles. Under peak hour dry weather flows, it is anticipated that the duplex pump is required to be turned on. It is estimated that under this condition, the lift station could be cycling up to 25 times per hour.

Based on Table 6-8, the run time for the pumps is extremely short. This means that the operating volume of the wet well is not adequate for the amount of flow that is going to this lift station. It is unknown at this time if the wall between the existing wet well and the old wet well can be removed to increase capacity. Removing this wall would increase capacity at this lift station. If it can't be removed, there are three options to increase capacity and reduce the number of starts in an hour. One, construct a new wet well with a greater depth. Two, construct a new wet well with a greater diameter. Three, install variable frequency drive (VFD) pumps.

In addition to lack of volume in the wet well, this lift station is a wet pit/dry pit configuration, which is typically an operations and maintenance problem due to the confined space entry and inability to pull the pumps easily.

Therefore, it is recommended that the Del Monte Lift Station be converted from a wet pit/dry pit lift station to a submersible lift station with VFD pumps and to replace the force main with a new PVC force main (force main size to be verified). Options to utilize the existing facilities (force main and wet well) for back-up redundant facilities should be investigated during the preliminary design.

There are two options for constructing a new lift station. The first is to construct a lift station adjacent to the existing dry pit away from the street. It is unknown if there is sufficient room for an 10-foot diameter wet well in this location. The second is to insert a new concrete wet well inside the existing dry pit. It is estimated that this would result in a wet well with an 8-foot diameter. There are two concerns with this construction. First, the cost to bypass pump the existing flow may be too high to make this project feasible. The second is that an 8-foot diameter wet well may not be adequate for future flows. It is recommended that a feasibility analysis be completed prior to the design of the new lift station.

Station #20 – Rosita Lift Station

The Rosita Lift Station receives approximately 36 gpm under average daily flows. Under a worse case scenario, Station #20 could run up to 21 times per hour if the flow was 240 gpm. Under existing flows, this is unlikely to occur. Under normal operating conditions,

the lift station is running almost 6 times per hour and over 11 times per hour under Peak Hour Dry Weather Flow.

Based on Table 6-8, the pump run times are adequate for existing flows and therefore, this lift station is not required to be upgraded due to hydraulic constraints.

Station #21 – Military Lift Station

Military Lift Station receives only a small amount of residential flow. Under average day conditions, this lift station sees only 9 gpm. Under worse case scenario, the lift station could run up to 7.5 times per hour if the flow were at 75 gpm. Under normal operating conditions, the lift station runs 1.7 times per hour and only 3.2 times per hour under Peak Hour Dry Weather Flow. This lift station does have some odor problems in the downstream manhole to the force main. This manhole is located in the backyard of a private residence. It is recommended to seal this manhole with a locking manhole lid to reduce the odors venting through this lift station force main.

Based on Table 6-8, the pump run times are adequate for existing flows and therefore, this lift station is not required to be upgraded due to hydraulic constraints.

Station #22 – Tioga Lift Station

Tioga Lift Station has an extremely small tributary area with an average daily flow of only 1 gpm. Based on Table 6-8, the pump run times are adequate for existing flows and therefore, this lift station is not required to be upgraded due to hydraulic constraints.

With the construction of the Del Monte Sewer Main Upgrade (See Chapter 7 and 9), the Tioga Lift Station may be able to be eliminated. Prior to the construction of the South of Tioga Development Project, this alternative should be analyzed.

Emergency Response Time Evaluation

Another critical factor for lift station design is to evaluate the emergency response time that an operator has if total pump failure due to power outage or other anomaly were to occur. Table 6-9 estimates the amount of time between high water alarm and overflow. The results for each lift station are provided below.

Station #19 – Del Monte Lift Station

The Del Monte Lift Station receives the largest amount of flow out of the four lift stations. However, the volume of the wet well is not substantial. There is a little over 1,600 gal of volume before the lift station overflows into Del Monte Boulevard and into the storm drain system. If the Rosita Lift Station is on when the Del Monte Lift Station has a power failure, under average daily flows, the emergency response time is approximately 3 minutes; sixteen minutes if the Rosita Lift Station is not on. Under peak hour dry weather flow, the response time drops to 1 minute if both pumps at Rosita Lift Station are on.

The response time for the Del Monte Lift Station is not adequate for this lift station. It is recommended that an emergency generator be installed or additional storage be provided for this lift station.

Station #20 – Rosita Lift Station

The Rosita Lift Station is the only lift station that has a permanent standby generator. Therefore, if a power outage were to occur, the generator should turn on providing SCSD with additional time to respond to a power failure. If the failure were to occur due to another anomaly, under average daily flows, SCSD would have 21 minutes before the lift station would overflow to a bypass line that is directed to the adjacent creek. Under peak hour dry weather flow, SCSD has 7 minutes to respond before overflowing to the creek.

If the bypass line were removed, the Rosita Lift Station would then back up the collection system, and fill the two upstream manholes before overflowing. This would provide SCSD with an additional hour before the system would overflow. In addition, if the system were to overflow, the wastewater may not overflow directly to the creek and could possibly be contained in the street or in the parking lot.

The overflow pipe should be plugged or removed to safeguard against a potential accidental spill to the creek. If an overflow were to occur, SCSD is responsible to report to the Regional Water Quality Control Board, California Emergency Management Agency, Monterey County Environmental Health, and California Department of Fish & Game regardless of the amount of wastewater spilled. It is recommended that this by pass line be eliminated. Once this line is eliminated, this facility has back up power and substantial capacity for a pump failure.

Station #21 – Military Lift Station

Military Lift Station has a very low flow, but the wet well capacity is also very small. There is just over 550 gal of storage available before overflowing, which provides approximately one hour for response under average daily flows and 20 minutes under peak dry weather flows.

If this lift station overflows, the wastewater would flow to the north to the natural drainage swale located along the backside of the parcels. If the old wet well adjacent to the existing wet well has not been abandoned, it is recommended to install an overflow line to this wet well to provide additional storage for the Military Lift Station.

Station #22 – Tioga Lift Station

Tioga Lift Station has extremely low flow. The response time for this lift station is over 19 hours under average daily flows and over 6 hours under peak hour dry weather flow. Additional storage needs are not required for Tioga Lift Station.

HYDRAULIC PERFORMANCE EVALUATION – FUTURE CONDITIONS

It is critical to understand what upgrades are required to meet the estimated future flows, in addition to correcting existing deficiencies. The following sections analyze each lift station under the same criteria as existing wastewater flows.

Future Wastewater Flows

As noted in Chapter 2, future development may occur in several regions with minor infill throughout Region “A”. The minor infill will not have a tremendous impact on the overall

collection system; however, the projects identified in Chapter 2 and Regions "B", "C", "D1" and "D2" will have significant impacts to the collection system and potentially some of the lift stations. The impacts from the various regions, excluding Region "D1" are provided in the following evaluation:

Station #19 – Del Monte Lift Station
Del Monte Lift Station will be impacted from the following development:

- Del Monte Hotel: 9,500 gpd
- A portion of West Broadway Specific Plan: 60,000 gpd
- Possible upgrades to the Rosita Lift Station

Station #20 –Rosita Lift Station
Rosita Lift Station will be impacted from the following development:

- Region B: 134,585 gpd
- Region D2: 110,020 gpd

Station #21 – Military Lift Station
Military Lift Station is not expected to receive any additional flow in the future and will therefore not be evaluated.

Station #22 – Tioga Lift Station
Tioga Lift Station could be impacted by the South of Tioga Project. It is recommended that the developer and SCSD evaluate the proposed sewer alignments to determine if this lift station can be eliminated. If it is required, SCSD and/or the developer should determine if the existing Tioga Lift Station is properly located to facilitate the needs of the project without the need for any additional lift stations.

Table 6-10 provides a summary of the future flows for Del Monte and Rosita Lift Stations.

Lift Station Evaluation – Future Flow Conditions

The following is an analysis of the Del Monte and Rosita Lift Stations:

Station #19 – Del Monte Lift Station
Under existing conditions, the wet well capacity of the Del Monte Lift Station was not adequate and a VFD submersible lift station was recommended. The upgrades to this lift station should account for the anticipated future flows. The following are the benefits or constraints that should be evaluated during the design of a new submersible lift station with VFD pumps:

- Installing the VFD pumps will decrease the plug flow conditions downstream of the lift station, reducing the impacts from future development to the downstream collection system.
- Installing a new wet well will increase the storage volume, increasing the amount of time for emergency response during a power failure, and reducing pump cycle times.

- The force main will need to be analyzed with the new VFD operating conditions to determine if cleansing velocities are still maintained with the lower flows. A smaller diameter force main may be required.
- Due to the amount of flow going to this lift station in the future, it is recommended to utilize the existing wet pit as an overflow to provide additional storage during emergency conditions.
- Even with the additional storage, it is estimated that the emergency response time will still not be adequate. It is recommended that a permanent stand by generator be installed at this location.

Station #20 –Rosita Lift Station

Under existing conditions, the operating level in the Rosita Lift Station is only 10 inches or 300 gal; however, there is substantially more capacity in this wet well. To meet the future demands at the Rosita Lift Station, the existing wet well could be fully utilized by raising the pump on level so that the operating volume of the wet well is 36 inches or over 1,100 gal. In addition, two new submersible pumps between 900 and 1,000 gpm each would be recommended to be installed, which would also require an upgrade to the force main from a 6-inch to a 10-inch PVC. This configuration would limit the number of starts to approximately 12 starts per hour under worse case scenario; however, it will decrease the emergency response time to approximately 15 minutes under future average daily flows and less than 10 minutes under future peak hour dry weather flow.

A second option is to install a new lift station adjacent to the existing lift station with a larger diameter to increase storage capacity. It would still be recommended to install two new 900 to 1,000 gpm pumps and new 10-inch force main. It is recommended that Del Monte Lift Station be upgraded prior to upgrading Rosita Lift Station with larger capacity pumps to ensure that the Del Monte Lift Station does not reach capacity.

A third option is to install a new lift station with variable frequency drive (VFD) pumps adjacent to the existing lift station and abandon the existing lift station in place. This would reduce the impact from the 1,000 gpm pumped flow peaks to the downstream Del Monte Lift Station and could also reduce the size of a new force main. The existing wet well may be able to be utilized depending on the size of the new pumps; however, the cost to by pass the lift station during construction may be more expensive than constructing a new wet well.

SUMMARY OF RECOMMENDATIONS

Based on the discussion provided, the following is a summary of the recommendations from both the physical and hydraulic evaluations:

Station #19 – Del Monte Lift Station

Physically, the Del Monte Lift Station is in good condition and requires only minimal upgrades. Hydraulically, the lift station does not have sufficient wet well capacity to meet the existing or future needs. The insufficient capacity results in excess pump cycling and low emergency response time. It is recommended to replace this lift station with a new submersible lift station with variable frequency drive, which will be capable of

matching the inflow. Due to the location of this project and its complexity, this upgrade will require substantial planning, design, and permitting. Therefore, it is recommended that a few upgrades be completed in the near term that will provide a better operating facility. These upgrades include:

- Clear pump #2 suction valve obstruction and re-test pumping capacity. Also fully inspect pump impeller and seals once valve is operating properly.
- Install a by-pass to allow for alternative pumping if necessary.
- Investigate storage capacity options

The long term recommendation for the Del Monte Lift Station is to replace the entire lift station with a submersible lift station with variable frequency drives and abandon in place the existing 14-foot diameter wet well that is located in the street. The following is a list of the various attributes that should be included in this project:

- New wet well adjacent to the existing dry pit (size to be determined)
- Three new submersible VFD pumps
- New valve vault
- By-pass piping for alternative pumping facilities
- Convert existing dry pit into an overflow
- New force main (size to be determined)
- Permanent back up generator
- Utilize existing wet well and force main for redundant facilities or fill with backfill and abandon in place the existing wet pit located in the street.

Station #20 –Rosita Lift Station

Physically, the Rosita Lift Station is in fair to poor condition. There is corrosion throughout the lift station, exposed electrical conduit, and poor drainage within the vault. Hydraulically, the lift station cycles between 6 and 11 times per hour, which is acceptable, but on the higher end of recommended industry practice. In addition, the current set points for the wet well appear to be too close. The lift station is capable of meeting existing demands and some nominal future demands; however, the lift station is not capable of meeting the future build-out demands for Regions “B” and “D2”. Based on these observations, the following are recommendations for the near term operation of the Rosita Lift Station:

- Re-route generator conduit to opposite side of parking lot
- Plug by-pass line to creek
- Increase operating volume of the wet well to decrease start/stops for the pump
- Re-align bases to the pumps and anchor to the floor of the lift station
- Replace slide rail connection to pump to eliminate pump recirculation. May require complete slide rail replacement.
- Fix or install a new vault lid
- Install drain to prevent standing water in vault
- Replace chain with rated stainless steel chain/clevis

To meet the future flows from Regions “B” and “D2”, it is recommended to replace the existing lift station with a new VFD lift station and new force main. It is recommended that the new lift station be constructed adjacent to the existing lift station. The existing wet well could be used for a future over flow basin.

Station #21 – Military Lift Station

Physically, the Military Lift Station is in poor condition. There is extreme corrosion throughout the entire lift station piping and miscellaneous facilities. In addition, the pumps are worn and the motors have extremely low impedance. Hydraulically, the lift station is adequately sized to meet existing and future demands. It is recommended to construct a new lift station, with the same capacity, adjacent to the existing lift station. Thus, the recommendations in Table 6-4 should not be implemented. The existing wet well could be used for a future over flow basin.

Station #22 – Tioga Lift Station

It is recommended to complete a feasibility analysis to determine if the Tioga Lift Station can be abandoned and sewer connections be re-located to a gravity sewer main.

Table 6-1. Lift Station Summary

		Lift Station			
		Station #19 Del Monte	**Station # 20 Rosita**	**Station #21 Military**	**Station #22 Tioga**
Date Constructed		Unknown	1956	1960	Unknown
Date Refurbished		Apr-88	Jun-88	Aug-79	Aug-79
Type		Wet Pit/Dry Pit	Submersible	Submersible	Submersible
Pump Manufacturer		Smith & Loveless	Flygt	Flygt	Flygt
Number of Pumps		3	2	2	2
Horsepower (HP), each		15	20	5	3
Pump Serial #		870827	NA	NA	NA
Motor Model #		875082c	NA	NA	6085-092-0830033
Motor Serial #		0150E-1HAN-001	NA	NA	NA
Voltage		230/460	240	240	460/230
Motor Type		Constant Speed	Constant Speed	Constant Speed	Constant Speed
Tested Single Pump Capacity (gpm)[1]	Pump 1	959	273[9]	NA[3]	NA[4]
	Pump 2	722[2]	416	NA[3]	19
	Pump 3	984			
Pump Design Point[10]	gpm	1,200	480	150	125
	ft (static)	27.5	58	40	18
Impedance Test (Megaohm)[1]	Motor 1	150, 150, 150	150, 150, 150	0.15, 0.15, 0.15	NA
	Motor 2	150, 150, 150	150, 150, 150	0.4, 0.4, 0.4	125, 125, 125
	Motor 3	150, 150, 150			
Total Hours of Operation[1]	Pump 1	9,012	6,780	8,043	NA
	Pump 2	9,784	6,549	8,244	NA
	Pump 3	9,243			
Permanent Standby Generator		No	Yes	No	No
Bypass Capabilities		No	Yes	No	Yes
Wet Pit Coating		None	None	Coal Tar Epoxy	None
Wet Well Diameter (ft)		14[5]	8	6	6
Wet Well Set Points (inches)[6]	Low Alarm	2	9.6	30	10
	Off	18	18	38	18
	Lead On	45	28.8	55	30
	Lag On	49	32.4	60	34
	Last On	55			
	High Alarm	72	54	112	40
	Overflow	NA	78	144	NA
Wet Well Operating Volume (gal)[7]		1,295	338	300	211
Wet Well Maximum Volume (gal)[8]		360,258	1,391	1,445	529
Force Main Diameter (inches)		12	6	4	4
Force Main Length (feet)		790	660	528	605
Force Main Start Elevation (feet)		3.89	43.30	128.02	24.50
Force Main End Elevation (feet)		23.82	91.97	159.95	38.07
Force Main Total Static Head (feet)		19.9	48.7	31.9	13.6

NA - Not Available

[1] Information provided from inspection completed by FRM on February 11, 2009.

[2] An obstruction in line was confirmed based on the inability to close the suction valve of Pump #2. This is most likely the cause of the lower flow reading. Obstruction should be removed and pump re-tested to determine true pumping capacity.

[3] The exposed pipes for Military Lift Station were too corroded to take flow readings.

[4] Pump 1 was removed and has not been re-installed.

[5] Wet well for Del Monte Lift Station is only comprised of one half of the total 14 ft diameter. There is a dividing wall that splits the wet well into two chambers. The other half is not used.

[6] Information provided by MRWPCA staff.

[7] Wet well operating capacity based on operating range (Pump Off to Lead On).

[8] Wet well maximum capacity based on maximum desired operating range (Low Alarm to High Alarm).

[9] The mate between the slide rail and the pump is worn. Recirculation of flow was occurring in the wet well.

[10] Pump design point estimated from pump curve provided by manufacturer and estimated system curve. Curves provided in Appendix B.

Table 6-2. Summary of Physical Evaluation and Recommendations for Station #19 – Del Monte Lift Station

Lift Station Component	Comment	Recommendation
Wet Pit	The wet pit has light aggregate showing, which means minor corrosion attack from sulfides/sulfuric acid.	Coat the interior of the wet pit
Dry Pit	The interior of the dry pit is in excellent condition. The exterior hatch of the dry pit has corrosion.	Coat the exterior of the hatch on the dry pit
Bypass	None	Install bypass
Piping (inside wet well)	The piping that is visible is in good condition.	
Slide Rails	N/A	
Check Valves	Check valves are in satisfactory condition.	
Suction and Discharge Valves	Discharge valves are in satisfactory condition. Suction valves on pumps 1 and 3 are in satisfactory condition. The Suction valve on pump 2 has an obstruction and could not be closed.	Clear the obstruction in suction valve of pump 2 and re-test the pump
Electrical Panel	Panel is in good working condition. Alarms were tested and functioned satisfactorily.	
Pump #1	Motor on pump #1 is in good working condition. Impeller and wear surfaces are in satisfactory condition.	
Pump #2	Motor on pump #2 is in good working condition. Due to obstruction in suction valve, pump #2 could not be inspected.	Clear the valve and re-test the pump. It is also recommended to inspect the impeller and seals on the pump once the suction valve is cleared.
Pump #3	Motor on pump #3 is in good working condition. Impeller and wear surfaces are in satisfactory condition.	
Overall Physical Condition	**Lift Station is in good physical condition with minor upgrades required.**	

N/A – Not Applicable

Table 6-3. Summary of Physical Evaluation and Recommendations for Station #20 – Rosita Lift Station

Lift Station Component	Comment	Recommendation
Wet Well	Light aggregate showing at lid, which means minor corrosion attack from sulfides/sulfuric acid. Riser rings appear to be in satisfactory condition.	Coat interior wet well to prevent further deterioration
Bypass	None	Install bypass
Overflow Line	An overflow line discharges to the creek adjacent to the lift station. This is not recommended. If spill were to occur in the creek, this could result in a greater fine than if contained on the street.	Re-locate overflow line to a new overflow well or plug the overflow line. An evaluation should be completed to determine where the overflow would daylight.
Piping (inside wet well)	Piping is made of ductile iron and bolts are plated with zinc. Condition is satisfactory.	Coat piping and replace bolts with stainless steel
Slide Rails	Rails are galvanized pipe and top rail bracket is made of steel. Top rail bracket is corroding.	Replace slide rails and top rail bracket with stainless steel
Lifting Chains	Chains are made of zinc/galvanized plated steel. Appears to be in okay working condition. If chain degrades, the chain could break while removing the pump.	Replace chain with rated stainless steel chain/clevis
Discharge Bases	Bases are cast iron and appear to not be attached to the floor of the lift station. This can cause shifting of pump and pipe work, eventually causing discharge piping to break.	Re-align bases and anchor to the floor of the lift station
Valve Vault	Piping is ductile iron with minor surface corrosion. Isolation and check valves are functional. The vault has standing water, no drain was installed. Vault lid has been damaged. Integral supports for the lid have been removed and could pose safety issue.	• Fix or install a new vault lid • Install drain and seal lid to prevent standing water in vault • Coat valves and piping
Generator	Buried conduit from generator to lift station is exposed at the creek, from creek bank erosion.	Relocate conduit to opposite side of parking lot
Electrical Panel	Panel is in good working condition. Alarms were tested and functioned satisfactorily.	
Pump #1	Motor is in good working condition. Slide rail connections appear to be worn out, causing recirculation in wet well and loss of ~140 gpm. Impeller is worn.	Replace impeller, volute, discharge base, and pump discharge bracket
Pump #2	Motor is in good working condition. Wear ring missing from volute and impeller is showing signs of wear. Pump discharge bracket is missing right side. This was most likely removed due to close tolerances of the concrete platform. Impeller is worn.	• Replace impeller and volute • Replace discharge bracket and notch concrete for installation and removal of pump
Overall Physical Condition	**This lift station is in fair to poor physical condition. Piping is corroded, pumps need overhaul, slide rails and brackets are corroded.**	

Table 6-4. Summary of Physical Evaluation and Recommendations for Station #21 – Military Lift Station

Lift Station Component	Comment	Recommendation
Wet Well	Appears to be coated with coal tar epoxy. Coating is in satisfactory condition.	
Bypass	None	Install bypass
Piping (inside wet well)	Piping made of ductile iron, bolts are stainless steel. Piping is severely corroded.	Coat piping, although replace piping is recommended
Slide Rails	Rails are stainless pipe and top rail bracket is made of stainless steel and are in okay condition.	
Lifting Chains	Chains made of stainless steel and are in okay condition.	
Valve Vault	Piping is of ductile iron construction with severe surface corrosion. Isolation and check valves are functional.	Coat valves and piping in valve vault, although replace piping is recommended
Electrical Panel	Electrical panel is in good working condition. Alarms were tested and functioned satisfactorily. Exterior of the panel is corroding.	Re-coat exterior of panel
Pump #1	Motor has low megaohm readings. Impeller has wear on wear ring mating surface, wear ring missing. Pump discharge bracket is showing signs of wear.	Replace pump, motor, and discharge bracket
Pump #2	Motor has low megaohm readings. Impeller has wear on wear ring mating surface. Wear ring is missing. Pump discharge bracket is showing signs of wear.	Replace pump, motor, and discharge bracket
Overall Condition	**This lift station is in poor physical condition.**	

Table 6-5. Summary of Physical Comments and Recommendations for Station #22 – Tioga Lift Station

Lift Station Component	Comment	Recommendation
Wet Well	The wet well is coated; however, coating is peeling off. Light aggregate is showing at the lid. Riser rings appear to be satisfactory condition. Lid is missing bolts from the hinge.	• Re-coat wet well to prevent further damage • Replace missing bolts on lid hinge
Bypass	None	Install bypass
Piping (inside wet well)	Piping is made of ductile iron, bolts are stainless steel. Piping is showing signs of corrosion.	Coat piping inside wet well
Slide Rails	Rails and bracket are stainless steel and in good condition.	
Lifting Chains	Lifting chain is made of stainless steel and in good condition.	
Valve Vault	Piping in vault is ductile iron and has minor corrosion. Isolation and check valves are functional.	Coat piping and valves inside valve vault
Electrical Panel	Panel is in good working condition. Alarms were tested and functioned satisfactorily.	
Pump #1	Pump 1 was removed from service by SCSD due to pump failure	Fix or buy new pump and re-install
Pump #2	Pump #2's motor is in good working condition. Pump is in satisfactory condition.	
Overall Condition	**This lift station is fair condition.**	

Table 6-6. Summary of Existing Lift Station Wastewater Flows

			Lift Station			
			Station #19 Del Monte	**Station # 20 Rosita**	**Station #21 Military**	**Station #22 Tioga**
Land Use Components						
	Residential	Persons	1,111	419	204	6
	Commercial	Sq. Ft.	370,165	248,965	0	16,352
	Hotels	Rooms	409	0	0	0
	Schools	Students	0	0	0	0
	Upstream Lift Station		Rosita	NA	NA	NA
Flow Rate (gpd)						
	Residential		72,215	27,235	13,268	390
	Commercial		37,016	24,897	0	1,635
	Hotel Rooms		40,900	0	0	0
	Schools		0	0	0	0
Total Average Daily Flow		gpd	150,131	52,132	13,268	2,025
		gpm	104	36	9	1
		w/ Simplex LS	584	NA	NA	NA
Maximum Day Dry Weather Flow		Peaking Factor	1.5	1.5	1.5	1.5
		gpd	225,197	78,197	19,902	3,038
		gpm	156	54	14	2
		w/ Simplex LS	636	NA	NA	NA
Peak Hour Dry Weather Flow		Residential Peaking Factor	2.0	2.0	2.0	2.0
		Commercial Peaking Factor	2.1	2.1	2.1	2.1
		gpd	462,082	160,129	39,803	6,321
		gpm	321	111	28	4
		w/ Duplex LS	1,121	NA	NA	NA
Wet Weather Flow		Peaking Factor	2.0	2.0	1.8	1.0
		gpd	300,263	104,263	23,882	2,025
		gpm	209	72	17	1
		w/ Duplex LS	1,009	NA	NA	NA

Table 6-7. Force Main Velocity Evaluation

		Lift Station			
		Station #19 Del Monte	**Station # 20 Rosita**	**Station #21 Military**	**Station #22 Tioga**
Pump Test					
Force Main Diameter	inches	12	6	4	4
Simplex Flow	gpm	984	416	N/A	19
Velocity	ft/sec	2.8	4.7	--	0.5
Duplex Flow[1]	gpm	1,700			
Velocity	ft/sec	4.8		--	
Design Flows					
Force Main Diameter	inches	12	6	4	4
Simplex Flow	gpm	1,200	480	150	125
Velocity	ft/sec	3.4	5.4	3.8	3.2
Duplex Flow[1]	gpm	2,200			
Velocity	ft/sec	6.2		NA	

[1] Force Main evaluation is for standard operating conditions. Del Monte Lift Station is a triplex lift station with normal operating conditions running two pumps at one time with the third pump as a backup. Rosita, Military, and Tioga Lift Stations are duplex stations with normal operating conditions only running one pump at any one time with the second pump as a back up. The flow under duplex conditions is assumed.

Table 6-8. Lift Station Cycle Times

		Lift Station			
		Station #19 Del Monte	**Station # 20 Rosita**	**Station #21 Military**	**Station #22 Tioga**
Wetwell Operating Volume	gallons	1,295	338	300	211
Tested Simplex Pump Operation	gpm	984	416	NA	19
Assumed Duplex Pump Operation	gpm	1,700	NA	NA	NA
Design Simplex Pump Operation	gpm	1,200	480	150	125
Assumed Duplex Pump Operation	gpm	2,200	NA	NA	NA
Worst Case Number of Pump Cycles per Hour (Flow In = One-half Pump Rate)					
Tested Simplex Pump Operation	minutes	5.3	3.3	NA	44.5
	Cycles per Hour	11.4	18.4	NA	1.3
Design Simplex Pump Operation	minutes	4.3	2.8	8.0	6.8
	Cycles per Hour	13.9	21.3	7.5	8.9
Existing Average Daily Flow					
Tested Simplex Pump Operation	minutes	5.5	10.2	NA	162.4
	Cycles per Hour	11.0	5.9	NA	0.4
Design Simplex Pump Operation	minutes	4.3	10.1	34.6	152.1
	Cycles per Hour	13.9	5.9	1.7	0.4
Peak Hour Dry Weather Flow					
Tested Simplex Pump Operation	minutes	3.4	4.2	NA	62.7
	Cycles per Hour	17.7	14.4	NA	1.0
Design Simplex Pump Operation	minutes	2.4	4.0	13.3	49.9
	Cycles per Hour	25.5	15.1	4.5	1.2

Table 6-9. Lift Station Emergency Response Time

	Lift Station			
	Station #19 Del Monte[1]	**Station # 20 Rosita**	**Station #21 Military**	**Station #22 Tioga**
High Water Alarm (inches)	72	54	112	40
Overflow (inches)	210	78	144	132
Volume (gal)	1,676	752	564	1,621
ADF Inflow (gpm) w/o Upstream LS	104	36	9	1
ADF Response Time (min)	**16**	**21**	**61**	**1,153**
ADF Inflow (gpm) w/ Upstream LS	584			
ADF Response Time (min)	**3**			
PHDWF Inflow (gpm) w/o Upstream LS	321	111	28	4
PHDWG Response Time (min)	**5**	**7**	**20**	**369**
PHDWF Inflow (gpm) w/ Upstream LS (duplex)	1,121			
PHDWG Response Time (min)	**1**			

[1] The volume of the Del Monte Lift Station is based on half of a 14 foot diameter wet well with a 3.5 foot diameter ring on the upper 8.5 feet.

Table 6-10. Summary of Future Lift Station Wastewater Flows

		Lift Station	
		Station #19 Del Monte	**Station # 20 Rosita**
Existing Average Daily Flows (gpd)		150,131	52,132
Future Average Daily Flows (gpd)		69,500	244,605
Total Average Daily Flow	gpd	219,631	296,737
	gpm	153	206
	w/ Simplex LS[1]	1,153	NA
Maximum Day Dry Weather Flow	Peaking Factor	1.5	1.5
	gpd	329,447	445,105
	gpm	229	309
	w/ Simplex LS[1]	1,229	NA
Peak Hour Dry Weather Flow	Peaking Factor	2.0	2.0
	gpd	658,894	890,210
	gpm	458	618
	w/ Duplex LS[1]	2,308	NA
Wet Weather Flow[2]	Peaking Factor	2.0	2.0
	gpd	369,763	348,868
	gpm	257	242
	w/ Duplex LS[1]	2,107	NA

[1] Assumes Rosita LS will be upgraded to a 1,000 gpm pump under simplex conditions, and 1,850 gpm under duplex conditions.

[2] The Peaking factor for I/I is applied to existing flows only. It is assumed that future development will not have an I/I problem.

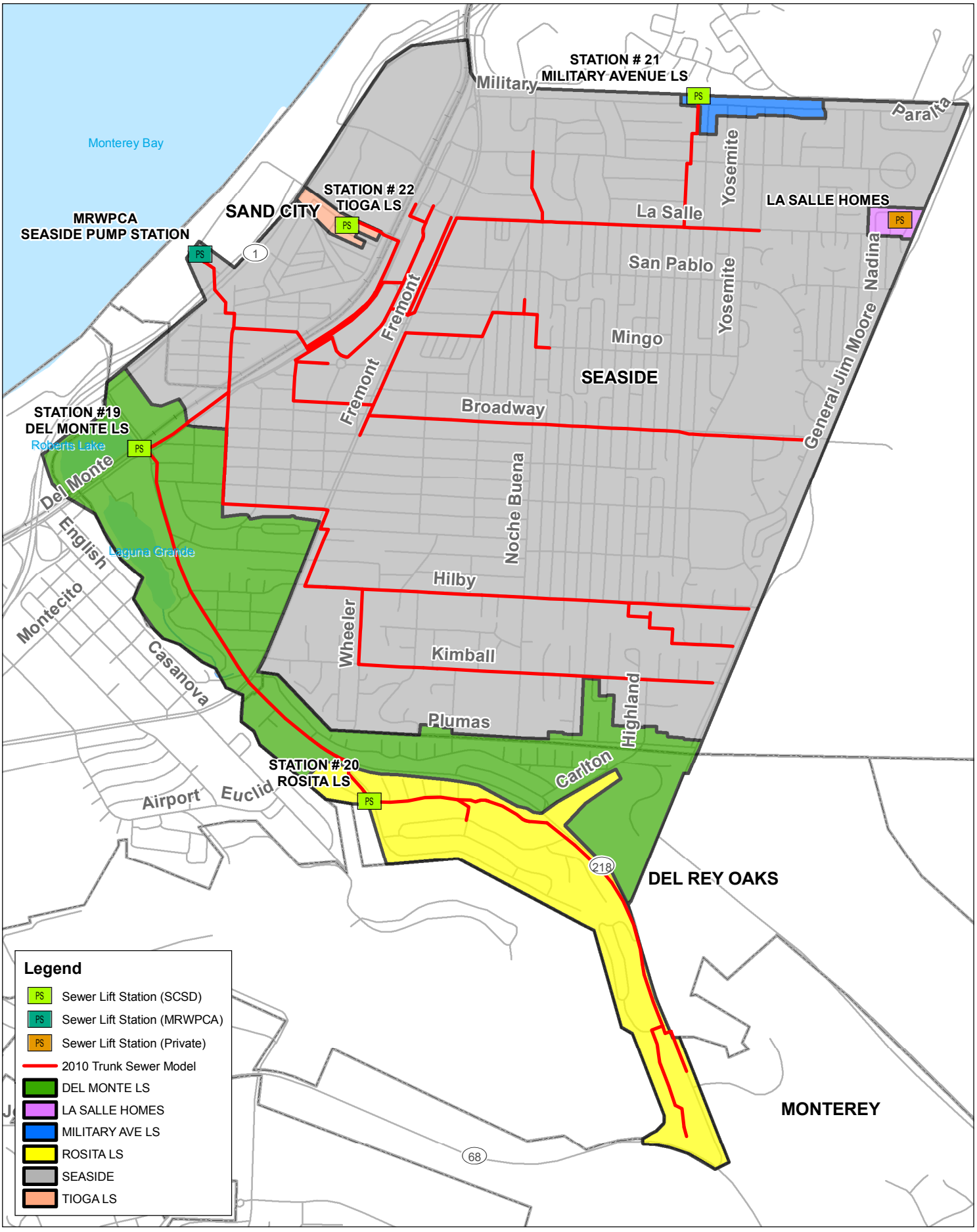

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FIGURE 6-1: LIFT STATION LOCATIONS AND SERVICE AREA MAP

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED MAY 2011.

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CHAPTER 7

COLLECTION SYSTEM ANALYSIS

This Chapter presents the analysis of the gravity wastewater collection system for the Seaside County Sanitation District (SCSD). Refer to Chapter 6 for a detailed evaluation of SCSD's four (4) lift stations and force mains. Refer to Chapter 9 for the proposed capital improvements based on the analysis presented in this Chapter.

INTRODUCTION

The SCSD collection system consists of a network of 6-inch to 27-inch gravity sewer pipes, and four (4) lift stations, providing service to the Cities of Seaside, Sand City, and Del Rey Oaks. The main trunk sewer system was analyzed using a computer based hydraulic model as part of this Master Plan project, to evaluate performance of the wastewater collection system under both existing and future conditions. Figure 7-1 provides an overview of the sewer pipes, lift stations, and force mains that were included in the hydraulic model. All gravity sewer pipes 8-inch and larger in diameter were modeled and are considered to be the trunk sewer system. In addition, several segments of 6-inch diameter sewer pipes were included in the sewer model under the direction of SCSD staff. These 6-inch segments consist of known "problem areas" throughout the system and/or may receive additional flows from potential future development. SCSD's lift stations and corresponding force mains were included in the sewer model; However a more detailed investigation and analysis of the lift stations was performed outside of the sewer modeling program, presented in Chapter 6.

The analysis of the wastewater collection system is based on a sewer Geographic Information System (GIS) developed for the entire SCSD collection system in support of this Master Plan project. The sewer GIS was compiled using the following data:

- Survey-grade coordinates and rim elevations for the sewer manholes on the trunk sewer system
- Manhole and rodhole locations from the 2004 AMBAG topographic mapping project
- Sewer record plans and atlas maps

Horizontal measurements are based the North American Datum (NAD) of 1983 California State Plane Zone 4 Coordinate System. Vertical measurements are based on North American Vertical Datum (NAVD) of 1988.

COLLECTION SYSTEM ANALYSIS CRITERIA

Design criteria as described in the SCSD's *Draft Sanitary Sewer Management Plan, Element 5: Design and Performance Standards*, were applied in analysis of the trunk sewer collection system. These design criteria provide capacity buffer for surcharge conditions, for fluctuations in flows due to diurnal variations, and anticipated peak wet

weather flows. Gravity pipe performance was analyzed based on maximum percent full (d/D ratio), defined as the depth of flow in a pipe divided by the diameter of the pipe. Criteria utilized are as follows:

- Minimum Velocity: 2.0 feet per second (fps) under average flow conditions
- Percent full (d/D) criteria as included in Table 7-1. Maximum d/D varies from 0.67 to 0.90 dependent on pipe diameter.
- Maximum Velocity: 8.0 fps
- Manning coefficient of friction "n" = 0.013 for VCP and RCP; n = 0.011 for PVC

Within the sewer model all system upgrades were designated as PVC, with the exception of existing ductile iron sewer pipe utilized at street crossings; existing ductile iron pipes were assumed to be replaced with ductile iron if upgrades are required.

COLLECTION SYSTEM FLOWS

Existing and future flows were analyzed in the sewer model for both dry weather and wet weather conditions. Flow rates were derived as described in Chapter 4 of this report. Flow parameters as utilized in this analysis are defined as follows.

- **ADF**: Average daily dry weather system flow
- **MDDWF**: Maximum daily dry weather system flow
- **PHDWF**: Peak hour dry weather system flow
- **I/I**: Flow due to wet weather infiltration and inflow
- **WWF**: Wet weather system flow, equal to ADF plus the added flow contribution from I/I

COLLECTION SYSTEM MODEL DEVELOPMENT

A hydraulic model of the sewer collection system was developed with the MWHSoft® InfoSWMM sewer modeling program, Suite 7.0 Service Pack1 Update 9. InfoSWMM utilizes Manning's Equation for open channel flow (gravity pipes), Dynamic Wave analysis for flow routing through the collection system, and the Hazen-Williams Equation for pressurized flow conditions (force mains or surcharged pipes). Model results were evaluated for pipeline capacity, flow velocity, and maximum d/D ratio under various flow conditions.

Flow Allocation

Wastewater flows were assigned to the sewer model utilizing estimated flows as described in Chapter 4. Flows were allocated to individual sewer manholes based on actual location of SCSD customers. Tributary areas for each modeled manhole were developed and shown on Figure C-1, included in Appendix C. Each tributary area represents the total residential, commercial, and institutional customers contained within the tributary boundary.

Future wastewater flows were allocated to the sewer model based on the most probable connection location; refer to Figure C-2 included in Appendix C for the future flow locations. **The impact to the collection system from future flows will need to be re-evaluated if proposed development infrastructure connects to the existing SCSD collection system in a different location.**

Diurnal curves were then applied to the allocated wastewater flows, to represent both dry weather and wet weather conditions. A separate diurnal curve was applied to residential and commercial connections, with hotels and schools included in the residential curve. A detailed discussion of the diurnal curves for the SCSD system is included in Chapter 4.

Model Calibration

Approximately six weeks of sewer flow data was collected in support of the hydraulic model development, as described in Chapters 4 and 5 of this report. Representative data for each flow monitoring location was compared to model results for both wet and dry weather days. Through this process the diurnal curves applied to the model were adjusted to accurately represent the system flows as recorded through the flow monitoring. Model results for existing conditions were also compared to the SCSD maintenance records to confirm locations where the model exhibited existing collection system deficiencies. Graphs comparing model results and flow monitoring data are included in Appendix C.

System Conditions Analyzed

The hydraulic model was utilized to analyze dry and wet weather system flow for both existing and future flow conditions. Within the model, multiple scenarios were developed that represent these various conditions. Existing and Future scenarios were utilized to identify system upgrades required in order to meet performance criteria as specified, and to identify areas recommended for high priority maintenance operations. Scenarios developed consist of the following:

- *Existing MDDWF Scenario:* This scenario represents the trunk sewer system under existing maximum dry weather flow conditions.

- *Existing WWF Scenario:* This scenario represents the trunk sewer system under existing ADF with contributions from I/I. In some tributary areas, anticipated peaking factors for contributions from I/I are higher than diurnal curve peaking factors for dry weather.

- *Future MDDWF Scenario:* This scenario represents the trunk sewer system under future maximum dry weather flow conditions, with all potential development as described in Chapter 2 flowing to the existing collection system.

- *Future WWF Scenario:* This scenario represents the trunk sewer system under future ADF conditions with contributions from I/I, and all potential future

connections to the collection system in place. Within the model it was assumed that future connections to the existing system *would not* receive inflow from I/I.

COLLECTION SYSTEM MODEL RESULTS – EXISTING FLOW CONDITIONS

Deficient System Capacity

The following locations were identified through the analysis as having insufficient capacity to meet SCSD performance standards while conveying existing system flows. Pipe upgrades identified for existing conditions may increase in diameter for future conditions, as described later in this chapter. Refer to Figures 7-2 and 7-3 for a system-wide map of maximum d/D under existing flow conditions. Refer to Figure 7-4 for an overall map of recommended system upgrades for existing conditions.

Where improvements are recommended to the collection system, worst case d/D values are provided for reference. These d/D values represent a snapshot of the system under either: a) existing conditions, or b) proposed conditions with *all* improvements in place. In many cases, recommended upgrades would increase downstream maximum d/D, exceeding SCSD standards, if the downstream recommended improvements were not constructed. Through the digital sewer model, maximum d/D was analyzed for the system as a whole, ensuring that recommended upgrades did not trigger additional downstream improvements.

Luzern Street

- Reference: Figure 7-8
- Location Extents: Manhole D7-5 to Manhole C8-108

Luzern Street is currently a 6-inch VCP sewer main that receives flow from the Military Lift Station. When the Military Lift Station is running, the sewer main immediately down stream of the force main runs full. In addition, pipe segments downstream, flow with a d/D up to 0.85 under MDDWF, and 0.92 under WWF with peak flow up to 345 gpm. Upgrade to 8-inch PVC reduces maximum d/D to 0.60, occurring just downstream from the Lift Station. This upgrade requires 1,430 lineal feet of 8-inch PVC and bolted manhole covers at the connection manhole for the force main, and the manhole immediately downstream. These two manholes are both shallow, with total depth less than 4 feet, and have a relatively high chance of surcharging due to the surge in flow from the force main. The sewer model indicates overflowing at these manholes when the military lift station is running.

La Salle Avenue

- Reference: Figure 7-9
- Location Extents: Manhole C8-108 to Manhole C8-33

La Salle Avenue, from Luzern Street to Noche Buena Street, is currently 6-inch VCP. Under WWF conditions with peak flow up to 486 gpm, the sewer main gravity flows with a d/D up to 0.90, with multiple pipe segments surcharging (d/D 1.0). In addition, the model indicates the potential for overflow from the two manholes downstream from Luzern Street during WWF conditions. Dry weather flow conditions result in maximum

d/D up to 0.84, with surcharging in a single pipe segment. Upgrade to 8-inch PVC results in two pipe segments with a d/D that exceeds the SCSD criterion of 0.67 due to low slope (Manhole C8-101 to C8-88, length of approximately 360 linear feet). Increasing slope to 1.3% through the two pipe segments results in acceptable d/D levels; this requires an increase of approximately one foot of depth to the downstream manhole, decreasing downstream pipe slope from 3.8% to approximately 3.5%. Also, under wet weather conditions the pipe segment just upstream from Noche Buena street flows with a d/D up to 0.73 with the 8-inch upgrade due to backwater effect from downstream piping. The downstream pipe is discussed further within the "Marginal System Capacity" section in this Chapter. Total length of the 8-inch upgrade is 1,970 feet.

Del Monte Boulevard

- Reference: Figure 7-10
- Location Extents: Manhole B8-81 to Manhole B9-28

The sewer main that traverses on Fremont Boulevard from La Salle Avenue to The Mall, on The Mall from Fremont Boulevard to Del Monte Boulevard and on Del Monte Boulevard from The Mall to the easement that heads towards Ortiz Avenue is all 10-inch VCP. This stretch of sewer main gravity flows with a d/D up to 0.88, with multiple pipe segments surcharging (d/D 1.0) under WWF conditions, with peak flow up to 729 gpm. The model indicates the potential for overflow from the manhole located at the La Salle and Fremont Boulevard intersection during WWF. Under MDDWF, gravity flow d/D reaches 0.85 with a single pipe segment surcharging. Upgrade to 12-inch PVC results in maximum d/D ranging from 0.73 to 0.42.

However, the recommended alignment for this upgrade reroutes the sewer main from La Salle to Del Monte Boulevard, then south on Del Monte Boulevard to Ortiz Avenue. This new alignment reduces total project length from 3,470 feet to approximately 3,200 feet. In addition, this new sewer main in Del Monte would allow for the two existing sewer mains in Del Monte (6-inch and 10-inch) to be abandoned. The new 12-inch sewer main in Del Monte would vary between approximately 16 and 20 feet deep, from Tioga Avenue downstream approximately 1,000 feet, to overcome the adverse slope of Del Monte and catch grade at the existing 10-inch sewer main (MH B8-51) which is currently 20 feet deep.

Figure 7-10 illustrates the proposed alignment on Del Monte Boulevard. **The pipes and manholes modeled for the Del Monte alignment alternative are schematic only and do not represent final gravity sewer design.** A minimum pipe slope of 0.5% was utilized to model the new pipeline from the connection at Fremont (MH B8-81) to the connection to the existing 10-inch sewer main in Del Monte (MH B8-51). Existing slope of the 10-inch pipe was utilized to model the new pipeline from the existing manhole connection (MH B8-51) to Ortiz Avenue.

Birch Avenue

- Reference: Figure 7-11
- Location Extents: Manhole C9-6 to Manhole B9-86 and Manhole C8-19 to Manhole C9-6

The sewer main that traverses on Baker Street from Phoenix Avenue to Birch Avenue and on Birch Avenue from Baker Street going west 600 feet toward Fremont Boulevard is 10-inch VCP and has a d/D greater than 0.92 under WWF conditions, with peak flow up to 830 gpm. The sewer main upstream from Baker Street on Phoenix Avenue east to Noche Buena is 8-inch VCP, and has a d/D up to 0.80 under WWF conditions. Upgrade of this entire stretch of sewer main from 8-inch VCP to 10-inch PVC, and the 10-inch VCP to 12-inch PVC, results in a maximum d/D of 0.58. Total upgrade length is 1,600 feet.

Fremont Boulevard

- Reference: Figure 7-12
- Location Extents: Manhole B9-75 to Manhole B9-21, Manhole B9-21 to Manhole B9-28, and Manhole B9-58 to Manhole B9-60

The sewer main that traverses Fremont Boulevard from Birch Avenue to the Easement just north of Broadway, along the Easement north of Broadway Avenue from Fremont Boulevard to Alhambra Street, and along Alhambra Street from the Easement north of Broadway Avenue to Del Monte Boulevard is all 12-inch VCP. Each of these segments, for a total of 2,800 feet of sewer main, has a d/D between 0.73 and 1.0 (surcharging) for WWF conditions with peak flow up to 1,429 gpm, and d/D between 0.66 and 1.0 for MDDWF conditions. Upgrade to 15-inch PVC results in a maximum d/D of 0.71.

The sewer main on Del Monte Boulevard from Alhambra Street to the Easement over to Ortiz Avenue is a 15-inch sewer main and has a d/D up to 0.88 under WWF conditions with peak flow up to 1,473 gpm, and 0.82 for MDDWF conditions. In addition, upstream upgrades identified for Fremont Boulevard would increase peak flow and maximum d/D for this pipe segment. Upgrade of this 250 foot stretch of sewer main to 18-inch results in a maximum d/D of 0.65.

The sewer main on Fremont Boulevard, from Broadway Avenue to the Easement north of Broadway Avenue is 10-inch VCP and has a d/D up to 0.88 under WWF conditions, with peak flow up to 596 gpm. Upgrade of this 160-foot pipe segment to 12-inch PVC results in a maximum d/D of 0.62.

Marginal System Capacity

Locations where pipes flow close to design standards as included in Table 7-1 were identified within the hydraulic model, as follows. The d/D values provided represent system performance with all improvements recommended for existing conditions in place. It is recommended that these locations be flushed on a regular basis to maintain optimum pipe capacity. Marginal pipe locations are depicted on Figure 7-4 and again on Figure C-3 located in Appendix C.

Ortiz Avenue

- Reference Figure 7-4
- Location Extents: Manhole B9-23 to Manhole A9-51

The sewer main on Ortiz Avenue from Holly Street to Contra Costa Street is two pipe segments of existing 21-inch VCP, with WWF maximum d/D of 0.80 and 0.86. Under

MDDWF conditions these pipes flow with a maximum d/D of 0.72 and 0.78. Although a d/D of 0.86 is high, it occurs in a single pipe segment during wet weather flows only, and therefore does not warrant upgrade at this time.

Sierra Avenue to Hilby Avenue

- Reference Figure 7-4
- Location Extents: Manhole C11-98 to Manhole C11-87

Two segments of 6-inch VCP sewer main that traverse from Sierra Avenue to Hilby Avenue flow with a d/D up to 0.72 under WWF conditions, and up to 0.70 for MDDWF conditions.

Broadway Avenue

- Reference Figure 7-4
- Location Extents: Manhole C9-51 to Manhole C9-32

The 6-inch VCP sewer main that traverses from Judson Street to Kenneth Street flows with a d/D up to 0.70 under WWF conditions, and d/D up to 0.67 under MDDWF conditions.

La Salle Avenue

- Reference Figure 7-4
- Location Extents: Manhole C8-33 to Manhole C8-24 and Manhole C8-3 to Manhole B8-81

Existing 8-inch VCP just downstream from Noche Buena flows with a maximum d/D of 0.74 for WWF conditions and 0.61 for MDDWF conditions.

Existing 8-inch VCP pipe just upstream from Fremont Boulevard flows with a d/D up to 0.76 for WWF and 0.74 for MDDWF conditions. SCSD staff believes this pipe segment may actually be 6-inch VCP. If this pipe segment is 6-inch, it would flow with a maximum d/D of 1.0 (surcharged) during WWF conditions and 0.94 for MDDWF conditions, assuming all upstream and downstream recommended pipe upgrades are in place. The model does not demonstrate any overflow in this location under these conditions.

Low Pipe Velocity

Low pipe velocity results in the increased likelihood for solids to settle out of wastewater flow, leading to pipe backups and blockages. SCSD specifies a minimum pipe velocity of 2.0 feet per second (fps) to maintain solids in suspension. A total of 66 modeled pipes were identified with a velocity below 2.0 fps under existing average day conditions, and a total of 53 pipes did not meet velocity criteria under maximum day conditions. It is recommended that pipes identified with a maximum velocity of less than 2.0 fps be flushed and/or vacuumed on a regular basis. Total length of pipe is 3.4 miles. These pipes are depicted in Figure C-3 and listed in Table C-1, included in Appendix C.

Pipe Travel Time

Excessive pipe travel time is a result of low velocity and/or long pipe runs, and can lead to problems with hydrogen sulfide attack and odor at downstream manholes. Typically wastewater is oxygenated as it flows through a manhole, decreasing likelihood of hydrogen sulfide generation. Travel time exceeding thirty minutes through a single pipe (manhole to manhole) is undesirable. All pipes included in the hydraulic model have an existing average day travel time of 18 minutes or less; pipe travel time is not anticipated to cause maintenance issues for the SCSD system.

COLLECTION SYSTEM MODEL RESULTS – FUTURE FLOW CONDITIONS

Refer to Figures 7-5 and 7-6 for a system-wide map of maximum d/D under future flow conditions. Refer to Figure 7-7 for an overall map of recommended system upgrades for future conditions.

Future Sewer System Infrastructure

Recommendations for future upgrades to the SCSD sewer collection system are based on the following assumptions:

- Both Del Monte and Rosita Lift Station are equipped with VFD pumps at the time of pump station upgrade
- New development will contribute minimal I/I to the collection system
- The Del Monte upgrade will reroute flow from La Salle to Del Monte Boulevard
- The Tioga Lift Station is abandoned with future Area A development
- Gravity flow of future wastewater contribution from Regions “B” and “C”

Regions “B” and “D2” Impacts

It is anticipated that the wastewater from Regions “B” and “D2” will flow to Highway 218. At General Jim Moore Boulevard and Highway 218 there is a shallow culvert that would be required to be crossed if the flow comes west on General Jim Moore Boulevard. This may require an inverted siphon or potentially a lift station. It is highly recommended to not install a lift station at this location due to the downstream impacts it would have on the collection system capacity between General Jim Moore Boulevard and Rosita Lift Station. If the wastewater flow is able to gravity feed towards Ryan Ranch Road, then the wastewater could be routed around the culvert and gravity flow on Highway 218, through the park, down Angelus Way to the Rosita Lift Station. Based on this assumption, the following upgrades are recommended:

<u>Angelus Way</u>

- Reference: Figure 7-14
- Location Extents: Manhole C12-3 to Rosita Lift Station

The sewer main on Angelus Way from Del Rey Park to Rosita Lift Station is 8-inch VCP. Due to the impacts from Regions “B” and “D2”, this pipe would gravity flow with a d/D up to 0.88 and several segments within this stretch of sewer main would surcharge (d/D of

1.0) under future MDDWF conditions. Future peak flows through this 1,490-foot stretch range from 589 to 676 gpm. Upgrade to 12-inch PVC results in d/D from 0.53 to 0.32. It is noted that existing pipe upstream from this upgrade is 12-inch diameter.

Canyon Del Rey (1)

- Reference: Figure 7-15
- Location Extents: Manhole B12-2 to Manhole A10-14

The sewer main on Canyon Del Rey from Rosita Lift Station to Hilby Avenue is 8-inch VCP. Due to the impacts from Regions "B" and "D2" and increased flow from the recommended Rosita Lift Station Upgrade, several segments within this stretch of sewer main would surcharge (d/D of 1.0) and gravity flow d/D would reach 0.92 under future MDDWF conditions. Upgrade to 12-inch PVC results in maximum d/D ranging from 0.44 to 0.30, with a peak MDDWF of 748 to 802 gpm. Total affected pipe length is 3,280 feet.

Canyon Del Rey (2)

- Reference: Figure 7-16
- Location Extents: Manhole A10-9 to Manhole A10-4

The sewer main on Canyon Del Rey from Harcourt Avenue to Sonoma Avenue is 12-inch VCP and CMP. Due to the impacts from Regions "B" and "D2", redevelopment of Broadway Specific Plan, and increased flow from the recommended Rosita Lift Station Upgrade, several segments within this stretch of sewer main would gravity flow with a d/D up to 0.96. Upgrade to 15-inch PVC results in maximum d/D up to 0.54 for MDDWF and 0.53 for WWF, with peak MDDWF ranging from 859 to 920 gpm. Total affected pipe length is 1,070 feet.

Region "C" Impacts

Region "C" is located on the east side of General Jim Moore Boulevard. Based on the topography of this development, future estimated wastewater flow was divided into three zones that would gravity flow down La Salle Avenue, Broadway Avenue, and Hilby Avenue. This results in large impacts to several major tributaries within the collection system. Most of these tributary areas are currently 6-inch VCP that do not meet the minimum sewer main diameter pipe standards as set forth by SCSD. There are other alternatives to these projects; however, they would require lift stations which ultimately result in higher operation and maintenance costs to SCSD. Therefore, the following proposed upgrades were analyzed:

La Salle Avenue

- Reference: Figure 7-17
- Location Extents: Manhole D8-41 to Manhole C8-108, Manhole C8-108 to Manhole C8-33, and Manhole C8-33 to Manhole B8-81

The sewer main on La Salle Avenue that flows to Fremont Boulevard currently does not extend up to General Jim Moore Boulevard. This existing sewer main terminates at Mariposa Street. The homes to the east of Mariposa Street gravity flow from La Salle Avenue to Yosemite Street, then through backyard easements south towards San Pablo

Avenue. The two existing mains run parallel for a short distance on La Salle between Mariposa Street and Yosemite Street. The main that flows to San Pablo Avenue is 6-inch and would require to be upgraded to accept future flows. It is not recommended to upgrade this existing pipe that traverses backyard easements; rather, it is recommended to construct a new 8-inch PVC sewer main from General Jim Moore Boulevard to Mariposa Street for a total length of 2,200 feet. La Salle Avenue currently does not connect to General Jim Moore Boulevard. Therefore, an easement between the end of La Salle Avenue and General Jim Moore Boulevard would be required. Alternatively, a new sewer could be routed from General Jim Moore through an easement to the cul-de-sac at the end of Lysett Court, then north to La Salle. This option would minimize the length of easement required for construction but would require a deeper sewer line.

The sewer main on La Salle Avenue from Mariposa Street to Luzern Street is currently 6-inch VCP. Due to impacts from Region "C", it has a MDDWF peak d/D up to 0.85 with a pipe segment surcharging (d/D of 1.0). Upgrade to 8-inch PVC results in a maximum d/D of 0.48 under MDDWF conditions, with peak flows ranging from 876 to 930 gpm. Total length is 1,050 feet.

The sewer main on La Salle Avenue from Luzern Street to Noche Buena Street is recommended to be upgraded from a 6-inch to 8-inch sewer main to meet existing needs. Future peak MDDWF flows for this segment reach 979 gpm, which would result in multiple pipes surcharging (d/D of 1.0) for both the existing 6-inch main and the 8-inch upgrade for existing conditions. Upgrade to a 10-inch PVC results in maximum d/D ranging from 0.43 to 0.71. In addition, two pipes would require increase in slope to 1.3%, as described for existing conditions. Total length is 1,970 feet.

The sewer main on La Salle Avenue from Noche Buena Street to Fremont Boulevard is currently 8-inch VCP. Due to impacts from Region "C", segments of this reach flow with a MDDWF peak d/D up to 0.76. In addition, maximum d/D would increase with the construction of recommended upstream upgrades. Upgrade to 10-inch PVC for a total length of 1,200 feet results in maximum d/D ranging from 0.54 to 0.70, with peak MDDWF up to 1,088 gpm.

Del Monte Boulevard

- Reference: Figure 7-18
- Location Extents: Manhole B8-81 to Manhole B9-28

The sewer main that traverses on Fremont Boulevard from La Salle Avenue to The Mall, on The Mall from Fremont Boulevard to Del Monte Boulevard and on Del Monte Boulevard from The Mall to the easement that heads towards Ortiz Avenue is all 10-inch VCP. Future peak flows for this stretch range from 1,093 to 1,140 gpm. This stretch of sewer main has pipe segments that would surcharge (d/D of 1.0) with future flow. This reach of sewer is recommended to be upgraded under existing conditions; however, the impacts from Region "C" require the sewer main to be upsized to a 15-inch PVC sewer main in lieu of the 12-inch recommended for existing conditions. Upgrade to 15-inch PVC results in a maximum d/D of 0.75. Recommended alignment for this upgrade reroutes the sewer main from La Salle to Del Monte Boulevard, then south on Del Monte Boulevard to Ortiz Avenue, as described in more detail under the existing conditions section. Total pipe length for the Del Monte alignment is approximately 3,200 feet.

Hilby Avenue

- Reference: Figure 7-19
- Location Extents: Manhole D11-24 to Manhole B10-70 and Manhole B10-70 to Manhole B10-52

The sewer main on Hilby Avenue from General Jim Moore Boulevard to Shafer Street is 6-inch VCP. Future peak flows, including Region "C", range from 303 to 452 gpm. This stretch of sewer main has segments that would surcharge (d/D of 1.0), with gravity flow d/D up to 0.81. Upgrade to 10-inch PVC reduces maximum d/D to 0.51. Total pipe length is 4,420 feet.

The sewer main on Hilby Avenue from Shafer Street to Wheeler Street is 8-inch VCP. Future peak flows, including Region "C" range from 452 to 496 gpm. Upgrade to 10-inch PVC results in maximum d/D of 0.64. Total length is 930 feet.

Broadway Avenue

- Reference: Figure 7-20
- Location Extents: Manhole D9-74 to Manhole C9-32 and Manhole C9-32 to Manhole B9-58

The sewer main on Broadway Avenue from General Jim Moore Boulevard to Kenneth Street is 6-inch VCP. Future peak flows including Region "C" range from 303 to 698 gpm for this stretch of sewer main. With the projected increase in flow, multiple pipe segments in this stretch would surcharge (d/D of 1.0), with gravity flow d/D up to 0.95. Upgrade to 10-inch PVC results in maximum d/D of 0.40. Total length is 3,690 feet. It is noted that the three most upstream pipe segments in Broadway (Manhole D9-74 to Manhole D9-48) exhibit existing capacity to accept future flow from Region C. However, this portion of pipe is recommended to be upsized due to velocity concerns, and because the 6-inch diameter does not meet SCSD's minimum pipe size criteria. Peak velocity with the modeled 10-inch upgrade reaches 8.5 fps, which exceeds SCSD design criteria. The slopes in this upstream portion may be decreased for final engineering design for future Region C connection, which would decrease velocity, but also increase modeled d/D values. Installing a smaller pipe (8-inch diameter) could further increase velocity, and may not provide adequate capacity with reduced pipe slopes.

The sewer main on Broadway Avenue from Kenneth Street to Fremont Boulevard is 8-inch VCP, with future peak flow up to 736 gpm including Region "C". This stretch of sewer main would flow with a d/D up to 1.0 (surcharging) with future flows. Upgrade to 10-inch PVC reduces maximum d/D to 0.52. Total length is 2,460 feet.

Region "A" Impacts

Future development and redevelopment in Region A would increase sewer flow to the Tioga Lift Station. The recommended Del Monte Boulevard 15-inch gravity main would be deep enough that the sewer line in Tioga Avenue could gravity flow to Del Monte, allowing for the Tioga Lift Station to be abandoned. It is recommended that the Tioga Lift Station be abandoned at the time of construction of any future development that would increase flow to this lift station. Conditions and operation of this lift station is discussed in detail in Chapter 6.

Regions "A" and "C" Impacts

Portions of the Region A and Region C future development would contribute flow to the following identified pipe deficiency.

Ortiz Avenue

- Reference: Figure 7-13
- Location Extents: Manhole B9-28 to Manhole A9-51

The sewer main on Ortiz Avenue from Del Monte Boulevard to Contra Costa Street receives all of the flow from the Victory Toyota, Love Chevrolet, Cypress Ford, and a portion of the 27-inch tributary area. This 21-inch VCP sewer main has a d/D greater than 0.92 under MDDWF with all of the future development. Under existing conditions, this sewer main is right at capacity with a d/D of 0.8 during MDDWF, and was identified as marginal for WWF with a d/D of 0.87. Upgrade to 24-inch PVC from Del Monte to Holly Street and to 27-inch PVC from Holly Street to Contra Costa Street results in a MDDWF maximum d/D of 0.83, and d/D of 0.80 under WWF conditions. Total impacted length is 1,200 feet. Due to the existing marginal capacity of this section of the collection system, it is recommended that this upgrade take place at or before time of construction of the first development project that impacts this sewer main. This project would require construction under the Southern Pacific Railroad Right-of-Way.

Region "D2" Impacts

Region D2 has the potential to connect to the existing collection system in Highway 218 at Ryan Ranch Road. In this case, the following deficiency has been identified.

Highway 218

- Reference Figure 7-21
- Location Extents: Manhole D14-1 to Manhole C13-38

The sewer main in Highway 218 from Ryan Ranch Road to Del Rey Gardens Drive is 6-inch VCP. With future flow from Region D2 routed to this existing main, d/D would reach 0.88 under MDDWF. Upgrade to 8-inch PVC would result in a MDDWF d/D up to 0.58, and maximum d/D of 0.47 under WWF conditions.

Table 7-1. SCSD Design and Performance Standards

Gravity Pipe Percent Full Criteria	
Pipe Diameter	**Maximum Allowed d/D**
10 inches and smaller	0.67
12-inch to 24-inch	0.80
27 inches and larger	0.90
Other Design Criteria	
Minimum Velocity	2.0 fps
Maximum Velocity	8.0 fps
Manning's Coefficient,n	0.013 for VCP & PCP, 0.011 for PVC

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FIGURE 7-1: 2010 TRUNK SEWER MODEL OVERVIEW MAP

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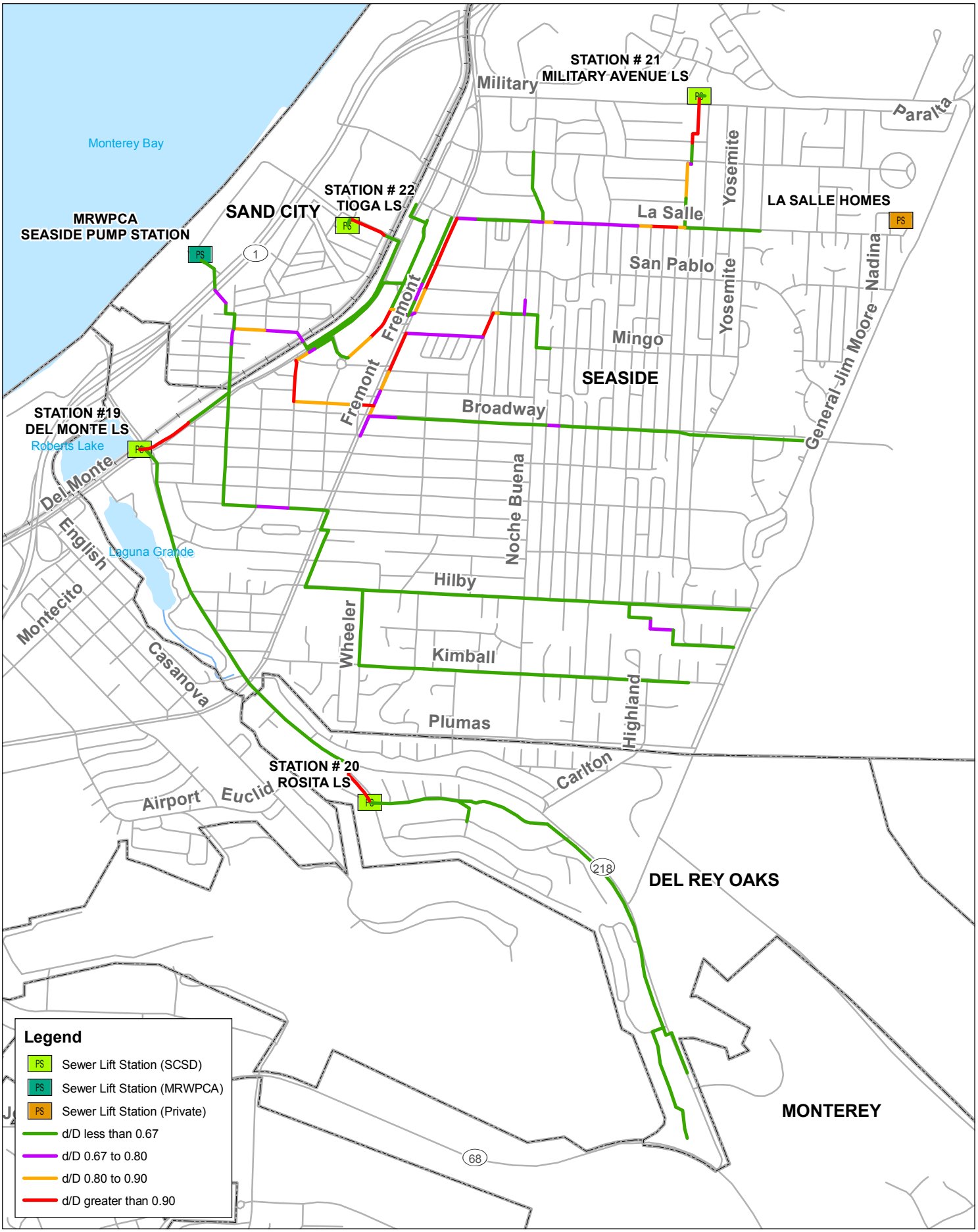

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FIGURE 7-2: TRUNK SEWER d/D DURING EXISTING WORST-CASE FLOW CONDITIONS

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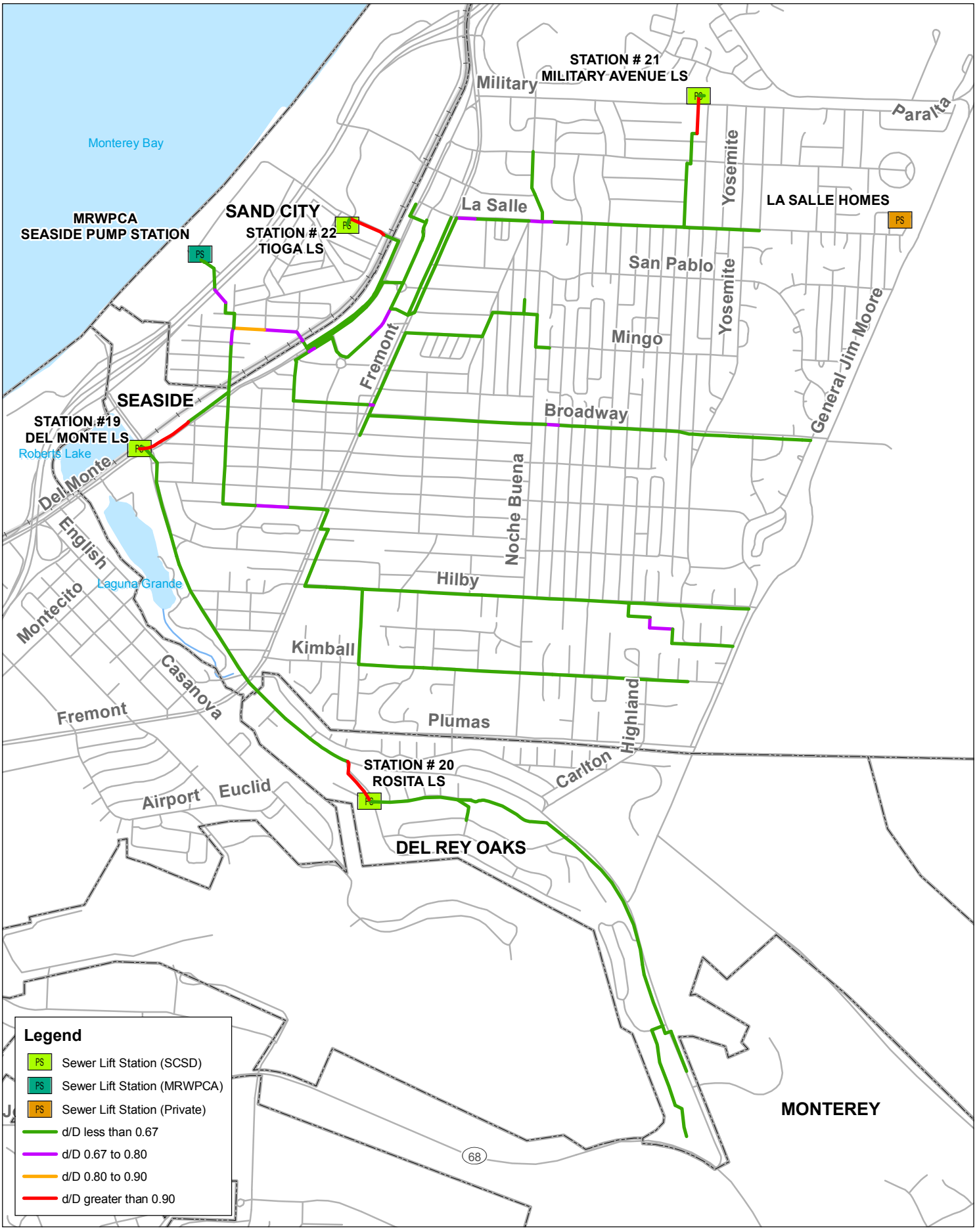

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FIGURE 7-3: TRUNK SEWER d/D WITH UPGRADES DURING EXISTING WORST-CASE FLOW CONDITIONS

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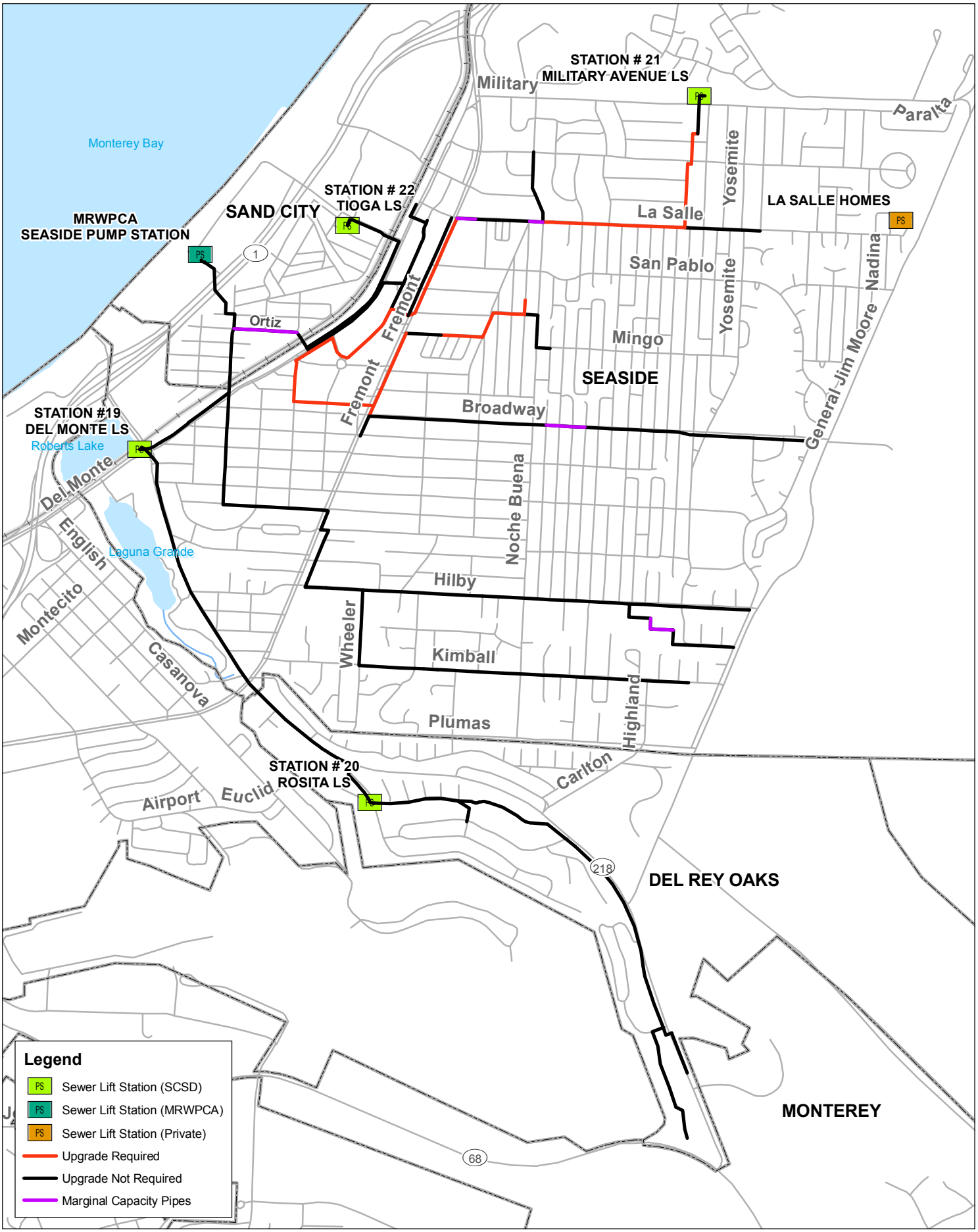

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FIGURE 7-4: TRUNK SEWER EXISTING FLOWS
PIPE UPGRADE & MARGINAL CAPACITY LOCATION MAP

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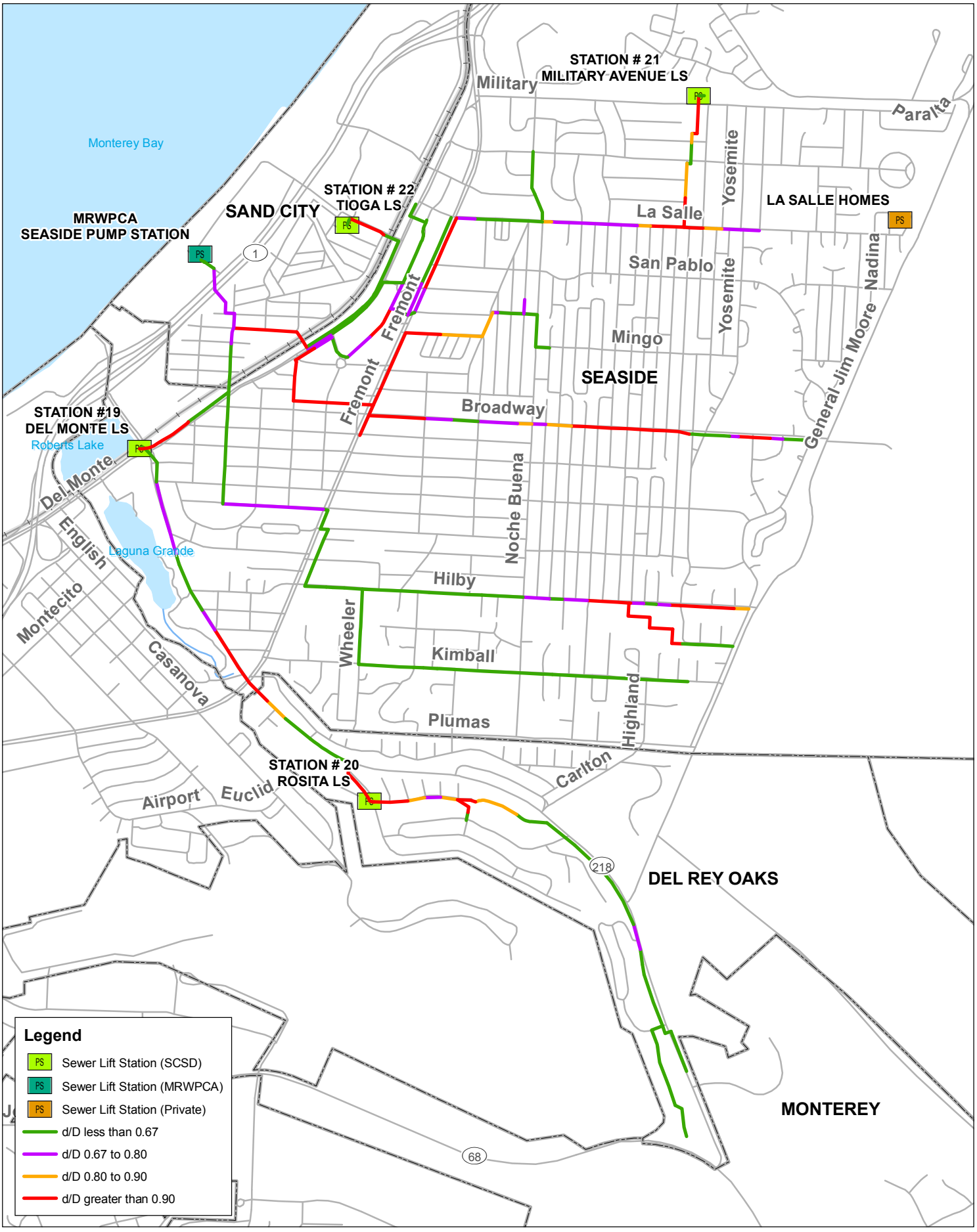

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FIGURE 7-5: TRUNK SEWER d/D DURING FUTURE WORST-CASE FLOW CONDITIONS

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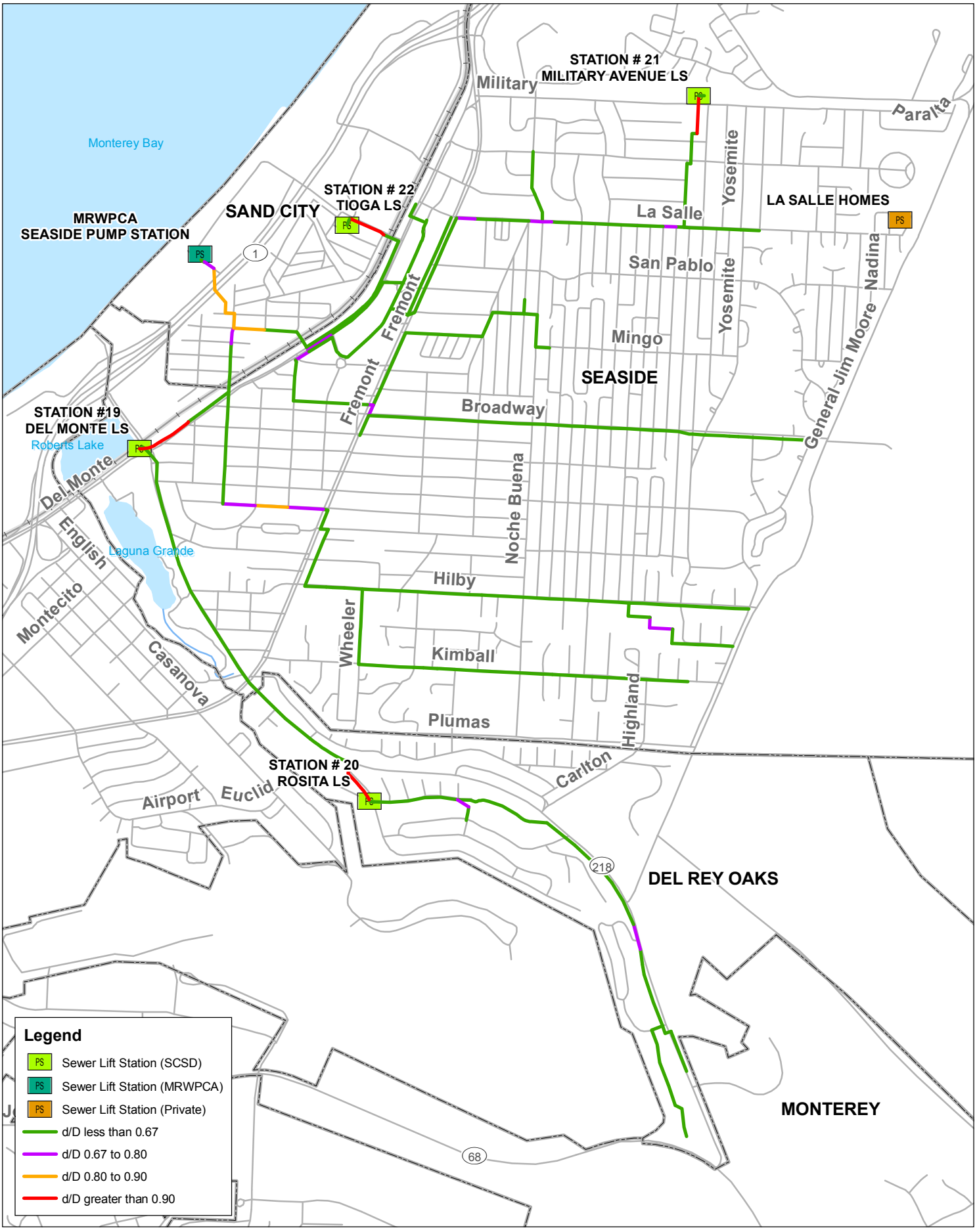

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FIGURE 7-6: TRUNK SEWER d/D WITH UPGRADES DURING FUTURE WORST-CASE FLOW CONDITIONS

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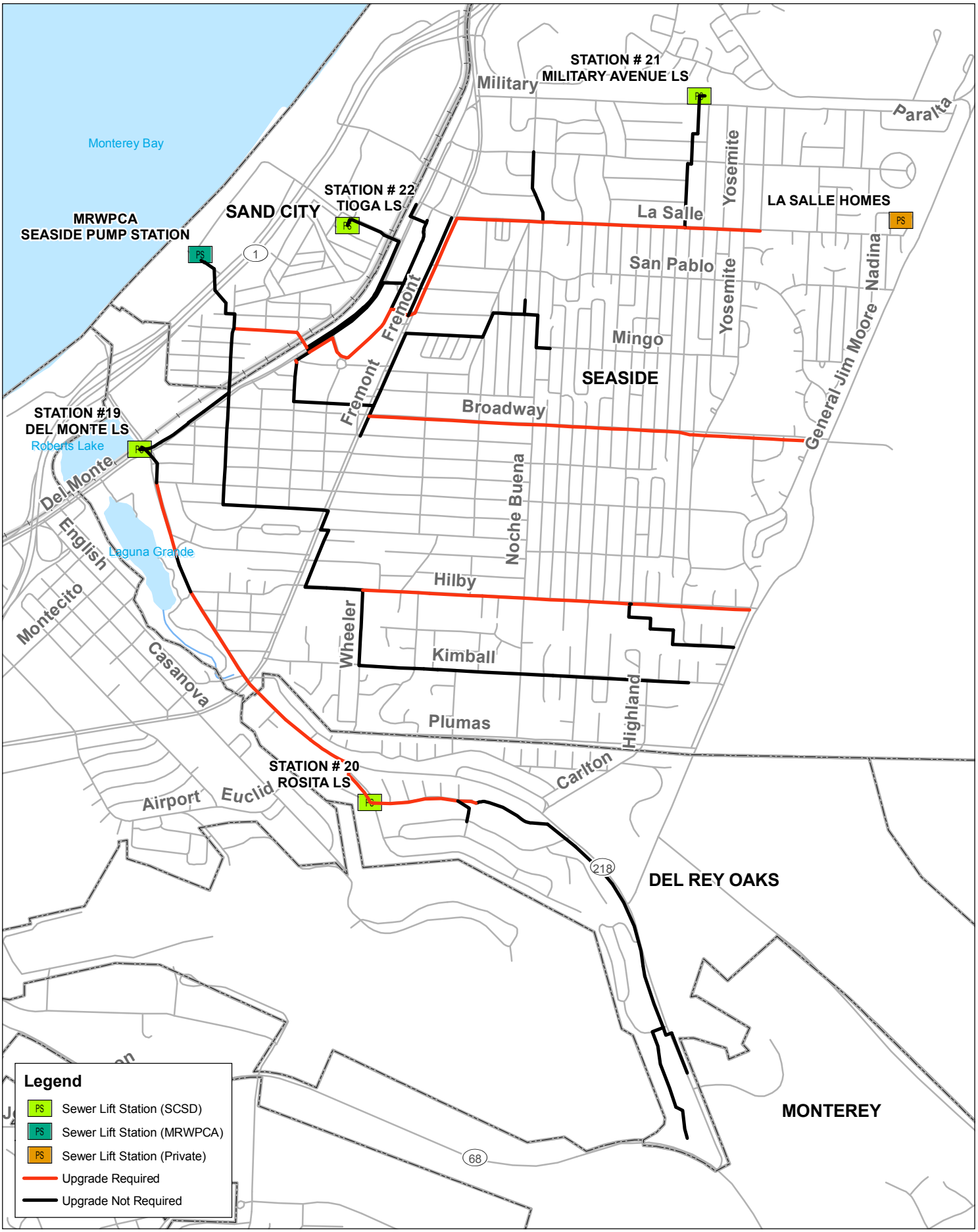

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FIGURE 7-7: TRUNK SEWER FUTURE FLOWS
PIPE UPGRADE LOCATION MAP

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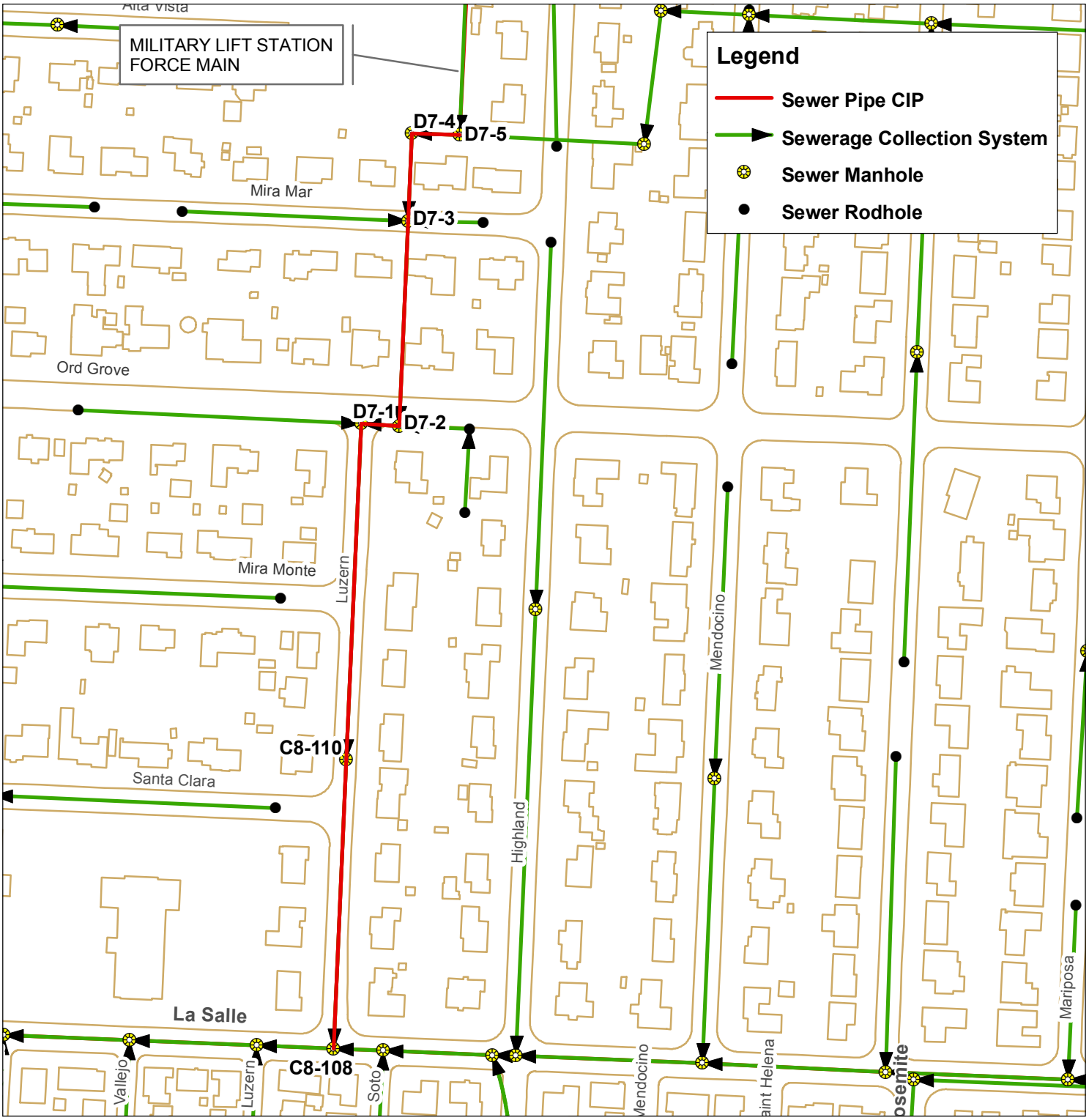

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Existing MDF d/D (exist pipe dia)	Existing MDF d/D (proposed pipe dia)	Existing WWF d/D (exist pipe dia)	Existing WWF d/D (proposed pipe dia)
D7-5 : D7-4	68	6	8	1.00	0.56	1.00	0.60
D7-4 : D7-3	125	6	8	0.86	0.54	0.92	0.58
D7-3 : D7-2	291	6	8	0.58	0.36	0.66	0.39
D7-2 : D7-1	54	6	8	0.61	0.38	0.74	0.41
D7-1 : C8-110	478	6	8	0.70	0.43	0.85	0.48
C8-110 : C8-108	412	6	8	0.58	0.36	0.66	0.41

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FIGURE 7-8: LUZERN SEWER LINE UPGRADE

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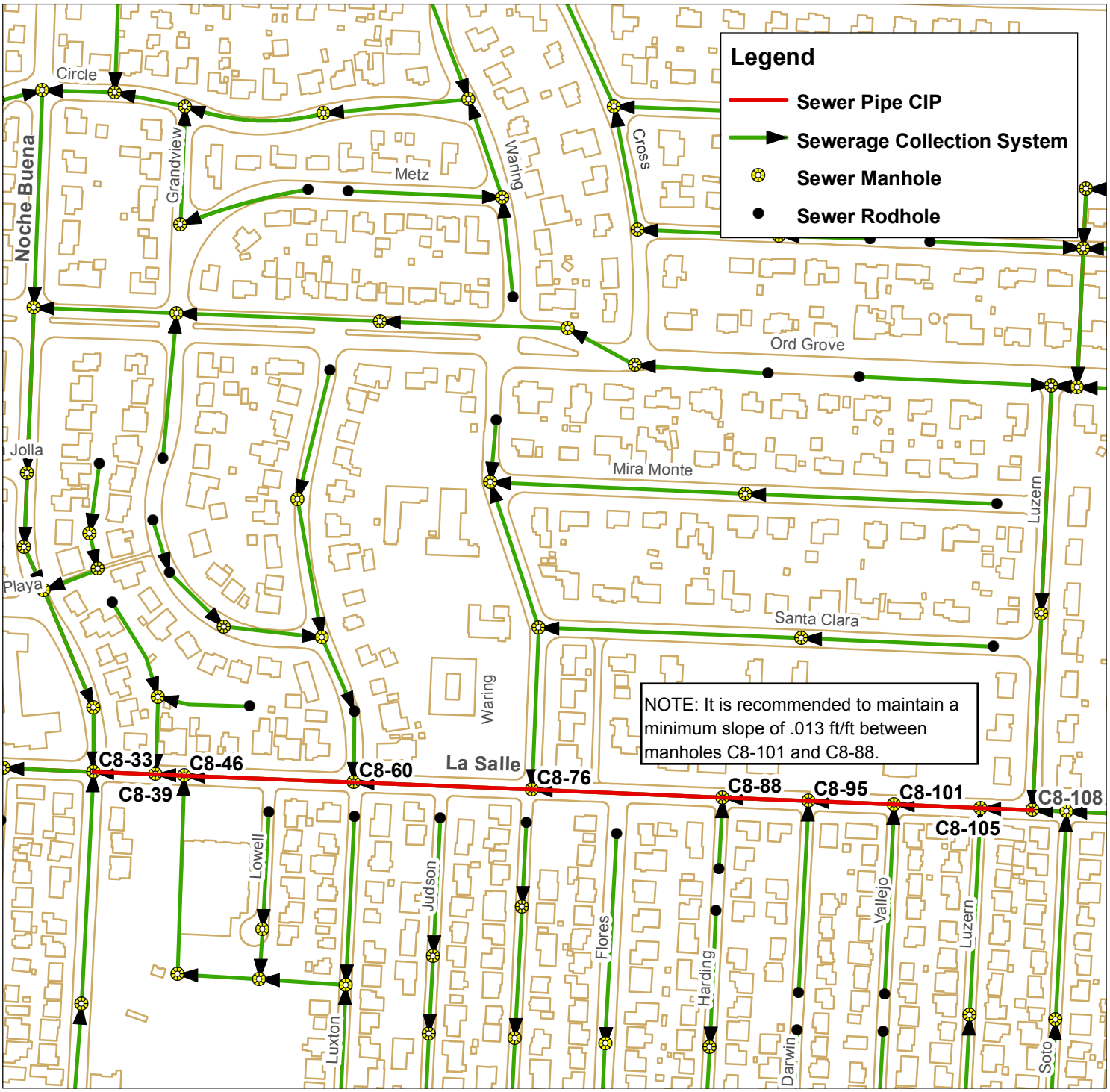

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Existing MDF d/D (exist pipe dia)	Existing MDF d/D (proposed pipe dia)	Existing WWF d/D (exist pipe dia)	Existing WWF d/D (proposed pipe dia)
C8-108 : C8-105	109	6	8	0.56	0.36	0.81	0.40
C8-105 : C8-101	181	6	8	0.80	0.43	1.00	0.49
C8-101 : C8-95	180	6	8	1.00	0.51	1.00	0.58
C8-95 : C8-88	180	6	8	0.79	0.45	0.82	0.51
C8-88 : C8-76	399	6	8	0.62	0.38	0.70	0.43
C8-76 : C8-60	374	6	8	0.65	0.39	0.74	0.44
C8-60 : C8-46	355	6	8	0.64	0.38	0.74	0.44
C8-46 : C8-39	61	6	8	0.68	0.40	0.80	0.46
C8-39 : C8-33	130	6	8	0.84	0.60	0.90	0.73

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FIGURE 7-9: LA SALLE SEWER LINE UPGRADE

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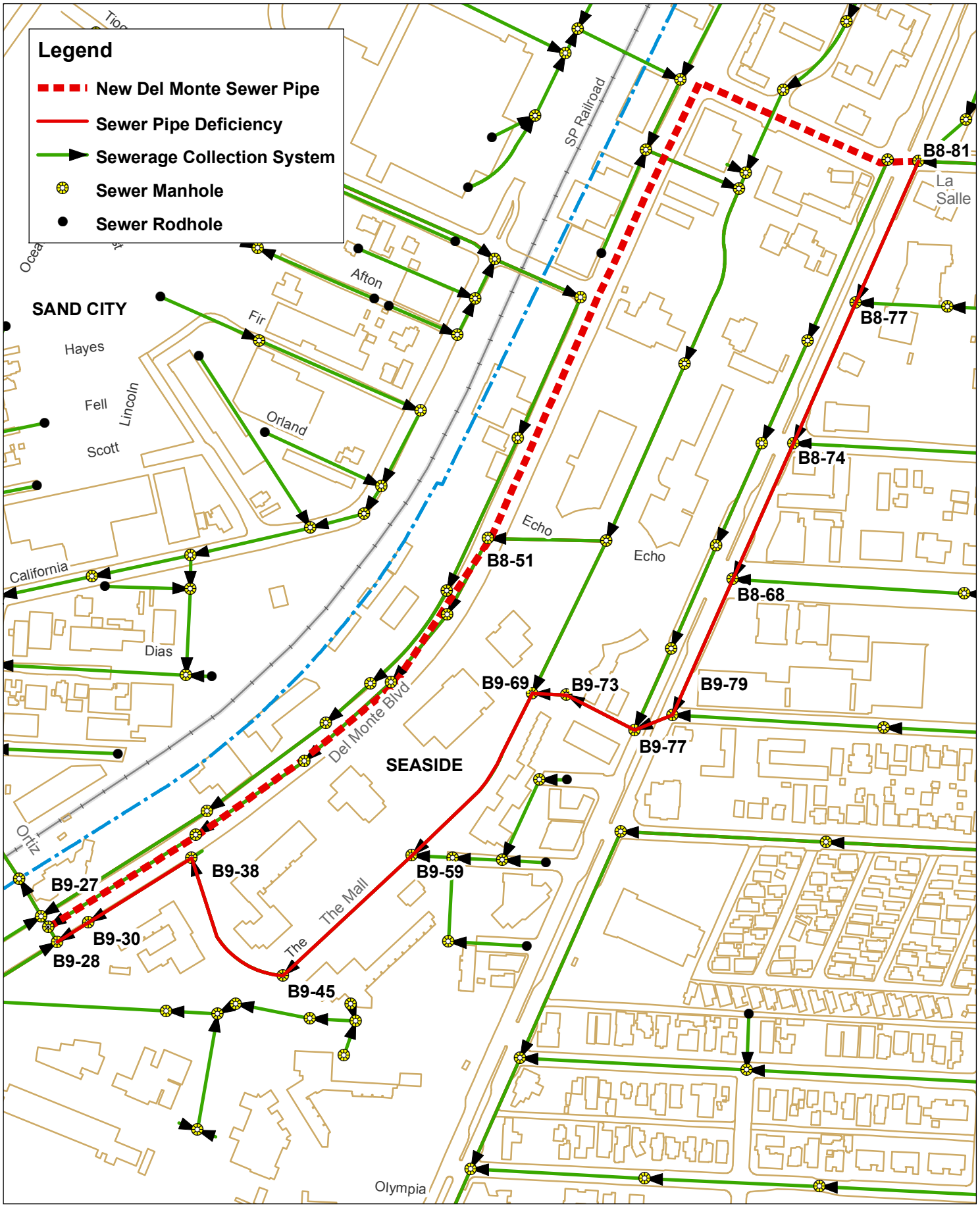

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FIGURE 7-10: DEL MONTE SEWER LINE UPGRADE AND RELOCATION, PAGE 1 OF 2

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EXISTING FREMONT BOULEVARD SEWER MAIN

Pipe ID	Length [feet]	Existing Diameter [inches]	Existing MDF d/D (exist pipe dia)	Existing WWF d/D (exist pipe dia)
B8-81 : B8-77	368	10	0.85	1.00
B8-77 : B8-74	365	10	0.82	1.00
B8-74 : B8-68	354	10	0.85	1.00
B8-68 : B9-79	352	10	0.75	0.88
B9-79 : B9-77	97	10	0.60	0.71
B9-77 : B9-73	181	10	0.54	0.69
B9-73 : B9-69	81	10	0.53	0.87
B9-69 : B9-59	486	10	1.00	1.00
B9-59 : B9-45	418	10	0.77	0.81
B9-45 : B9-38	385	10	0.60	0.67
B9-38 : B9-30	288	10	0.57	0.64
B9-30 : B9-28	88	10	0.75	0.78

PROPOSED DEL MONTE BOULEVARD SEWER MAIN

Pipe ID	Length [feet]	Proposed Diameter [inches]	Existing MDF d/D (proposed pipe dia)	Existing WWF d/D (proposed pipe dia)
B8-81 : DM-1	92	12	0.42	0.49
DM-1 : DM-2	470	12	0.64	0.72
DM-2 : DM-3	562	12	0.55	0.61
DM-3 : DM-4	617	12	0.42	0.46
DM-4 : DM-5	327	12	0.60	0.65
DM-5 : DM-6	338	12	0.62	0.68
DM-6 : DM-7	385	12	0.48	0.52
DM-7 : B9-27	382	12	0.59	0.62

NOTES:
New pipe for the Del Monte Alternative is schematic and included in the sewer model for the purposes of determining feasibility and required pipe size only. Pipe lengths and alignment are subject to change for final engineering design.

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FIGURE 7-10: DEL MONTE SEWER LINE UPGRADE AND RELOCATION, PAGE 2 0F 2

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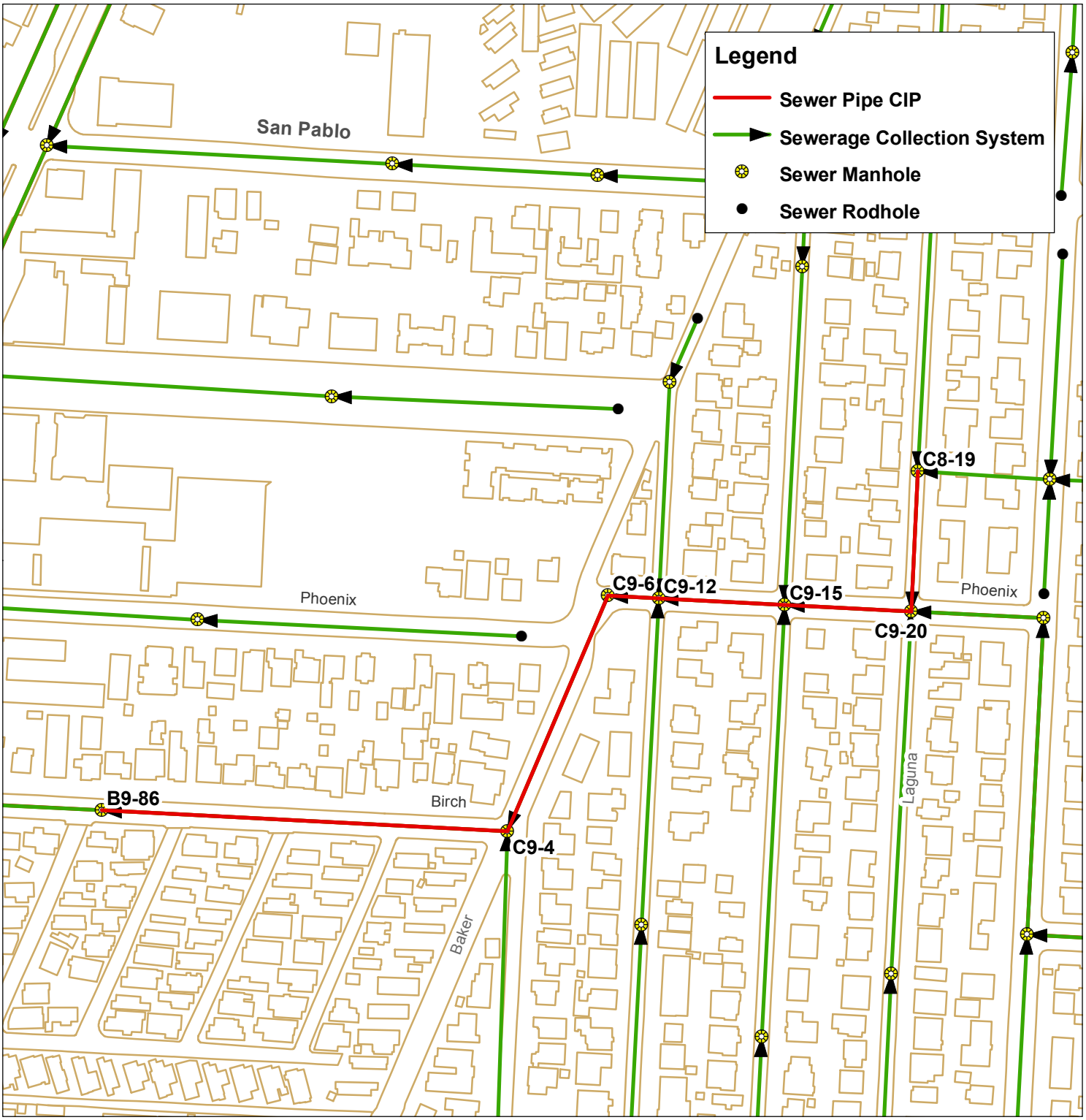

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Existing MDF d/D (exist pipe dia)	Existing MDF d/D (proposed pipe dia)	Existing WWF d/D (exist pipe dia)	Existing WWF d/D (proposed pipe dia)
C8-19 : C9-20	200	8	10	0.76	0.52	0.77	0.53
C9-20 : C9-15	181	8	10	0.59	0.38	0.62	0.39
C9-15 : C9-12	180	8	10	0.63	0.40	0.66	0.41
C9-12 : C9-6	73	8	10	0.80	0.56	0.81	0.58
C9-6 : C9-4	365	10	12	0.89	0.55	0.92	0.57
C9-4 : B9-86	579	10	12	0.72	0.52	0.76	0.54

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FIGURE 7-11: BIRCH AVENUE SEWER LINE UPGRADE

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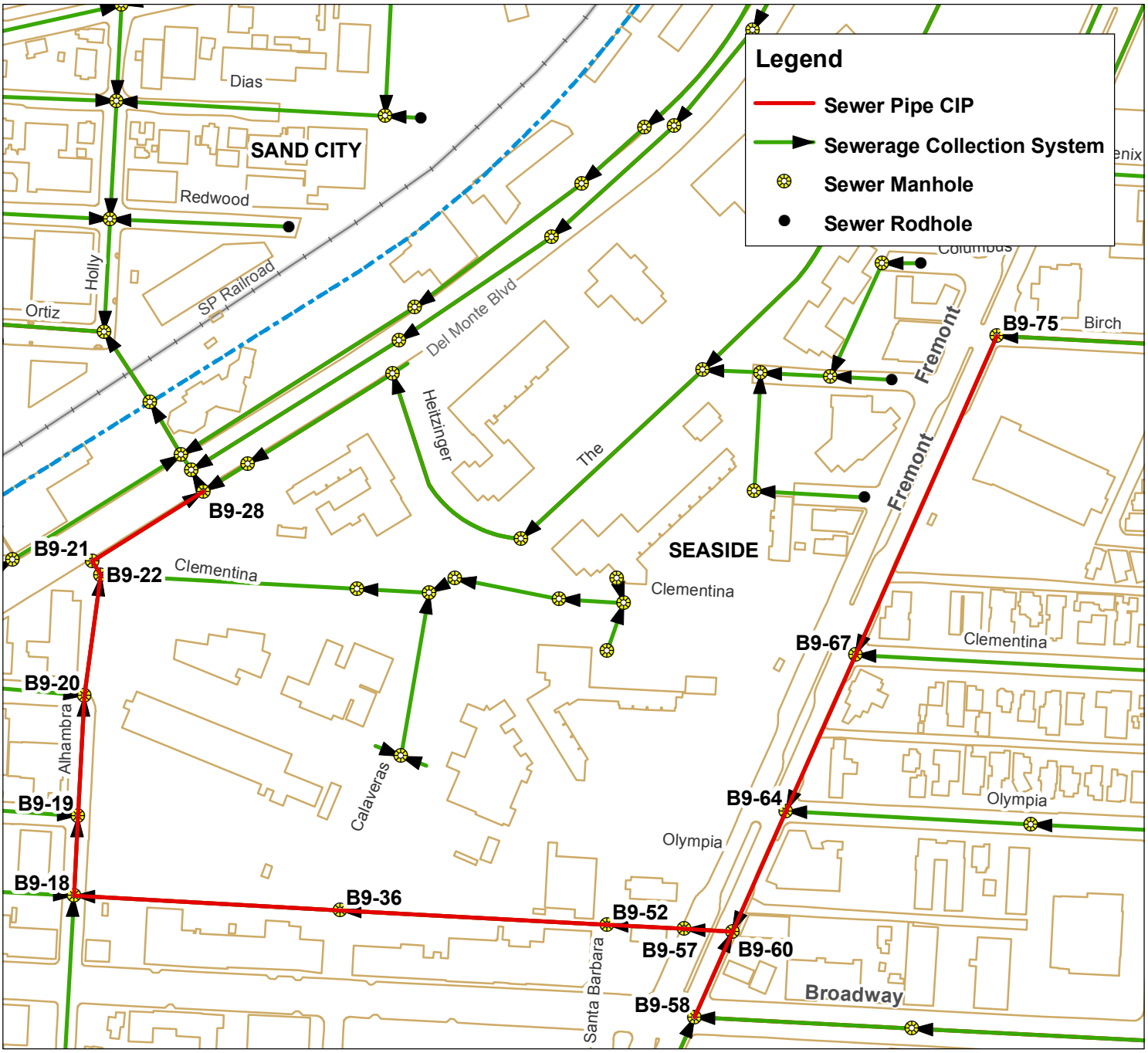

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Existing MDF d/D (exist pipe dia)	Existing MDF d/D (proposed pipe dia)	Existing WWF d/D (exist pipe dia)	Existing WWF d/D (proposed pipe dia)
B9-75 : B9-67	589	12	15	0.90	0.51	0.96	0.53
B9-67 : B9-64	288	12	15	0.80	0.48	0.86	0.50
B9-64 : B9-60	223	12	15	0.66	0.44	0.73	0.45
B9-58 : B9-60	158	10	12	0.76	0.59	0.88	0.62
B9-60 : B9-57	82	12	15	1.00	0.68	1.00	0.71
B9-57 : B9-52	130	12	15	0.93	0.60	0.98	0.62
B9-52 : B9-36	450	12	15	0.77	0.46	0.84	0.48
B9-36 : B9-18	451	12	15	0.73	0.44	0.86	0.45
B9-18 : B9-19	135	12	15	0.89	0.50	1.00	0.52
B9-19 : B9-20	203	12	15	0.88	0.51	1.00	0.53
B9-20 : B9-22	205	12	15	0.88	0.48	1.00	0.52
B9-22 : B9-21	28	12	18	1.00	0.47	1.00	0.51
B9-21 : B9-28	221	15	18	0.82	0.54	0.88	0.65

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FIGURE 7-12: FREMONT BOULEVARD SEWER LINE UPGRADE

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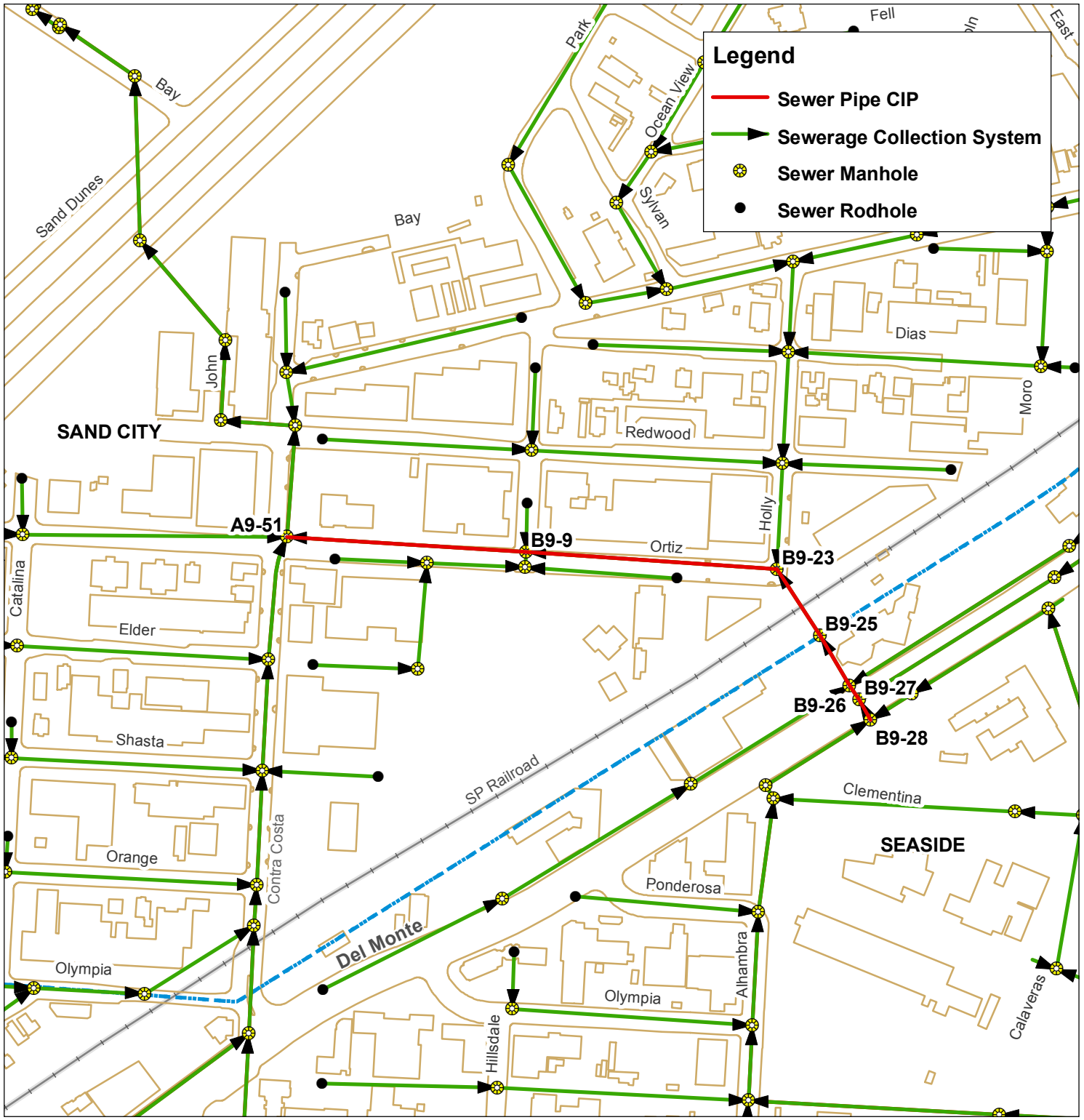

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
B9-28 : B9-27	41	21	24	0.88	0.59	0.89	0.58
B9-27 : B9-26	31	21	24	0.89	0.54	0.89	0.53
B9-26 : B9-25	103	21	24	0.93	0.51	0.94	0.50
B9-25 : B9-23	142	21	24	0.99	0.58	1.00	0.55
B9-23 : B9-9	450	21	27	1.00	0.66	1.00	0.63
B9-9 : A9-51	429	21	27	1.00	0.83	1.00	0.79

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FIGURE 7-13: ORTIZ SEWER LINE UPGRADE

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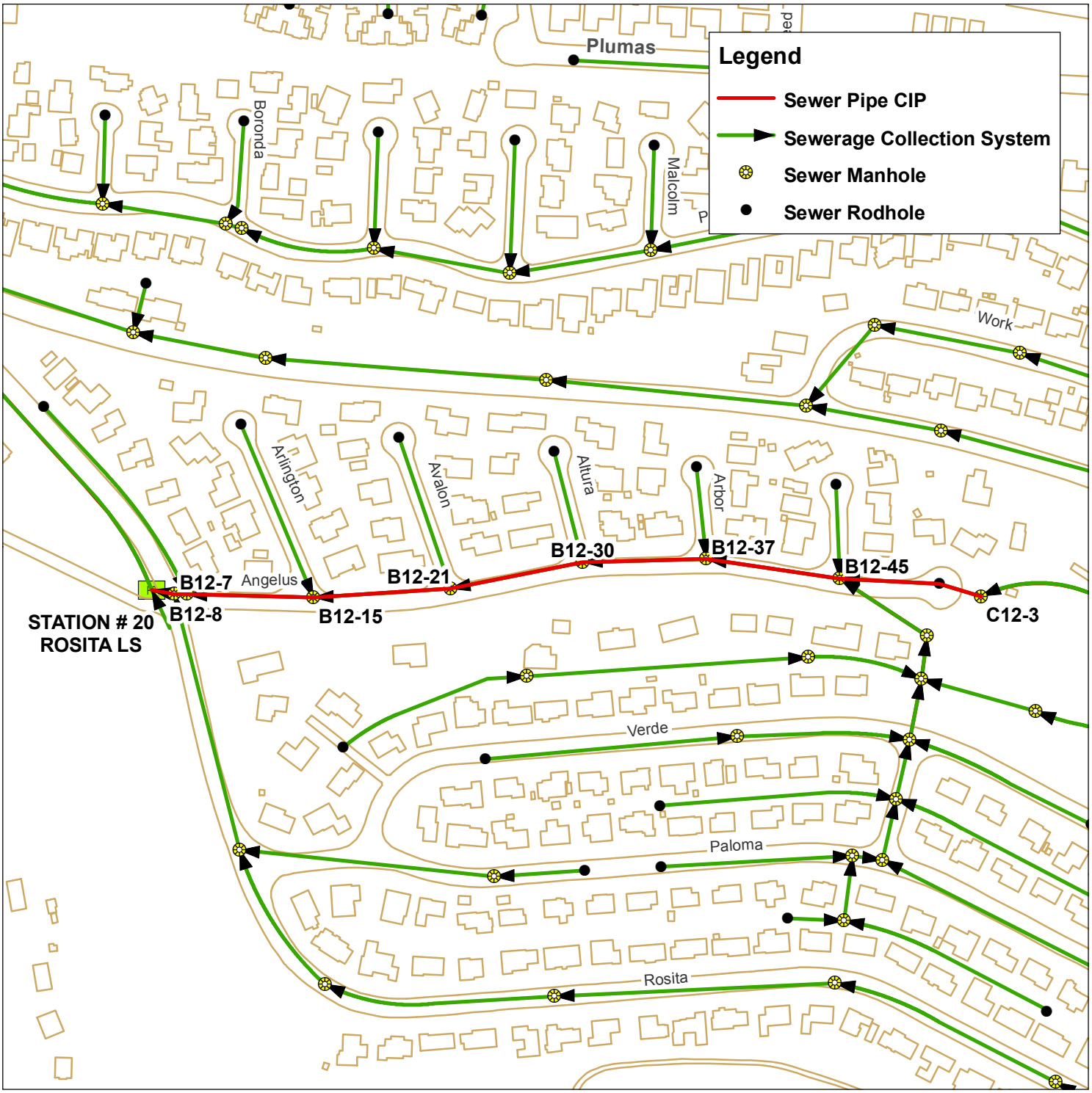

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
C12-3 : B12-45	254	8	12	1.00	0.45	0.92	0.39
B12-45 : B12-37	240	8	12	0.88	0.43	0.82	0.37
B12-37 : B12-30	219	8	12	0.69	0.33	0.59	0.30
B12-30 : B12-21	239	8	12	0.82	0.32	0.57	0.28
B12-21 : B12-15	244	8	12	1.00	0.39	0.79	0.35
B12-15 : B12-8	224	8	12	1.00	0.38	1.00	0.34
B12-8 : B12-7	22	6	12	1.00	0.42	1.00	0.38
B12-7 : RLS	41	8	12	1.00	0.53	1.00	0.48

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FIGURE 7-14: ANGELUS WAY SEWER LINE UPGRADE

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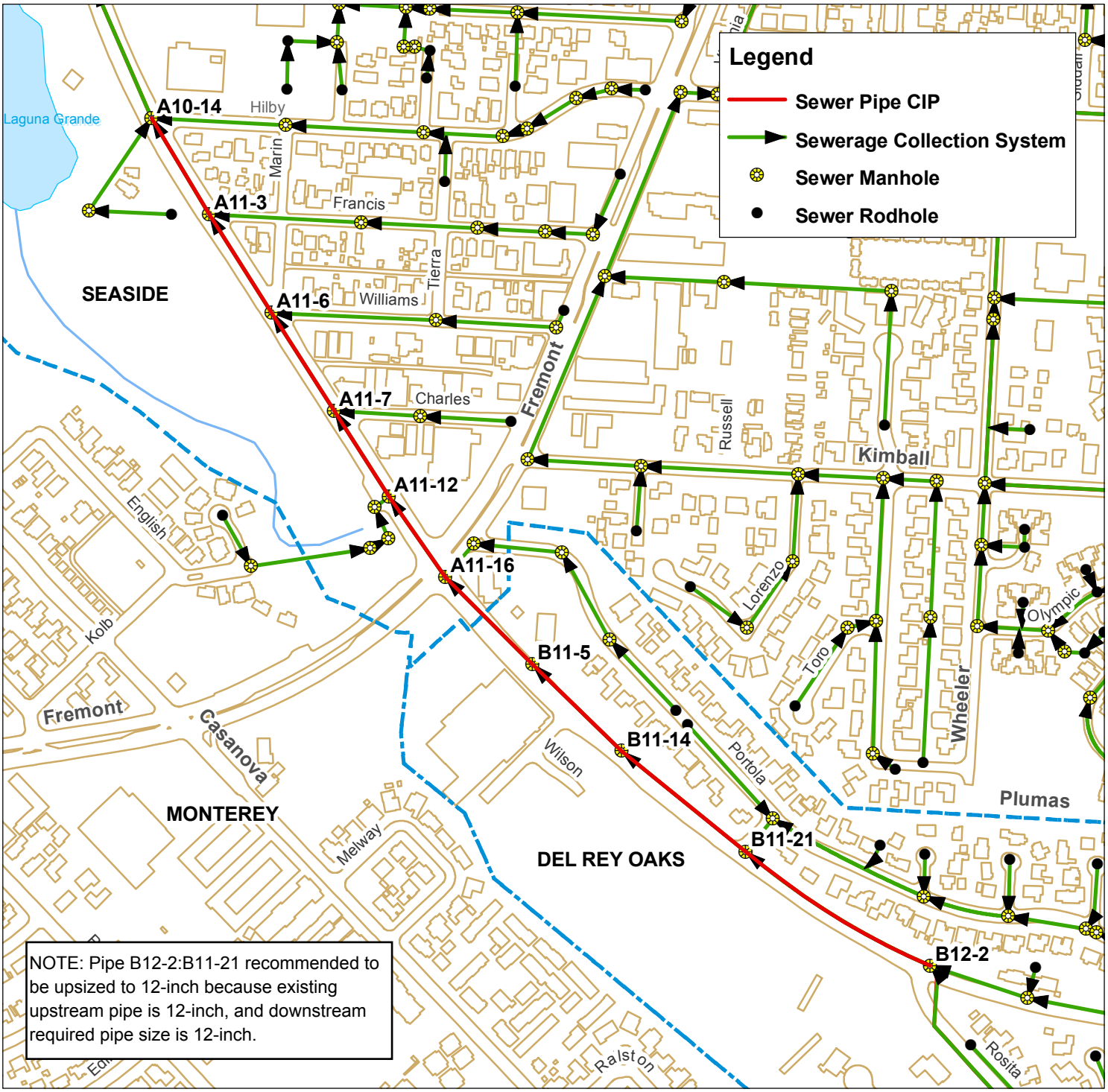

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
B12-2 : B11-21	608	8	12	0.53	0.31	0.55	0.30
B11-21 : B11-14	446	8	12	0.63	0.35	0.78	0.33
B11-14 : B11-5	348	8	12	0.86	0.42	1.00	0.40
B11-5 : A11-16	345	8	12	1.00	0.46	1.00	0.44
A11-16 : A11-12	275	8	12	1.00	0.46	1.00	0.44
A11-12 : A11-7	284	8	12	0.92	0.44	1.00	0.42
A11-7 : A11-6	325	8	12	0.92	0.44	1.00	0.42
A11-6 : A11-3	326	8	12	0.77	0.39	0.79	0.37
A11-3 : A10-14	314	8	12	0.65	0.45	0.68	0.44

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FIGURE 7-15: CANYON DEL REY (1) SEWER LINE UPGRADE

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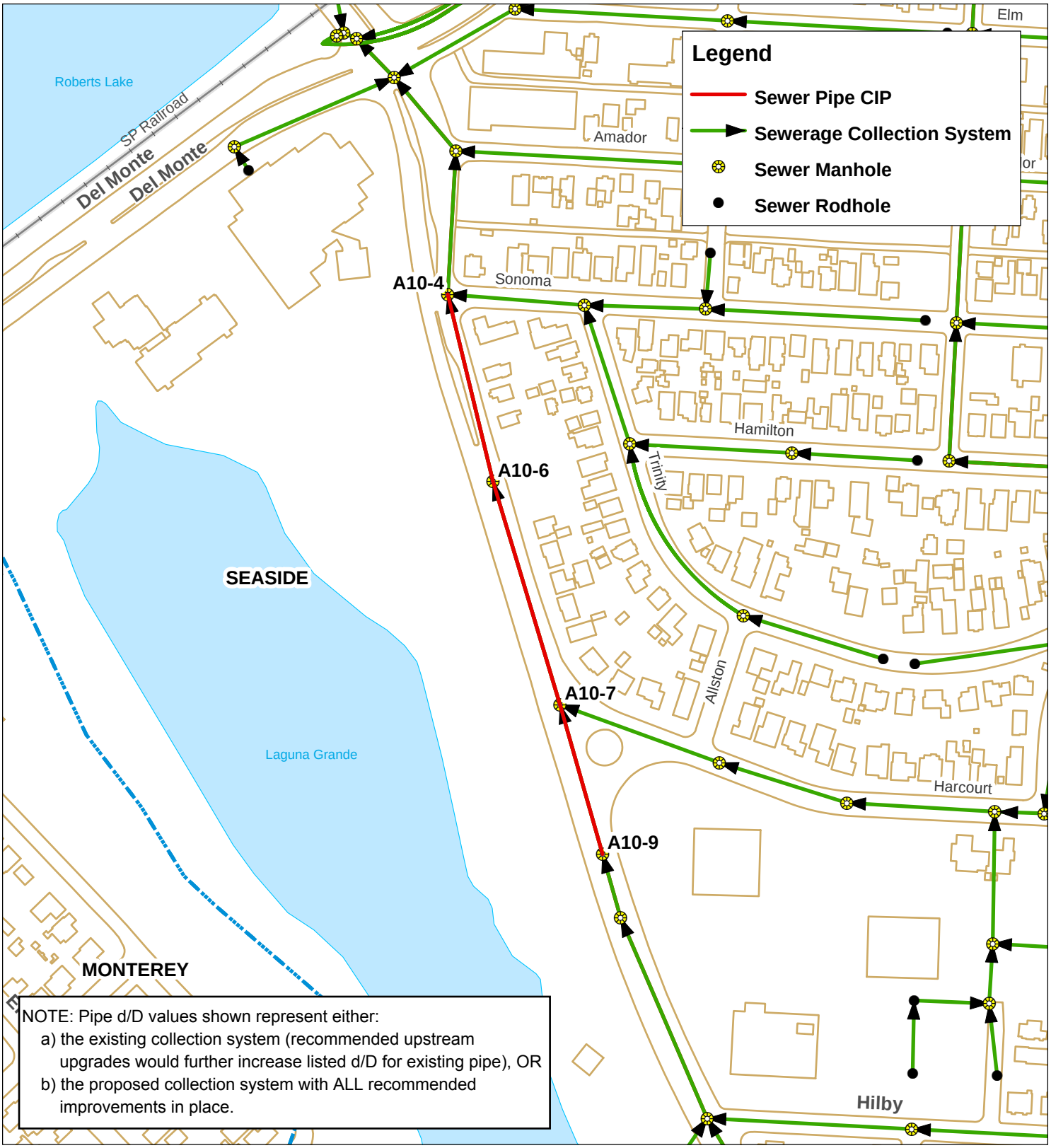

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
A10-9 : A10-7	285	12	15	0.72	0.51	0.77	0.50
A10-7 : A10-6	428	12	15	0.78	0.53	0.85	0.52
A10-6 : A10-4	354	12	15	0.72	0.54	0.77	0.53

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FIGURE 7-16: CANYON DEL REY (2) SEWER LINE UPGRADE

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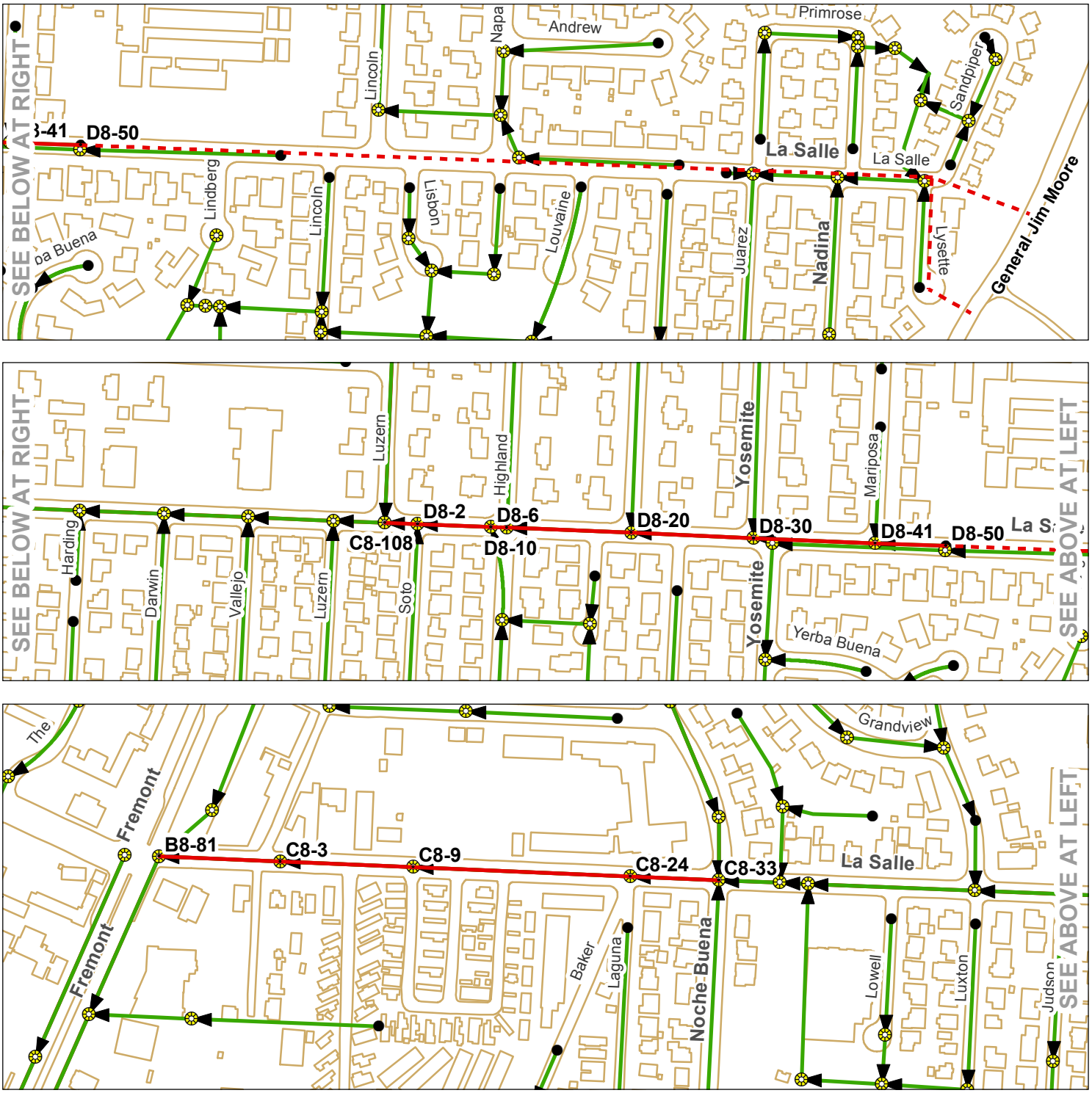

Legend

- Potential New Sewer Pipe Alignments
- Sewer Pipe CIP
- Sewerage Collection System
- Sewer Manhole
- Sewer Rodhole

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FIGURE 7-17: LA SALLE (REGION C) SEWER LINE UPGRADE & EXTENSION, PAGE 1 OF 2

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Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
D8-41 : D8-30	260	6	8	0.68	0.39	0.53	0.31
D8-30 : D8-20	261	6	8	0.68	0.39	0.53	0.32
D8-20 : D8-10	266	6	8	0.84	0.40	0.56	0.33
D8-10 : D8-6	33	6	8	1.00	0.42	0.59	0.35
D8-6 : D8-2	156	6	8	1.00	0.43	0.80	0.36
D8-2 : C8-108	71	6	8	1.00	0.48	1.00	0.43
C8-108 : C8-105	109	6	10	1.00	0.43	1.00	0.42
C8-105 : C8-101	181	6	10	1.00	0.72	1.00	0.51
C8-101 : C8-95	180	6	10	1.00	0.67	1.00	0.61
C8-95 : C8-88	180	6	10	0.82	0.58	0.82	0.54
C8-88 : C8-76	399	6	10	0.69	0.47	0.70	0.44
C8-76 : C8-60	374	6	10	0.73	0.48	0.74	0.45
C8-60 : C8-46	355	6	10	0.73	0.47	0.74	0.45
C8-46 : C8-39	61	6	10	0.77	0.49	0.85	0.46
C8-39 : C8-33	130	6	10	0.89	0.71	0.95	0.66
C8-33 : C8-24	188	8	10	0.67	0.68	0.74	0.64
C8-24 : C8-9	463	8	10	0.56	0.54	0.60	0.52
C8-9 : C8-3	283	8	10	0.60	0.58	0.65	0.56
C8-3 : B8-81	258	8	10	0.76	0.72	0.80	0.70

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FIGURE 7-17: LA SALLE (REGION C) SEWER LINE UPGRADE & EXTENSION, PAGE 2 OF 2

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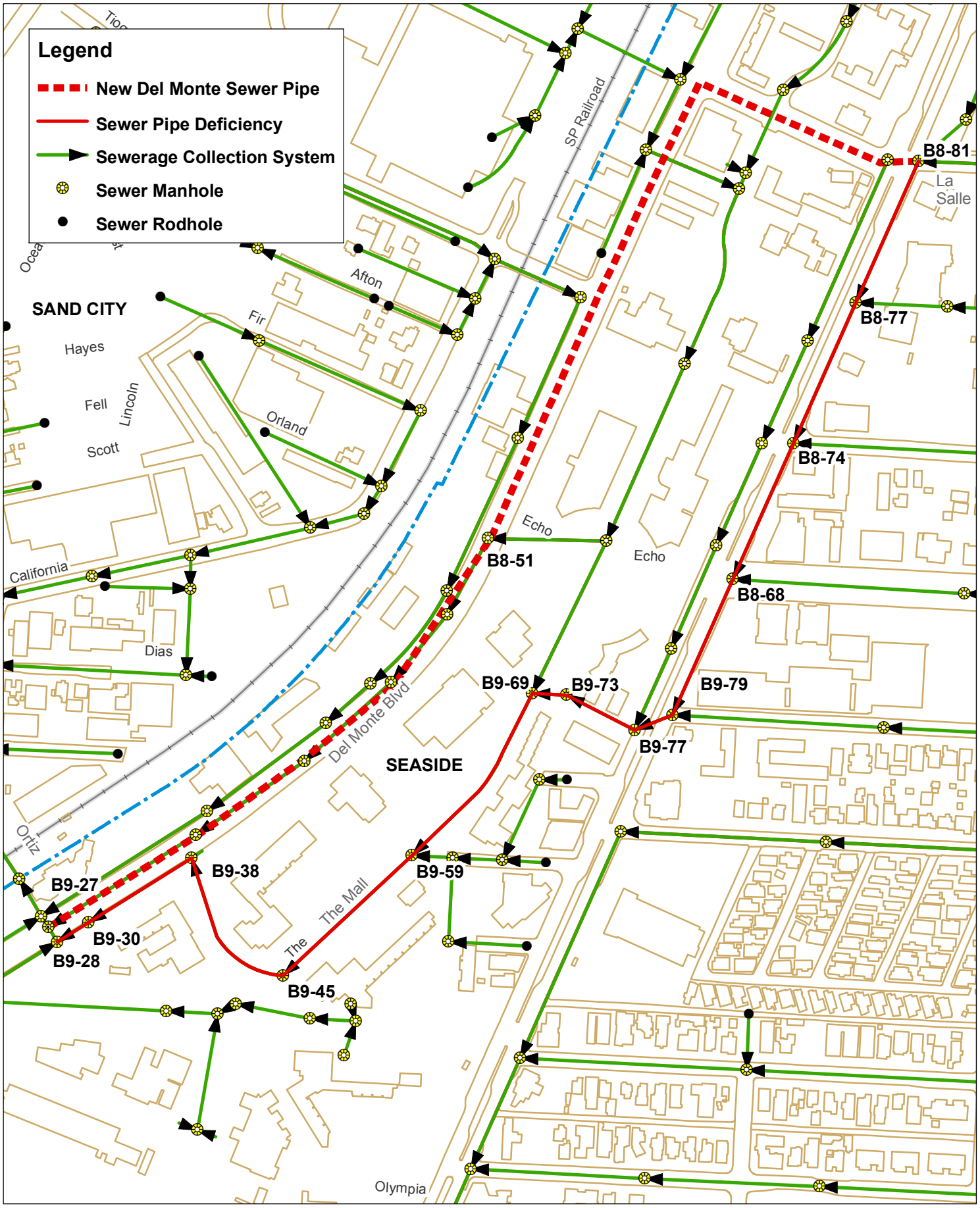

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FIGURE 7-18: DEL MONTE SEWER LINE UPGRADE AND RELOCATION, PAGE 1 OF 2

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EXISTING FREMONT BOULEVARD SEWER MAIN

Pipe ID	Length [feet]	Existing Diameter [inches]	Future MDF d/D (exist pipe dia)	Future WWF d/D (exist pipe dia)
B8-81 : B8-77	368	10	1.00	1.00
B8-77 : B8-74	365	10	1.00	1.00
B8-74 : B8-68	354	10	1.00	1.00
B8-68 : B9-79	352	10	0.72	0.74
B9-79 : B9-77	97	10	0.56	0.61
B9-77 : B9-73	181	10	0.57	0.63
B9-73 : B9-69	81	10	0.73	0.75
B9-69 : B9-59	486	10	1.00	1.00
B9-59 : B9-45	418	10	0.78	0.79
B9-45 : B9-38	385	10	0.62	0.63
B9-38 : B9-30	288	10	0.73	0.76
B9-30 : B9-28	88	10	0.92	0.94

PROPOSED DEL MONTE BOULEVARD SEWER MAIN

Pipe ID	Length [feet]	Proposed Diameter [inches]	Future MDF d/D (proposed pipe dia)	Future WWF d/D (proposed pipe dia)
B8-81 : DM-1	92	15	0.47	0.46
DM-1 : DM-2	470	15	0.70	0.67
DM-2 : DM-3	562	15	0.61	0.57
DM-3 : DM-4	617	15	0.49	0.45
DM-4 : DM-5	327	15	0.68	0.62
DM-5 : DM-6	338	15	0.74	0.68
DM-6 : DM-7	385	15	0.63	0.58
DM-7 : B9-27	382	15	0.75	0.71

NOTES:
New pipe for the Del Monte Alternative is schematic and included in the sewer model for the purposes of determining feasibility and required pipe size only. Pipe lengths and alignment are subject to change for final engineering design.

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FIGURE 7-18: DEL MONTE SEWER LINE UPGRADE AND RELOCATION, PAGE 2 0F 2

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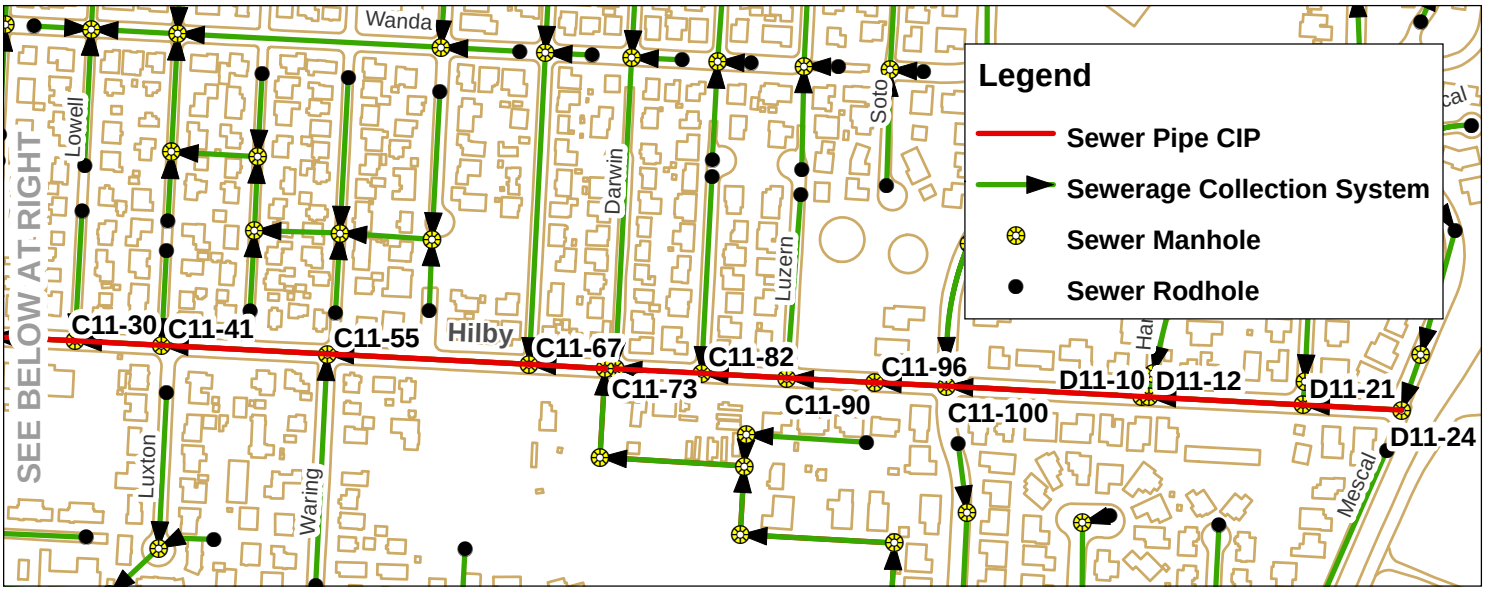

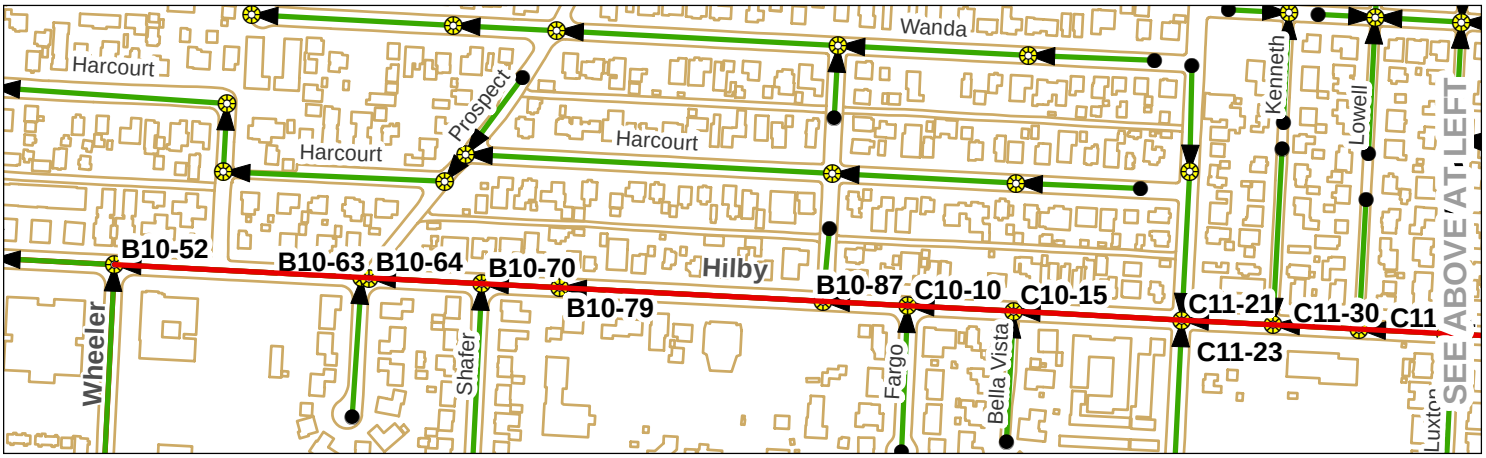

Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
D11-24 : D11-21	206	6	10	0.81	0.26	0.49	0.22
D11-21 : D11-12	321	6	10	1.00	0.27	0.51	0.23
D11-12 : D11-10	16	6	10	1.00	0.31	0.63	0.26
D11-10 : C11-100	408	6	10	1.00	0.38	0.87	0.31
C11-100 : C11-96	149	6	10	1.00	0.46	1.00	0.38
C11-96 : C11-90	183	6	10	0.74	0.36	0.70	0.30
C11-90 : C11-82	178	6	10	0.51	0.23	0.42	0.19
C11-82 : C11-75	180	6	10	0.77	0.24	0.72	0.20
C11-73 : C11-67	158	6	10	1.00	0.42	1.00	0.37
C11-67 : C11-55	422	6	10	1.00	0.51	1.00	0.45
C11-55 : C11-41	346	6	10	0.78	0.42	0.78	0.37
C11-41 : C11-30	180	6	10	0.53	0.27	0.52	0.25
C11-30 : C11-23	179	6	10	0.71	0.33	0.69	0.30
C11-23 : C11-21	190	6	10	0.76	0.35	0.74	0.31
C11-21 : C10-15	351	6	10	0.53	0.28	0.53	0.25
C10-15 : C10-10	221	6	10	0.50	0.26	0.50	0.24
C10-10 : B10-87	177	6	10	0.52	0.27	0.52	0.25
B10-87 : B10-79	549	6	10	0.61	0.34	0.62	0.31
B10-79 : B10-70	163	8	10	0.54	0.41	0.54	0.38
B10-70 : B10-64	236	8	10	0.54	0.51	0.55	0.47
B10-64 : B10-63	15	8	10	0.53	0.64	0.54	0.59
B10-63 : B10-52	516	8	10	0.56	0.46	0.58	0.44

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FIGURE 7-19: HILBY AVENUE SEWER LINE UPGRADE

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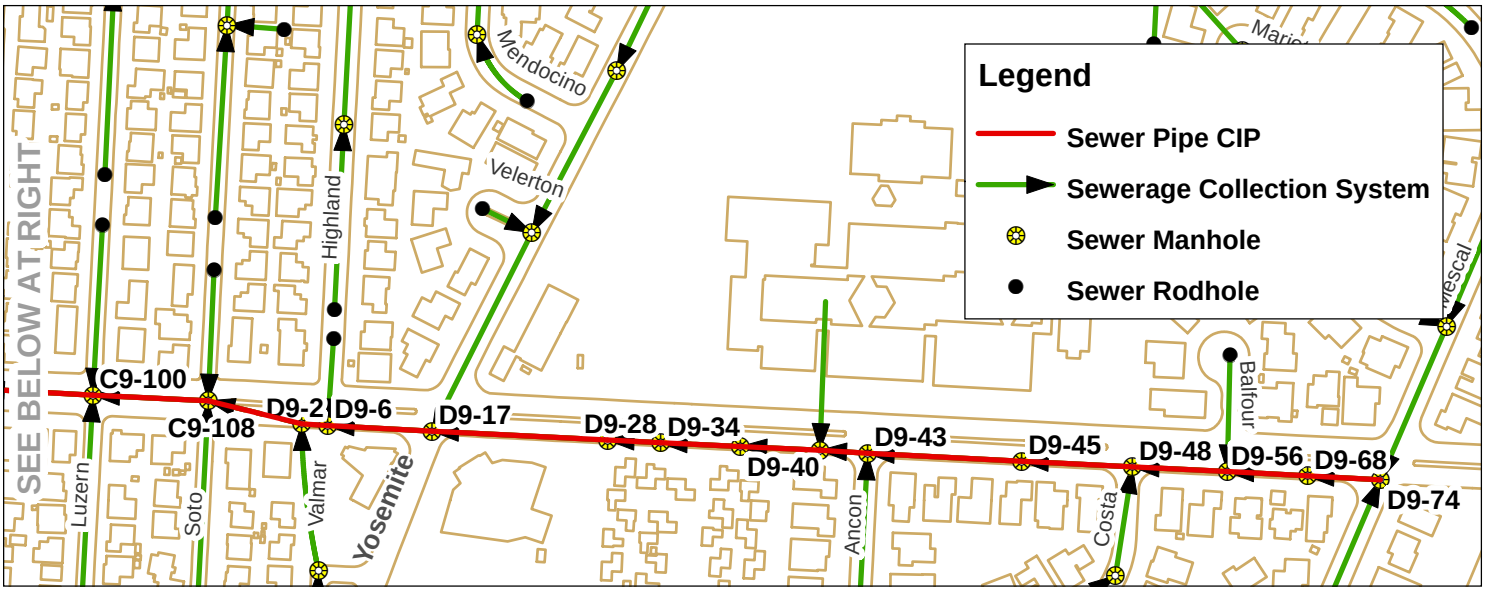

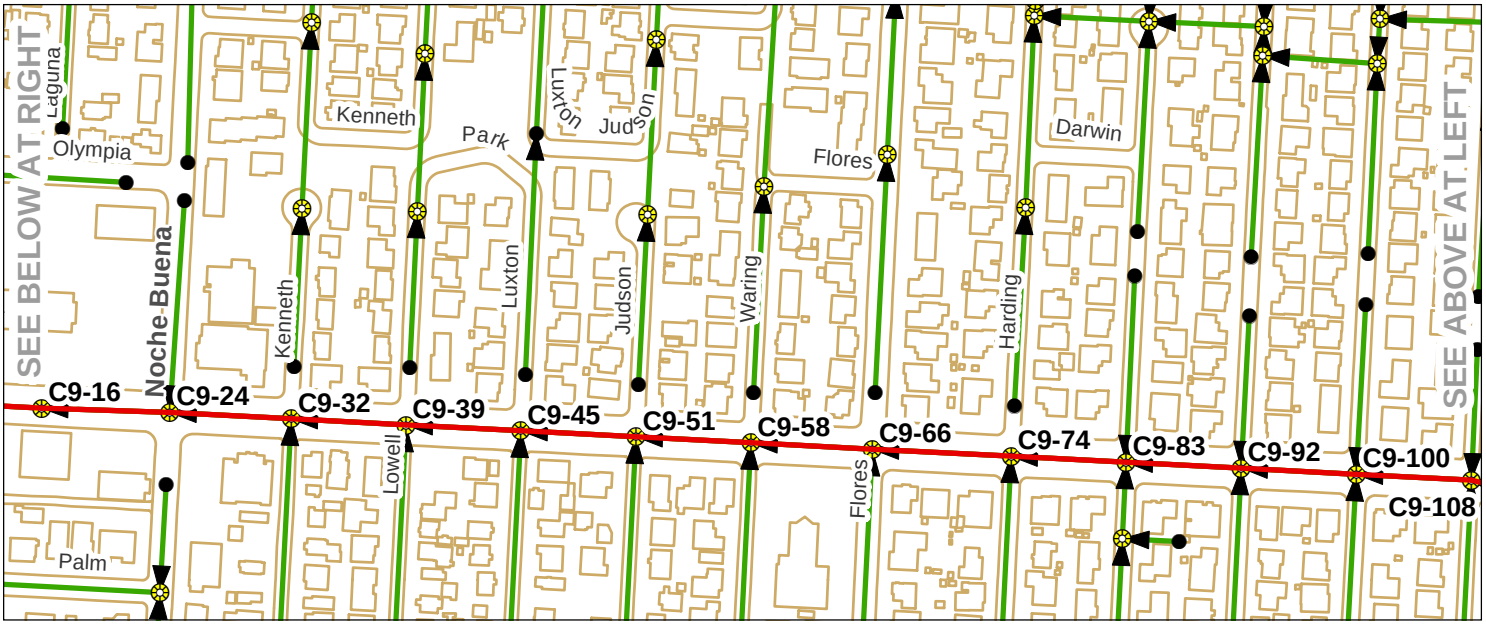

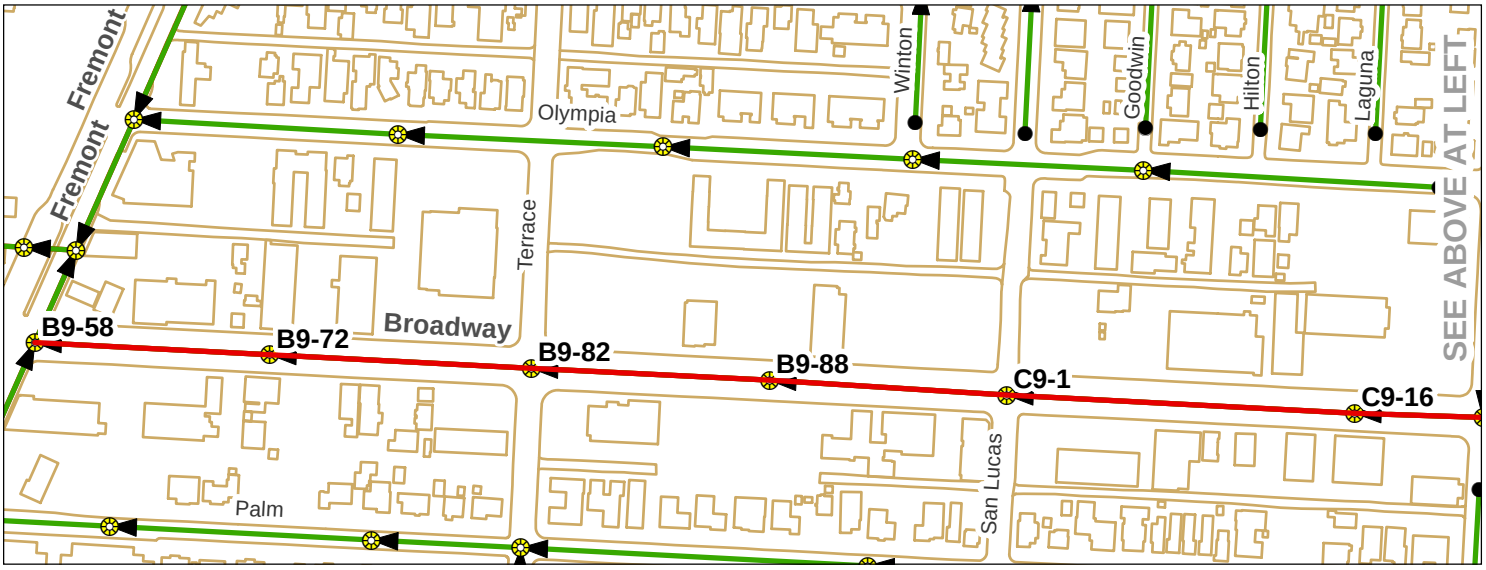

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FIGURE 7-20: BROADWAY SEWER LINE UPGRADE, PAGE 1 OF 2

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Pipe ID	Length [feet]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (exist pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
D9-74 : D9-68	114	6	10	0.46	0.21	0.38	0.17
D9-68 : D9-56	126	6	10	0.51	0.23	0.42	0.19
D9-56 : D9-48	148	6	10	0.58	0.25	0.48	0.21
D9-48 : D9-45	173	6	10	0.77	0.29	0.55	0.24
D9-45 : D9-43	241	6	10	0.95	0.32	0.63	0.27
D9-43 : D9-42	75	6	10	1.00	0.35	0.75	0.30
D9-42 : D9-40	125	6	10	0.95	0.35	0.76	0.30
D9-40 : D9-34	125	6	10	0.78	0.30	0.62	0.26
D9-34 : D9-28	83	6	10	0.61	0.26	0.52	0.23
D9-28 : D9-17	275	6	10	0.57	0.25	0.49	0.22
D9-17 : D9-6	163	6	10	0.57	0.25	0.50	0.22
D9-6 : D9-2	41	6	10	0.60	0.26	0.52	0.23
D9-2 : C9-108	150	6	10	1.00	0.30	0.64	0.27
C9-108 : C9-100	180	6	10	1.00	0.31	0.69	0.28
C9-100 : C9-92	180	6	10	1.00	0.33	0.86	0.30
C9-92 : C9-83	180	6	10	1.00	0.38	1.00	0.34
C9-83 : C9-74	180	6	10	1.00	0.37	0.90	0.34
C9-74 : C9-66	217	6	10	1.00	0.32	0.75	0.30
C9-66 : C9-58	190	6	10	1.00	0.32	0.85	0.30
C9-58 : C9-51	180	6	10	1.00	0.35	1.00	0.33
C9-51 : C9-45	180	6	10	1.00	0.36	1.00	0.34
C9-45 : C9-39	180	6	10	0.90	0.34	0.90	0.32
C9-39 : C9-32	180	6	10	0.89	0.40	0.89	0.38
C9-32 : C9-24	190	8	10	0.69	0.44	0.69	0.42
C9-24 : C9-16	201	8	10	0.83	0.49	0.83	0.46
C9-16 : C9-1	545	8	10	0.78	0.48	0.78	0.45
C9-1 : B9-88	371	8	10	0.57	0.39	0.57	0.37
B9-88 : B9-82	373	8	10	0.79	0.47	0.79	0.45
B9-82 : B9-72	409	8	10	1.00	0.52	1.00	0.49
B9-72 : B9-58	368	8	10	1.00	0.50	1.00	0.48

NOTE: Pipe d/D values shown represent either:
a) the existing collection system (recommended upstream upgrades would further increase listed d/D for existing pipe), OR
b) the proposed collection system with ALL recommended improvements in place.

NOTE: The stretch of pipe from Manhole D9-74 to Manhole D9-48 is recommended to be upsized due to velocity constraints.

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FIGURE 7-20: BROADWAY SEWER LINE UPGRADE, PAGE 2 OF 2

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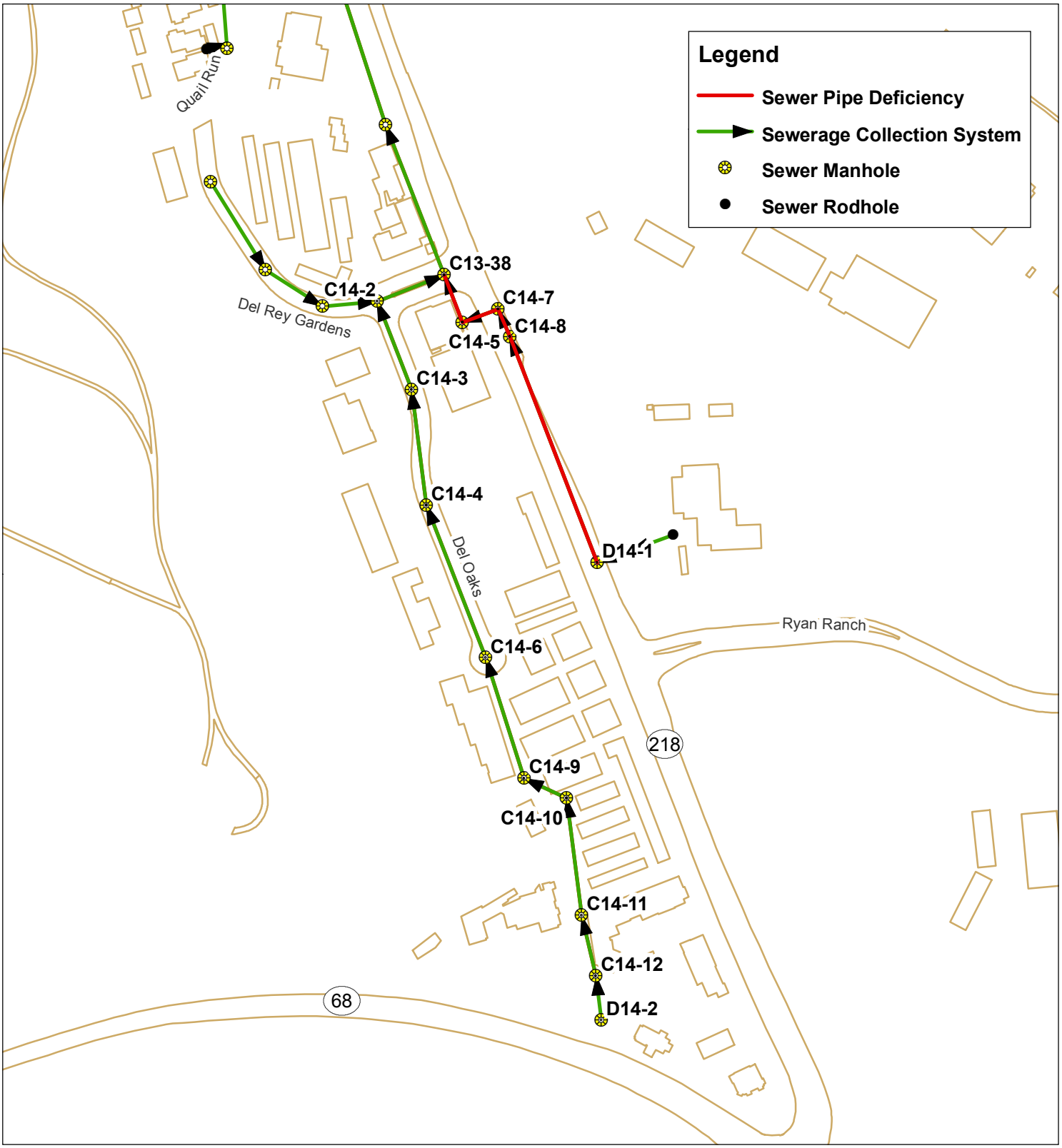

Pipe ID	Length [ft]	Existing Diameter [inches]	Proposed Diameter [inches]	Future MDF d/D (existing pipe dia)	Future MDF d/D (proposed pipe dia)	Future WWF d/D (exist pipe dia)	Future WWF d/D (proposed pipe dia)
D14-1 : C14-8	531	6	8	0.77	0.39	0.53	0.32
C14-8 : C14-7	65	6	8	0.51	0.31	0.40	0.25
C14-7 : C14-5	83	6	8	0.64	0.36	0.48	0.29
C14-5 : C13-38	111	6	8	0.88	0.58	0.70	0.47

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FIGURE 7-21: HIGHWAY 218 (REGION D2)
SEWER LINE UPGRADE

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CHAPTER 8

REGION D1 ANALYSIS

The City of Monterey is working with Seaside County Sanitation District (SCSD) to determine if it is feasible and cost effective for SCSD to provide sewer service to Region D1. Chapter 8 provides an analysis of the SCSD collection system that is impacted by the wastewater flows from Monterey's Region D1. All tables and figures for Chapter 8 are located at the end of this Chapter.

BACKGROUND

The City of Monterey owns and operates 112 miles of sewer mains and owns 7 lift stations. Similar to SCSD, the City of Monterey contracts with Monterey Regional Water Pollution Control Agency (MRWPCA) to operate and maintain the lift stations. Region D1 is located at the southeast corner of the City of Monterey, near the airport (See Figure 8-1). This portion of the collection system flows east towards Highway 68/218 intersection to Lift Station No. 6, where it then gets pumped back up Highway 68 to the City of Monterey's Lift Station. It is not physically possible to gravity flow this Region to the City.

Through past investigations, it was determined that physically, the collection system could be re-routed from Region D1 to flow to SCSD's collection system instead of flowing to Lift Station No. 6. This would then eliminate the need to "double-pump" the flow through the Monterey Lift Station. However, a capacity analysis had not been completed on SCSD's collection system to determine if upgrades to the collection system would be required due to the increase in wastewater flows.

BASIS OF ANALYSIS

Region D1 Sewer Flow Rates

The City of Monterey provided flow data for both existing and future (build-out) conditions for Region D1 (*City of Monterey Lift Station Assessment, H68/H218 Sewer Area Study*). Flow rates per individual developments within Region D1 are summarized in Table 8-1. The City also provided existing dry and wet weather flow rates for Lift Station No. 6, as reported by MRWPCA. The lift station flow rates were utilized to calculate the wet weather peaking factor for the City's Region D1 collection system.

Peaking Factors and Diurnal Curves

The maximum day peaking factor of 1.5 as calculated for the SCSD system was applied to sewer loading from Region D1. A wet weather peaking factor of 1.67 was calculated from the Lift Station No. 6 average day and wet weather flow records. Total flows from Region D1 based on these peaking factors are summarized in Table 8-2. The wet weather factor was applied over the entire 24-hr analysis period; the wet weather contribution as described by the City is due mainly to groundwater infiltration rather than

inflow. The residential and commercial flow diurnal curves developed for the SCSD system were applied to the Region D1 flows as well.

Worst-Case Flow Conditions

Under existing Region D1 conditions, wet weather flow is greater than maximum daily flow, which is expected because the wet weather peaking factor is greater than the maximum day peaking factor. However, under future conditions, the maximum day flow is anticipated to exceed wet weather flow; a wet weather peaking factor was not applied to future development, assuming the new sewer system was designed and installed to prevent I/I. This is in accordance with analysis of the SCSD system. In summary, worst case flow conditions for Region D1 are as follows:

- Existing Conditions: Wet Weather Flow (WWF)
- Future Conditions: Maximum Day Dry Weather Flow (MDDWF)

Performance Criteria

Collection system performance and design criteria are in accordance with the SCSD's Draft Sanitary Sewer Management Plan, Element 5, as summarized within Chapter 7 of this Report. Gravity pipe performance was analyzed based on percent full (d/D ratio), defined as the depth of flow in a pipe divided by the diameter of the pipe. Percent full criteria per SCSD are summarized in Table 8-3.

COLLECTION SYSTEM MODEL DEVELOPMENT

System Conditions Analyzed

Existing and future potential flow contributions from Region D1 were analyzed for impacts to the SCSD collection system under the following worst case scenarios:

Maximum Day Dry Weather Flow (MDDWF)

1. Existing SCSD conditions, future Region D1 conditions
2. Future SCSD conditions, future Region D1 conditions

Average Day Flow plus Infiltration and Inflow (Wet Weather Flow, WWF)

3. Existing SCSD conditions, existing Region D1 conditions
4. Existing SCSD conditions, future Region D1 conditions

COLLECTION SYSTEM MODEL RESULTS

Impacts to the SCSD sewer collection system due to the contribution of sewer flow from the City of Monterey Region D1 are detailed below.

Gravity Collection System – Existing Region D1 Conditions

To determine the impact of Region D1 on the SCSD collection system, the flows from the existing Region D1 were introduced into the SCSD sewer model. There were no

recommended collection system upgrades (Near Term) for the existing SCSD collection system due to existing deficiencies. Existing flow from Region D1, for both MDDWF and WWF, has minimal impact on the SCSD collection system and do not require any upgrades. Existing WWF from Region D1 causes the following existing SCSD pipes to exceed the maximum d/D criteria. *These upgrades would be required to be completed prior to Region D1 coming on-line.*

Monterey Project #1

- Reference Figure 8-2
- Location Extents: Angelus Way, MH B12-7 to Rosita Lift Station

A single 6-inch clay pipe just upstream from Rosita lift station reaches a d/D of 0.71. The maximum d/D is 0.62 without flow contribution from D1. It is recommended to upgrade this 25 ft stretch of pipe to 8-inch.

* *It should be noted that this stretch of sewer main is recommended to be upgraded as part of Angelus, 1,490 ft of new 12-inch PVC (See Long Term Project #5).*

Monterey Project #2

- Reference Figure 8-2
- Location Extents: Canyon Del Rey Blvd., Manhole B11-5 to Manhole A11-12

Two 8-inch clay pipes in Canyon Del Rey Boulevard flow with a d/D up to 0.70 with existing Region D1 flows. Both pipes flow with a maximum d/D of 0.65 without flow contribution from D1. It is recommended to upgrade this 620 ft stretch of pipe to 10-inch.

* *It should be noted that this stretch of sewer main is recommended to be upgraded as part of Canyon Del Rey (1), 3,280 ft of new 12-inch PVC (See Long Term Project #1).*

Monterey Project #3

- Reference Figure 8-3
- Location Extents: Highway 218., SCSD Manhole D14-1 to City of Monterey Manhole H12-013

The City of Monterey will be required to re-route their existing sewer main on Highway 218 from SCSD's manhole D14-1 to approximately 2,250 feet south (Manhole H12-013). It is recommended to install an 8-inch main to convey flow from Region D1 to SCSD's collection system.

Monterey Project #4

- Reference: Figure 8-3
- Location Extents: Highway 218., Manhole D14-1 to Manhole C13-38

Existing sewer pipe in Highway 218 between the Region D1 connection location at Ryan Ranch Road and Del Rey Gardens Drive is all 6-inch VCP. This entire segment of sewer main has capacity under existing Region D1 flows. However, 6-inch sewer main does not meet SCSD's minimum pipe diameter requirements. The 6-inch sewer mains are recommended to be upgraded to 8-inch under the following scenarios:

- If the new connection increases flow to the 6-inch main more than 10 percent; or
- If more than 10 homes are connected to the sewer main; or
- If new sewer main is required to be installed upstream of the existing 6-inch sewer main.

Therefore, it is recommended to upgrade 800 feet of 6-inch VCP to 8-inch PVC prior to connecting Region D1.

Gravity Collection System – Future Region D1 Conditions

The future build-out flow conditions were modeled with SCSD's existing collection system. Projected future flow from Region D1 causes gravity pipe flow to exceed SCSD percent full standards in multiple locations. However, the sewer model analysis does not indicate flooding (overflowing) or surcharging in the existing SCSD system with future MDDWF from Region D1. Future MDDWF from Region D1 causes the following existing SCSD pipes to exceed the maximum d/D criteria. *These upgrades would be required to be completed prior to any additional development to occur in Region D1.*

Monterey Project #5

- Reference Figure 8-2
- Location Extents: Angelus Way, Manhole B12-8 to Rosita LS

In addition to Monterey Project #1 recommended under existing conditions, the 8-inch main just upstream of the 6-inch main on Angelus Way has a maximum d/D of 0.68 with future flow conditions. It is recommended to upsize the 6- and 8-inch VCP sewer main to 10-inch PVC based on future conditions for SCSD, which results in a maximum d/D of 0.52 with all future flow. Total affected pipe length is 65 feet.

* *It should be noted that this stretch of sewer main is recommended to be upgraded as part of Angelus, 1,490 ft of new 12-inch PVC (See Long Term Project #5).*

Monterey Project #6

- Reference Figure 8-2
- Location Extents: Canyon Del Rey Blvd., Manhole B11-14 to Manhole A11-6

The stretch of existing 8-inch VCP sewer main from 700 feet south of Fremont Boulevard to Williams Avenue flows with a maximum d/D of 0.76. This pipe is recommended to be upsized to 12-inch PVC based on future flow conditions for SCSD, which results in a maximum d/D of 0.51 with all future flow. Total affected pipe length is 1,590 feet.

* *It should be noted that this stretch of sewer main is recommended to be upgraded as part of Canyon Del Rey (1), 3,280 ft of new 12-inch PVC (See Long Term Project #6).*

Monterey Project #7

- Reference Figure 8-3
- Location Extents: Tarpy's Road House Parking Lot, Manhole D14-2 to Manhole C13-38

In addition to the 8-inch upgrade recommended for Canyon Del Rey, a single 6-inch pipe segment in Del Rey Gardens Drive flows with a d/D up to 0.75, based on future flow contribution from Highway 68 with connection via the 6-inch sewer line that flows from Tarpy's. If future development in Region D1 proposes to connect to this line, it is recommended that the entire stretch of 6-inch pipe from Del Rey Gardens Drive to Highway 68 is upgraded to 8-inch PVC. Upgrade to 8-inch results in a maximum d/D of 0.54. Total pipe length is 1,860 feet. Alternatively, the City may be able to route future D1 flow from Highway 68 to the new sewer line in Canyon Del Rey (Highway 218). With all future flow routed to Highway 218, the new 8-inch PVC has a maximum d/D of 0.57. It is recommended that all Region D1 flow is routed to Highway 218, if physically possible, eliminating the need to upgrade the existing pipe from Tarpy's.

Rosita Lift Station

Existing and future flows to Rosita Lift Station are summarized in Table 8-4.

Existing Region D1 Conditions

Existing WWF from Region D1 would increase wet weather flow volume to Rosita Lift Station by 65%. Per the sewer model analysis, peak inflow to Rosita would increase from 222 gpm to 310 gpm. The existing pumps at Rosita Lift Station have a design point of 480 gpm and tested capacity of 416 gpm. Therefore, the existing pumps at Rosita have the flow capacity to accept existing Region D1 flows. The sewer model indicates no increase in lift station peak cycles per hour, rather an increase in total pump run time. The Rosita lift station requires physical improvements due to corrosion and wear to continue to provide dependable service, and the added flow contribution from Region D1 would increase likelihood of lift station failure due to increase in total pumping hours. Therefore, it is recommended that all the near-term improvements recommended for Rosita lift station be completed prior to Region D1 connection.

Future Region D1 Conditions

Future MDDWF from Region D1 would increase existing dry weather flow volume to Rosita Lift Station by 166%, and increase total future dry weather flow volume by 29%. Therefore, under future flow conditions, nearly 25% of flow pumped through Rosita would be generated by Area D1. With existing SCSD flow, Future Region D1 contributions would increase peak flow to Rosita from 166 gpm to 342 gpm. This peak of 342 gpm is still less than the tested pump capacity of 416 gpm at Rosita. However, increase in total pumping time at this station would be proportional to the increase in flow volume, which means pumping time would more than double. This increase in pumping time shortens the expected life of the lift station. Due to the current age and physical condition of the lift station, it is recommended that the long-term improvements recommended for the Rosita lift station be completed prior to allowing any future development in Region D1 to connect to the SCSD system. Flow contribution from Region D1 would increase design pumping capacity for the Rosita lift station upgrade.

Del Monte Lift Station

Existing and future flows to Del Monte Lift Station are summarized in Table 8-5.

Existing Region D1 Conditions

Existing WWF from Region D1 would increase existing wet weather flow volume to Del Monte Lift Station by 23%. Peak wet weather inflow to Del Monte would increase from 736 gpm to 764 gpm. Increase in peak inflow to the lift station is minor because all the flow is routed through Rosita Lift Station. Therefore, the existing Del Monte station is capable of conveying existing flows from Region D1. Per the investigation conducted for this Master Plan the Del Monte Lift Station is in good physical condition with minor upgrades required. However, this Lift Station has existing deficiencies for emergency storage that are recommended to be corrected prior to D1 connection. The additional pump run time from Rosita Lift Station due to D1 contributions greatly increases the likelihood of overflow at Del Monte if the Del Monte pumps failed.

Future Region D1 Conditions

Future MDDWF from Region D1 would increase existing dry weather flow volume to Del Monte Lift Station by 58%, and future flow volume by 17%. Existing peak inflow to the lift station would increase 15%, from 552 gpm to 635 gpm. Peak inflow with all future development contributing to the lift station would increase 7%, from 1,189 gpm to 1,277 gpm. At a minimum, all near-term improvements to Del Monte Lift Station should be complete prior to allowing any future development in Region D1 to connect to the SCSD system. If at the time of future D1 development, the long-term improvements to the lift station have not been completed, it is recommended that a flow monitoring study for flow into the lift station be conducted and the physical condition of the pumps be evaluated prior to allowing future development in Region D1 to connect. Depending on lift station condition at time of development, future development in Region D1 may trigger the need to upgrade this station. In addition, the Rosita lift station upgrade, recommended to be complete prior to future D1 connection, may trigger the need to upgrade the Del Monte station as well.

SUMMARY

A complete list of projects recommended for Region D1 is provided in Table 8-6. In addition, Table 8-6 provides an overview of each project, its associated cost to construct the project, and the City of Monterey's share. Table 9-7 provides a summary of all SCSD existing and future capital improvement projects and their proportional cost share by Region, including Region D1 and D2.

Table 8-1. Region D1 Sewer Flows

Development	Status	Average Flow [cfs]	Average Flow [gpd]	Flow Type
Highway 68 (Manhole C14-12)				
Highway 68 Phoenix	Future	0.0155	10,018	Commercial
Tarpy Flats	Future	0.0198	12,797	Commercial
MPUSD Site at Tarpy Flats	Future	0.0150	9,695	Residential
	Total Existing	**0.0000**	**0**	
	Total Future	**0.0503**	**32,510**	
Highway 218 (Manhole D14-01)				
Monterey Research Park	3/4 Existing, 1/4 Future	0.0511	33,027	Commercial
Ryan Ranch	1/2 Existing, 1/2 Future	0.0156	10,083	Commercial
City Corporation Yard	Existing	0.0015	969	Commercial
MST Maintenance Facility	Existing	0.0155	10,018	Commercial
	Total Existing	**0.0631**	**40,799**	
	Total Future	**0.0837**	**54,097**	

Table 8-2. Region D1 Sewer Flow Summary

Flow Condition	Existing Flow [gpd]	Future Flow [gpd]
Average Day Flow	40,799	86,606
Wet Weather Flow	68,002	113,810
Maximum Day Dry Weather Flow	61,198	129,910

Table 8-3. SCSD Design and Performance Standards
Gravity Pipe Percent Full Criteria

Pipe Diameter	Maximum Allowed d/D
10 inches and smaller	0.67
12-inch to 24-inch	0.80
27 inches and larger	0.90

Table 8-4. Rosita Lift Station Flow Summary

			24-HR FLOW VOLUME [GALLONS]			PEAK INFLOW RATE PER SEWER MODEL [GPM]		
Scenario	**SCSD Flow Condition**	**D1 Flow Condition**	**SCSD**	**SCSD + D1**	**Percent Increase**	**SCSD**	**SCSD + D1**	**Percent Increase**
1. MDDWF	Existing	Future	78,197	208,107	166%	166	342	106%
2. MDDWF	Future	Future	445,105	575,015	29%	676	775	15%
3. ADF + I/I	Existing	Existing	104,263	172,265	65%	222	310	40%
4. ADF + I/I	Existing	Future	104,263	218,073	109%	222	324	46%

Table 8-5. Del Monte Lift Station Flow Summary

			24-HR FLOW VOLUME [GALLONS]			PEAK INFLOW RATE PER SEWER MODEL [GPM]		
Scenario	**SCSD Flow Condition**	**D1 Flow Condition**	**SCSD**	**SCSD + D1**	**Percent Increase**	**SCSD**	**SCSD + D1**	**Percent Increase**
1. MDDWF	Existing	Future	225,197	355,107	58%	552	635	15%
2. MDDWF	Future	Future	774,552	904,462	17%	1189	1277	7%
3. ADF + I/I	Existing	Existing	300,263	368,265	23%	736	764	4%
4. ADF + I/I	Existing	Future	300,263	414,073	38%	736	801	9%

Table 8-6. City of Monterey Capital Improvement Projects

Title	Description	Tributary Area	Quantity	Length (Ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*	City of Monterey's Share (S)	Notes
Monterey Project #3	New Sewer Main	City of Monterey	--	2,250	--	8	Canyon Del Rey Blvd	From Monterey MH H12-013 to SCSD MH D 14-1	Monterey H12-013	SCSD D14-1	$240	LF	$540,000	**$756,000**	**$756,000**	100% Monterey
Monterey Project #4	Upgrade Sewer Main *Part of Long Term Project #1*	Rosita	--	800	6	8	Canyon Del Rey Blvd	From SCSD's last manhole on Hwy 218 to Del Rey Gardens	D14-1	C13-38	$240	LF	$192,000	**$268,800**	**$268,800**	100% Monterey
Angelus	Upgrade Sewer Main *Long Term Project #5*	Rosita	--	1,490	6&8	12	Angelus	Just upstream of Rosita Lift Station	C12-3	Rosita LS	$205	LF	$305,450	**$427,630**	**$252,302**	Per Table 9-7, 26% + 33% = 59% Monterey Share
Canyon Del Rey (1)	Upgrade Sewer Main *Long Term Project #6*	Amador	--	3,280	6	12	Canyon Del Rey Blvd	From Rosita LS to Hilby Ave	B12-2	A10-14	$265	LF	$869,200	**$1,216,880**	**$717,959**	Per Table 9-7, 26% + 33% = 59% Monterey Share
Canyon Del Rey (2)	Upgrade Sewer Main *Long Term Project #7*	Amador	--	800	12	15	Canyon Del Rey Blvd	From Harcourt Ave. to Sonoma Ave.	A10-9	A10-4	$280	LF	$224,000	**$313,600**	**$185,024**	Per Table 9-7, 26% + 33% = 59% Monterey Share
Rosita LS Upgrade Near Term	Lift Station Upgrades *Short Term Project #2*	Rosita	1	--	--	--	Rosita	At Rosita Road and Angelus Way	--	--	$44,000	LS	$44,000	**$61,600**	**$0**	Per Table 9-7, Existing SCSD deficiency, Project must be done before Region D1 or D2 can flow to LS
Del Monte Lift Station Upgrade Near Term	Lift Station Upgrades *Near Term Project #1*	Amador	1	--	--	--	Del Monte	At Del Monte Blvd and Canyon Del Rey Blvd.	--	--	$12,500	LS	$12,500	**$17,500**	**$0**	Per Table 9-7, Existing SCSD deficiency, Project must be done before Region D1 or D2 can flow to LS
Rosita LS VFD Upgrade Long Term	Lift Station Upgrades *Long Term Project #4*	Rosita	1	--	--	--	Rosita	At Rosita Road and Angelus Way	--	--	$575,000	LS	$575,000	**$805,000**	**$394,450**	Per Table 9-7, 21% + 27% = 49% Monterey Share
Del Monte Lift Station Upgrade Long Term	New Lift Station *Long Term Project #3*	Amador	1	--	--	--	Del Monte	At Del Monte Blvd. and Canyon Del Rey Intersection	--	--	$1,250,000	LS	$1,250,000	**$1,875,000**	**$562,500**	Per Table 9-7, 13% + 17% = 30% Monterey Share
														$5,742,010	**$3,137,035**	

*** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

All CIP costs are expressed in Novermber 2009 dollars, using McGraw-Hill ENR Construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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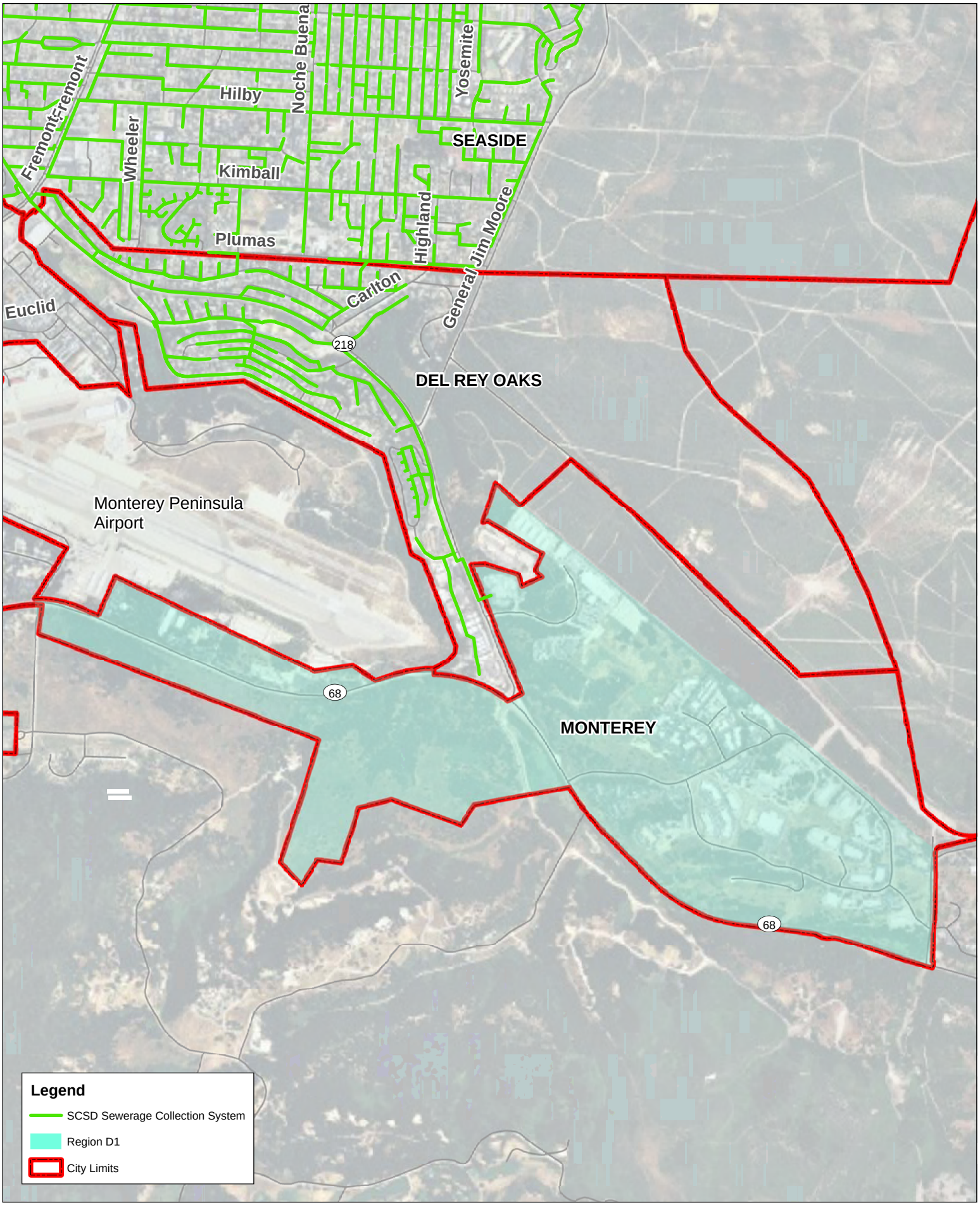

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FIGURE 8-1: REGION D1 LOCATION MAP

NOTES:
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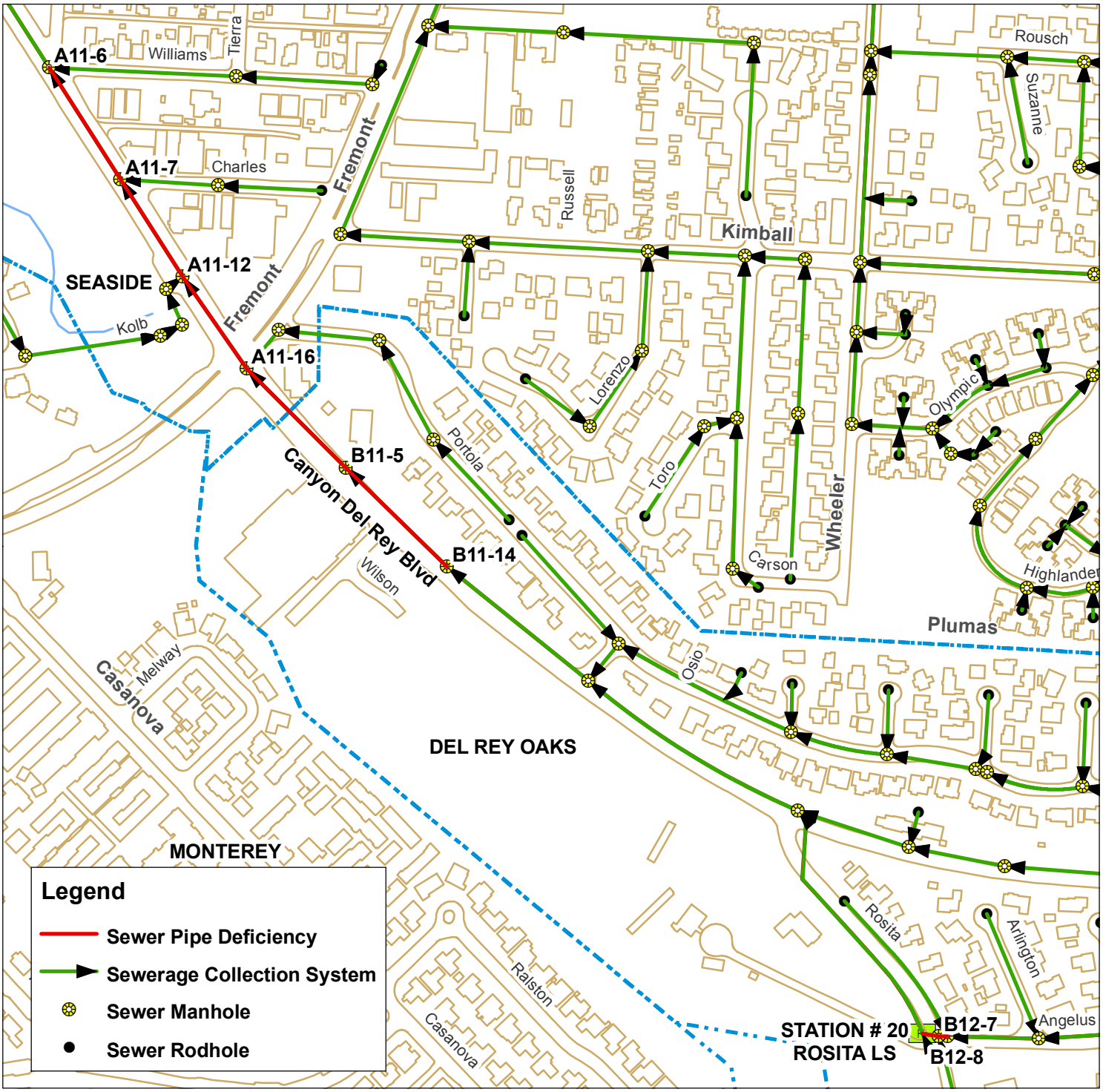

Pipe ID	Length [ft]	Existing Diameter [inches]	Existing SCSD + Existing D1, WWF d/D (existing pipe dia)	Existing SCSD + Future D1, WWF d/D (existing pipe dia)	Proposed Diameter [inches]	Future SCSD + Future D1, MDF d/D (proposed pipe dia)
ANGELUS WAY						
B12-8 : B12-7	22	6	0.71	0.79	12	0.41
B12-7 : RLS	41	8	0.62	0.68	12	0.52
CANYON DEL REY BOULEVARD						
B11-14 : B11-5	348	8	0.64	0.69	12	0.47
B11-5 : A11-16	345	8	0.70	0.76	12	0.51
A11-16 : A11-12	275	8	0.70	0.75	12	0.49
A11-12 : A11-7	284	8	0.66	0.71	12	0.47
A11-7 : A11-6	325	8	0.66	0.70	12	0.46

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1 INCH = 350 FEET

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FIGURE 8-2: CANYON DEL REY BLVD AND ANGELUS WAY SEWER LINE DEFICIENCY

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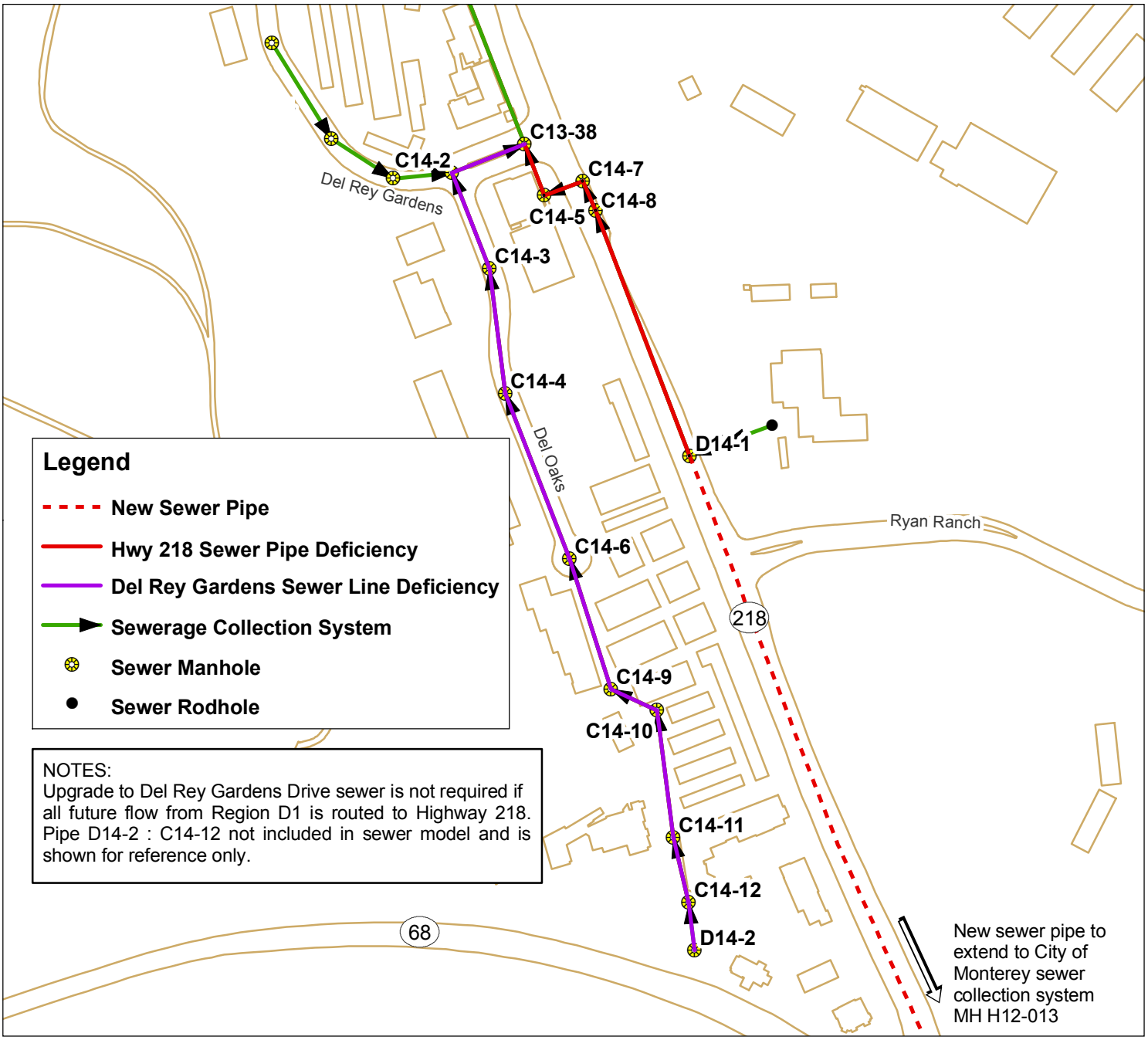

Pipe ID	Length [ft]	Existing Diameter [inches]	Existing WWF d/D (existing pipe dia)	Future MDF d/D (existing pipe dia)	Proposed Diameter [inches]	Future MDF d/D (proposed pipe dia)
HIGHWAY 218						
D14-1 : C14-8	531	6	0.41	0.46	8	0.35
C14-8 : C14-7	65	6	0.32	0.35	8	0.27
C14-7 : C14-5	83	6	0.38	0.42	8	0.32
C14-5 : C13-38	111	6	0.46	0.75	8	0.57
DEL REY GARDENS DRIVE						
C14-12 : C14-11	136	6	0.17	0.39	8	0.24
C14-11 : C14-10	259	6	0.19	0.36	8	0.22
C14-10 : C14-9	103	6	0.24	0.38	8	0.23
C14-9 : C14-6	277	6	0.32	0.49	8	0.29
C14-6 : C14-4	359	6	0.35	0.52	8	0.31
C14-4 : C14-3	255	6	0.32	0.46	8	0.28
C14-3 : C14-2	208	6	0.37	0.48	8	0.29
C14-2 : C13-38	158	6	0.42	0.75	8	0.54

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1 INCH = 300 FEET

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FIGURE 8-3: HIGHWAY 218 & DEL REY GARDENS DRIVE SEWER LINE DEFICIENCIES

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CHAPTER 9

CAPITAL IMPROVEMENT PROJECTS

This Chapter presents the proposed Capital Improvement Projects (CIP), with a brief description of the proposed projects and a preliminary cost estimate for each proposed improvement for Seaside County Sanitation District (SCSD). Also included in the CIP recommendations are general timelines and scheduling for the needed improvements, and general guidelines for cost allocations relative to existing and future developments.

BASIS OF CAPITAL IMPROVEMENT PROGRAM COSTS

The CIP costs were developed based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources. Hard construction costs are typically escalated by a factor of 1.4, to allow budget for "soft costs" that include preliminary engineering, engineering, administration, construction management and inspection costs. Some projects may have factors other then 1.4 depending on project type. All CIP costs are expressed in November 2009 dollars, using McGraw-Hill ENR Construction Cost Index of **8592**, and will need to be escalated to the year or years scheduled for the work. The unit cost for new gravity sewers includes the proposed pipelines, manholes, lateral re-connections, sewer bypassing, traffic control, etc., and all other aspects of sewer system construction.

TIMING OF RECOMMENDED IMPROVEMENTS

There are some projects triggered by existing deficiencies and some projects triggered by future development. The projects that address existing deficiencies are ranked in order of importance, which is discussed in greater detail within this Chapter. These existing deficiencies are considered near-term projects. The first eleven (11) Near-Term projects are considered to be health and safety related projects. This means if an overflow occurred, there could be damage to property or the environment. These first eleven projects are recommended to be completed within the next 1 to 6 years (See Table 9-2). Projects 12 through 18 are efficiency related projects. These projects will assist the operations staff during routine maintenance and inspection of the collection system, but are not likely to cause overflows or sewage spills. These projects are recommended to be completed within the next 15 years (See Table 9-2).

There are also projects that are triggered by potential future development, for which the timing is always difficult to ascertain. These long-term projects are grouped by Development Region to address potential impacts and future upgrades (See Table 9-3).

CIP RANKING

The near term capital improvement projects were ranked to determine what priority the existing recommended projects should be constructed. Table 9-1 evaluates each of the projects in five categories: overflow to a water body of the state, hydraulic capacity (d/D),

community impact, maintenance hot spots, and cost. Each category was provided a weighted importance factor based on what factors are more important than others. The importance factor is multiplied by the score the project received and then summed together to determine its final score.

*Although the projects are ranked as described above, it should be noted that **all** projects identified in the Near-Term CIPs are a result of deficiencies in the existing collection system due to existing needs and are therefore all important to be constructed within the next 1 to 6 years for the first 11 projects and within the next 15 years for projects 12 through 18. It is also recommended that SCSD review these projects periodically to determine if any substantial changes have occurred that may re-prioritize a project to a higher ranking.*

Table 9-2 provides a summary of all the existing recommended CIPs, or Near Term Projects, in order of ranking from Table 9-1. Table 9-2 also provides an estimate of the construction and "soft" costs for each project. The costs are based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources. The cost estimates are approximate and should be used for planning purposes only. Actual project costs will vary depending upon economic conditions at the time of construction. As noted previously, these costs are based on Year 2009 dollars (McGraw-Hill ENR Construction Cost Index of **8592)** and need to be escalated to the year or years scheduled for the work.

Table 9-3 provides a summary of the future recommended CIPs, or Long Term Projects, and their estimated costs. These projects are not ranked. The costs are based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources. The cost estimates are approximate and should be used for planning purposes only. Actual project costs will vary depending upon economic conditions at the time of construction. As noted previously, these costs are based on Year 2009 dollars (McGraw-Hill ENR Construction Cost Index of **8592)** and need to be escalated to the year or years scheduled for the work.

Following the tables, project description sheets are provided for each project noted. The project description sheets provide the following information:

- Project name
- Project trigger
- Project benefit
- Project need
- Project cost
- Project schedule
- Project description
- Project map

These description sheets can be used by SCSD in the planning for each project, and for inclusion in fiscal year budget requests.

UNIT COSTS

Table 9-2 and 9-3 provide costs for the recommended capital improvement projects. The unit costs are based on recent construction costs and engineering judgment. The unit costs for the various pipe diameters are as follows in Table 9-4:

OPERATION AND MAINTENANCE PROGRAM

In addition to the projects required to meet the hydraulic needs of the collection system, SCSD has additional projects or programs that are related to the day-to-day operations and maintenance of the collection system. Table 9-5 provides a summary of the costs for the proposed operation and maintenance budget. Table 9-6 provides a summary of the capital outlay (equipment purchases) anticipated over the next six years. This information will be used to assist in the preparation of the sewer rate study.

PROPORTIONAL SHARE BY REGION

Table 9-7 provides a summary of the each of the Region's proportional share and costs based on need and flow contribution.

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Table 9-1. SCSD CIP Ranking Matrix

Importance Factor	5	4	3	2	1			
Project Name	Overflow to Water Body of the State Yes - 10 No - 0	Design Standard Meets Design Standard - 0 Doesn't Meet Design Standards - 2 Surcharging - 5 Overflowing - 10	Community Impact < 1,000 - 0 1,001 to 5,000 - 5 >5,000 - 10	Maintenance Hot Spot Not Critical - 0 Yearly Check - 5 Weekly or Monthly Checks - 10	Cost <$25,000 - 10 $25,001 to $100,000 - 5 >$100,000 - 2	Impacted By Future Development Yes/No	Score = Importance Factor X Points	Ranking
Del Monte Lift Station Upgrade Near Term	10	0	10	10	5	Yes	105	1
Rosita Lift Station Upgrade Near Term	10	0	5	10	5	Yes	90	2
942 Angelus Way Sewer Main Upgrade	10	0	0	10	5	No	75	3
Del Rey Park Sewer Main Upgrade	10	0	0	10	5	No	75	4
Del Monte Blvd. Sewer Main Upgrade	0	5	10	10	2	Yes	72	5
Military Lift Station Replacement	10	0	0	10	2	No	72	6
Fremont Blvd. Sewer Main Upgrade	0	5	10	5	2	Yes	62	7
Luzern St. Sewer Main Upgrade	0	5	0	10	2	No	42	8
La Salle Ave. Sewer Main Upgrade	0	5	5	0	2	Yes	37	9
Tioga Lift Station Feasibility Analysis	0	0	0	10	10	Yes	30	10
Birch Ave. Sewer Main Upgrade	0	2	5	0	2	No	25	11
Root Intrusion Sewer Main Replacement	0	0	0	10	2	Partially	22	12
Brick Manhole Inspection	0	2	0	0	10	No	18	13
Drop Manhole Inspection	0	2	0	0	10	No	18	14
Manhole Lids	0	0	0	0	10	No	10	15
Rod Hole Replacement	0	2	0	0	2	Partially	10	16
New Manhole Installations	0	2	0	0	2	Partially	10	17
Canyon Del Rey CMP Sewer Line Replacement	0	0	0	5	2	Yes	12	18

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Table 9-2. SCSD Near-Term Capital Improvement Projects

Project #	Title	Description	Tributary Area	Quantity	Length (Ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Addt'l Projects Req'd to Meet Future Needs*	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)**
1	**Del Monte Lift Station Upgrade Near Term**	Lift Station upgrades	Amador	1	--	--	--	Del Monte	At Del Monte Blvd and Canyon Del Rey Blvd.	--	--	Yes	$12,500	LS	$12,500	**$17,500**
2	**Rosita Lift Station Upgrades Near Term**	Lift Station upgrades	Rosita	1	--	--	--	Rosita	At Rosita Road and Angelus Way	--	--	Yes	$44,000	LS	$44,000	**$61,600**
3	**942 Angelus Way Sewer Main Upgrade**	Replace ductile iron sewer main	Rosita	--	80	6	8	West side of Del Rey Park	From Via Verde to Angelus Way	B12-52	B12-53	No	$450	LF	$36,000	**$50,400**
4	**Del Rey Park Sewer Main Upgrade**	New sewer main	Rosita	--	425	--	8	Del Rey Park	From Via Verde at Los Encinos Drive to north side of Del Rey Park	C12-29	Between C12-23 and C12-39	No	$450	LF	$191,250	**$267,750**
5	**Del Monte Blvd. Sewer Main Upgrade**	Upsize sewer main	Love Chevrolet/ Cypress Ford	--	3,200	10	15	Auto Center Parkway	From La Salle and Fremont to Del Monte Blvd.	--	--	Yes	$220	LF	$704,000	$985,600
								Del Monte Blvd.	From Auto Center Parkway to Ortiz Ave.	B8-81	B9-28					
		Abandon Existing Sewer Main			2,020	6	--	Del Monte Blvd.	From Tioga to Ortiz	B8-58	B9-26		$10	LF	$20,200	$28,280
					1,420	10	--	Del Monte Blvd.	From Auto Center Parkway to Ortiz Ave.	B8-51	B9-27		$10	LF	$14,200	$19,880
															Total	**$1,033,760**
6	**Military Lift Station Replacement**	Lift Station replacements	Love Chevrolet	1	--	--	--	Military Avenue	On Military Avenue west of Highland Street	--	--	No	$395,000	LS	$395,000	**$553,000**
7	**Fremont Blvd. Sewer Main Upgrade**	Upsize sewer main	Victory Toyota	--	1,100	12	15	Fremont	From Birch Ave. to Easement north of Broadway Ave	B9-75	B9-60	No	$315	LF	$346,500	$485,100
					1,700	12	15	Easement north of Broadway Ave.	From Fremont Blvd to Alhambra Street	B9-60	B9-18		$220	LF	$374,000	$523,600
								Alhambra Street	From Easement to Del Monte Blvd	B9-18	B9-22					
					250	15	18	Del Monte Blvd.	From Alhambra to Easement over to Ortiz Ave	B9-22	B9-28		$235	LF	$58,750	$82,250
					160	10	12	Fremont	From Broadway Ave to Easement north of Broadway Ave	B9-58	B9-60		$300	LF	$48,000	$67,200
															Total	**$1,158,150**
8	**Luzern St. Sewer Main Upgrade**	Upsize sewer main	Love Chevrolet	--	1,430	6	8	Luzern	From Military Lift Station to La Salle	D7-5	C8-108	No	$180	LF	$257,400	**$360,360**
9	**La Salle Ave. Sewer Main Upgrade**	Upsize sewer main	Love Chevrolet	--	1,970	6	10	La Salle	From Luzern Street to Noche Buena Street	C8-108	C8-33	Yes	$180	LF	$354,600	**$496,440**

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Table 9-2. SCSD Near-Term Capital Improvement Projects

Project #	Title	Description	Tributary Area	Quantity	Length (Ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Addt'l Projects Req'd to Meet Future Needs*	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)**
10	**Tioga Lift Station Feasibility Analysis**	Feasibility Analysis	27-inch	1	--	--	--	Tioga	On Tioga Avenue at Metz Road	--	--	No	$10,000	LS	$10,000	**$11,500**
11	**Birch Ave. Sewer Main Upgrade**	Upsize sewer main	Victory Toyota	--	200	8	10	Laguna	From easement to Phoenix	C8-19	C9-20	No	$195	LF	$39,000	$54,600
					450	8	10	Phoenix	From Laguna Street to Baker Street	C9-20	C9-6		$195	LF	$87,750	$122,850
					950	10	12	Baker	From Phoenix Ave. (East) to Birch Ave.	C9-6	C9-4		$205	LF	$194,750	$272,650
								Birch	From Baker Street towards 600 ft. towards Fremont Blvd	C9-4	B9-86					
															Total	**$450,100**
12	**Root Intrusion Sewer Main Replacement**	Replace sewer main	All	--	5,800	Varies	Varies	--	--	--	--	No	$195	LF	$1,131,000	**$1,300,650**
13	**Brick Manhole Inspection**	Inspect brick manholes	All	295	--	--	--	--	--	--	--	No	$250	each	$73,750	**$84,813**
14	**Drop Manhole Inspection**	Inspect drop manholes	All	92	--	--	--	--	--	--	--	No	$750	each	$69,000	**$79,350**
	Drop Manhole Replacement	Inspect drop manholes	All	30	--	--	--	--	--	--	--	No	$8,000	each	$240,000	**$336,000**
															Total	**$415,350**
15	**Manhole Lids**	Install manhole lids	All	76	--	--	--	--	--	--	--	No	$700	each	$53,200	**$74,480**
16	**Rod Hole Replacement**	Replace rodhole with new manhole	All	557	--	--	--	--	--	--	--	No	$1,200	each	$668,400	**$935,760**
17	**New Manhole Installations**	Install new manhole	All	207	--	--	--	--	--	--	--	No	$8,000	each	$1,656,000	**$2,318,400**
18	**Canyon Del Rey CMP Sewer Line Replacement**	Replace sewer main	Rosita	**--**	525	12	12	Canyon Del Rey	Hilby Avenue	A10-14	A10-9	No	$265	LF	$139,125	$194,775
					285	12	15	Canyon Del Rey	Harcourt Avenue	A10-9	A10-7	Yes	$280	LF	$79,800	$111,720
															Total	**$306,495**
															TOTAL NEAR-TERM PROJECT COSTS	**$9,896,508**

*** If noted "Yes", then the proposed project has existing deficiencies. In addition, upgrades are necessary for future development. The proposed pipe diameter noted in this Table is to meet the capacity needs of future development.**

**** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

***** See Table 9-3 for additional upgrades to meet future needs.**

All CIP costs are expressed in November 2009 dollars, using McGraw-Hill ENR Construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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Table 9-3. SCSD Long-Term Capital Improvement Projects

Project #	Title	Description	Tributary Area	Quantity	Length (Ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*
Region D1 Required Upgrades															
1	**Highway 218 Upgrade**	Upgrade Sewer Main	Rosita	--	800	6	8	Highway 218	From SCSD's last manhole on Hwy 218 to Del Rey Gardens	D14-1	C13-38	$240	LF	$192,000	$268,800
		Upgrade Sewer Main	City of Monterey	--	2,250	6	8	Highway 218	From east of Hwy 68/218 intersection to SCSD's last manhole on Hwy 218	--	D14-1	$240	LF	$540,000	$756,000
														Total	**$1,024,800**
Regions A and C Required Upgrades															
2	**Ortiz**	Upgrade sewer main	27-inch	--	320	21	24	Ortiz	From Del Monte Blvd. to Holly Street	B9-28	B9-23	$280	LF	$89,600	$125,440
				--	880	21	27	Ortiz	From Holly Street to Contra Costa Street	B9-23	A9-51	$355	LF	$312,400	$437,360
														Total	**$562,800**
Regions B and D2 Required Upgrades															
3	**Del Monte Lift Station VFD Upgrade**	New Lift Station	Amador	1	--	--	--	Del Monte	At Del Monte Blvd. and Canyon Del Rey Intersection	--	--	$1,250,000	LS	$1,250,000	**$1,875,000**
4	**Rosita Lift Station VFD Upgrade**	New Lift Station	Rosita	1	--	--	--	Rosita	At Rosita Road and Angelus Way	--	--	$575,000	LS	$575,000	**$805,000**
5	**Angelus**	Upgrade sewer main	Rosita	--	1,490	8	12	Angelus	From Del Rey Park to Rosita Lift Station	C12-3	B12-7	$205	LF	$305,450	**$427,630**
6	**Canyon Del Rey (1)**	Upgrade sewer main	Amador	--	3,280	8	12	Canyon Del Rey	From Rosita Lift Station to Hilby Avenue	B12-2	A10-14	$265	LF	$869,200	**$1,216,880**
7	**Canyon Del Rey (2)**	Upgrade sewer main	Amador	--	800	12	15	Canyon Del Rey	From Harcourt Avenue to Sonoma Avenue	A10-9	A10-4	$280	LF	$224,000	**$313,600**

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Table 9-3. SCSD Long-Term Capital Improvement Projects

Project #	Title	Description	Tributary Area	Quantity	Length (Ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*
Region C Required Upgrades															
8	**La Salle**	New sewer main	Love Chevrolet	--	2,200	--	8	La Salle	From General Jim Moore Blvd. to Mariposa Street	--	D8-41	$160	LF	$352,000	$492,800
		Upgrade sewer main			1,050	6	8	La Salle	From Mariposa Street to Luzern Street	D8-41	C8-108	$180	LF	$189,000	$264,600
					1,200	8	10	La Salle	From Noche Buena Street to Fremont Blvd.	C8-33	B8-81	$195	LF	$234,000	$327,600
														Total	**$1,085,000**
9	**Broadway**	Upgrade sewer main	Broadway/ Victory Toyota	--	3,690	6	10	Broadway	From General Jim Blvd to Kenneth Street	D9-74	C9-32	$195	LF	$719,550	$1,007,370
					2,460	8	10		From Kenneth Street to Fremont Blvd.	C9-32	B9-58	$195	LF	$479,700	$671,580
														Total	**$1,678,950**
10	**Hilby**	Upgrade sewer main	Contra Costa	--	4,420	6	10	Hilby	From General Jim Blvd to Shafer Street	D11-24	B10-79	$195	LF	$861,900	$1,206,660
					930	8	10		From Shafer Street to Wheeler Street	B10-79	B10-52	$195	LF	$181,350	$253,890
														Total	**$1,460,550**
														TOTAL LONG-TERM PROJECT COSTS	**$10,450,210**

*** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

All CIP costs are expressed in November 2009 dollars, using McGraw-Hill ENR Construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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Table 9-4. Unit Cost for Construction of Sewer Mains

Pipe Diameter (inches)	Unit Cost ($/LF)	Notes
8	180	Special unit prices for 942 Angelus Way and Del Rey Park Sewer Main Upgrades were developed
10	195	Typical construction
10	255	For projects with heavy traffic control requirements
12	205	Typical construction
12	265	For projects with heavy traffic control requirements
12	300	For projects located in trenches with concrete backfill
15	220	Typical construction
15	280	For projects with heavy traffic controls requirements
15	315	For projects located in trenches with concrete backfill
18	235	Typical construction
27	355	Typical construction

Table 9-5. SCSD Operation & Maintenance Annual Costs

Title	Description	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17
Video Inspection	Conduct video inspection of critical sewer mains	$ 30,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
Sewer System Management Plan	Update to the Sewer System Management Plan	$ 15,000	$ -	$ 15,000	$ -	$ 15,000	$ -
Sewer Operation & Maintenance	Annual cleaning of all sewer lines, weekly hot spots, root intrusion, broken main repairs, reporting, etc	$ 745,000	$ 745,000	$ 745,000	$ 745,000	$ 745,000	$ 745,000
FOG Program	Develop and implement FOG program, including inspections	$ 27,000	$ 27,000	$ 27,000	$ 27,000	$ 27,000	$ 27,000
GIS Maintenance/ Mapping	Update GIS database and maps on a semi-annual basis	$ 25,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
LS Maintenance	Contract with MRWPCA for weekly lift station maintenance	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
PG&E	Electricity bill for operating lift stations	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000
		$ 871,000	**$ 886,000**	**$ 901,000**	**$ 886,000**	**$ 901,000**	**$ 886,000**

* Budgets provided by SCSD staff

Table 9-6. SCSD Capital Outlay Annual Costs

Purchase	Description	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17
Video Inspection	Purchase GIS software & hardware, including new video camera	$ 15,000	$ -	$ -	$ -	$ -	$ -
Vehicle	Purchase new jetter truck for operation's staff	$ 210,000	$ -	$ -	$ -	$ -	$ -
Vehicle	Purchase new pickup truck for operation's staff	$ -	$ 25,000	$ -	$ -	$ -	$ -
Vactor Truck	Purchase new vactor truck for operation's staff	$ -	$ -	$ -	$ -	$ -	$ 450,000
		$ 225,000	**$ 25,000**	**$ -**	**$ -**	**$ -**	**$ 450,000**

* Budgets provided by SCSD staff

Table 9-7. Proportional Cost Share By Region

Project #	Project Name	Region A Existing Proportional Share	Region A Existing Proportional Costs	Region A Future Proportional Share	Region A Future Proportional Costs	Region B Proportional Share	Region B Proportional Costs	Region C Proportional Share	Region C Proportional Costs	Region D1 Proportional Share	Region D1 Proportional Costs	Region D2 Proportional Share	Region D2 Proportional Costs
Near Term													
1	Del Monte Lift Station Upgrade Near Term	100%	$17,500	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
2	Rosita Lift Station Upgrades Near Term	100%	$61,600	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
3	942 Angelus Way Sewer Main Upgrade	100%	$50,400	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
4	Del Rey Park Sewer Main Upgrade	100%	$267,750	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
5	Del Monte Blvd. Sewer Main Upgrade	44%	$454,854	18%	$186,077	0%	$0	38%	$392,829	0%	$0	0%	$0
6	Military Lift Station Replacement	100%	$553,000	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
7	Fremont Blvd. Sewer Main Upgrade	72%	$833,868	9%	$104,234	0%	$0	19%	$220,049	0%	$0	0%	$0
8	Luzern St. Sewer Main Upgrade	100%	$360,360	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
9	La Salle Ave. Sewer Main Upgrade	75%	$372,330	0%	$0	0%	$0	25%	$124,110	0%	$0	0%	$0
10	Tioga Lift Station Feasibility Analysis	3%	$345	97%	$11,155	0%	$0	0%	$0	0%	$0	0%	$0
11	Birch Ave. Sewer Main Upgrade	100%	$450,100	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
12	Root Intrusion Sewer Main Replacement	100%	$1,300,650	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
13	Brick Manhole Inspection	100%	$84,813	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
14	Drop Manhole Inspection/Replacement	100%	$415,350	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
15	Manhole Lids	100%	$74,480	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
16	Rod Hole Replacement	100%	$935,760	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
17	New Manhole Installations	100%	$2,318,400	0%	$0	0%	$0	0%	$0	0%	$0	0%	$0
18	Canyon Del Rey CMP Sewer Line Replacement	90%	$275,846	0%	$0	5%	$15,325	0%	$0	2%	$6,130	3%	$9,195
Total			**$8,827,405**		**$301,465**		**$15,325**		**$736,987**		**$6,130**		**$9,195**
Long Term													
1	Highway 218 Upgrade (Within SCSD Collection Syestem & Monterey Project #3)	0%	$0	0%	$0	0%	$0	0%	$0	100%	$1,024,800	0%	$0
2	Ortiz	0%	$0	32%	$180,096	0%	$0	68%	$382,704	0%	$0	0%	$0
3	Del Monte Lift Station VFD Upgrade	40%	$750,000	10%	$187,500	20%	$375,000	0%	$0	13%	$243,750	17%	$318,750
4	Rosita Lift Station VFD Upgrade	19%	$152,950	0%	$0	33%	$265,650	0%	$0	21%	$169,050	27%	$217,350
5	Angelus	0%	$0	0%	$0	41%	$175,328	0%	$0	26%	$111,184	33%	$141,118
6	Canyon Del Rey (1)	0%	$0	0%	$0	41%	$498,921	0%	$0	26%	$316,389	33%	$401,570
7	Canyon Del Rey (2)	0%	$0	0%	$0	41%	$128,576	0%	$0	26%	$81,536	33%	$103,488
8	La Salle	0%	$0	0%	$0	0%	$0	100%	$1,085,000	0%	$0	0%	$0
9	Broadway	0%	$0	0%	$0	0%	$0	100%	$1,678,950	0%	$0	0%	$0
10	Hilby	0%	$0	0%	$0	0%	$0	100%	$1,460,550	0%	$0	0%	$0
Total			**$902,950**		**$367,596**		**$1,443,475**		**$4,607,204**		**$1,946,709**		**$1,182,276**

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Near Term Project No. 1: Del Monte Lift Station Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

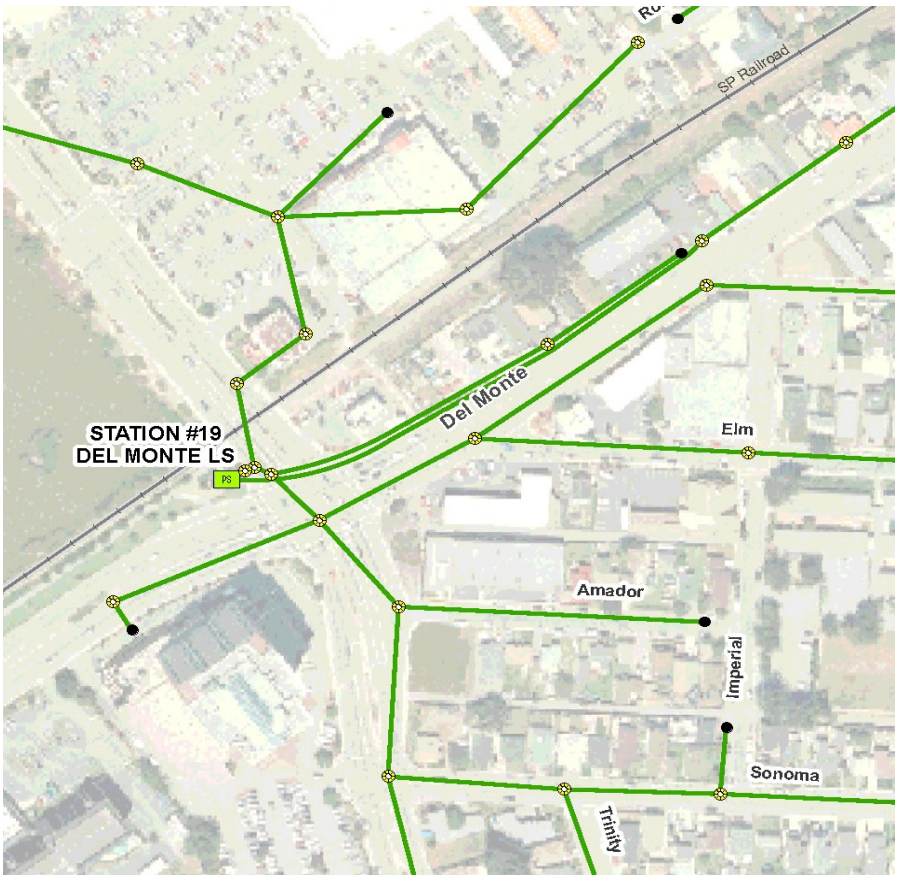
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [x] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [x] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 2 weeks



Project Need

- [x] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$12,500
Planning, Engineering, CM, Legal/Admin (40%)	$5,000
Total Project Cost	**$17,500**

Project Description

The current Del Monte Lift Station wetwell operating volume is inadequate for existing inflow, causing excessive pump cycling and low emergency response time. This upgrade proposes to install a bypass to the wetwell, allowing for emergency pumping in the case of pump failure. In additon, a field investigation and corresponding analysis is required to determine if operating volume can be increased within the existing wetwell, or by utilizing the portion of the wetwell that was abandoned under a previous project.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

NEAR TERM PROJECT NO. 1
DEL MONTE LIFT STATION UPGRADE

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 2: Rosita Lift Station Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [ ] City of Seaside
- [x] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [x] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 3 weeks

Project Need

- [x] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$44,000
Planning, Engineering, CM, Legal/Admin (40%)	$17,600
Total Project Cost	**$61,600**

Project Description

The Rosita Lift Station is in fair to poor condition and has insufficient operating volume causing excessive pump cycles per hour. This upgrade project proposes to: plug the existing by-pass line to the creek, increase operating volume by changing pump set points, re-align pump bases, replace slide rail connections and lift chains, reroute emergency generator conduit, fix or install a new vault lid, and install a drain to prevent standing water in the vault.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 2
ROSITA LIFT STATION UPGRADE

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 3: 942 Angelus Way Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [ ] City of Seaside
- [x] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 3 weeks

Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [x] Environmental threat/potential spill

Project Cost Breakdown

Construction Cost[1]	$36,000
Planning, Engineering, CM, Legal/Admin (40%)	$14,400
Total Project Cost	**$50,400**

Project Description

The 942 Angelus Way project proposes to replace the existing steel sewer line that crosses the creek just south of Del Rey Park, with ductile iron pipe that is less susceptible to damage. The existing steel line is exposed to the atmosphere and has developed a pinhole leak that has been patched with a pipe sleeve. This project requires approximately 80 feet of new sewer main.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 3
942 ANGELUS WAY SEWER LINE UPGRADE

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 4: Del Rey Park Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [ ] City of Seaside
- [x] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

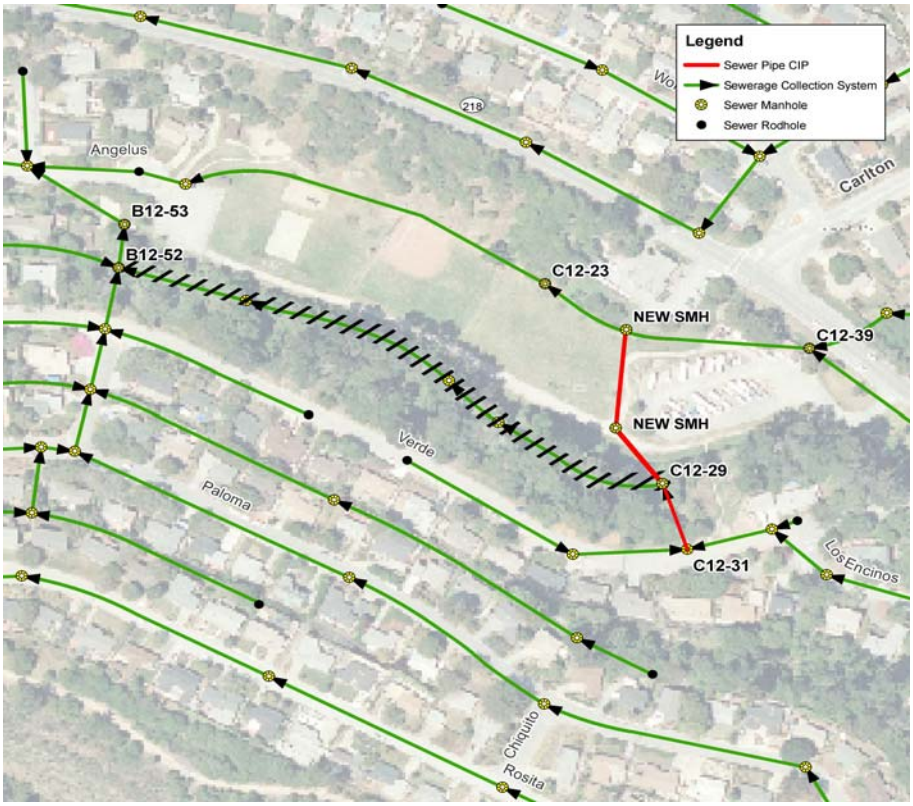
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [x] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 5 weeks



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$191,250
Planning, Engineering, CM, Legal/Admin (40%)	$76,500
Total Project Cost	**$267,750**

Project Description

The Del Rey Park project proposed to reroute existing sewer main to the main in Del Rey Park, to allow for access for operations and maintenance and reduce future problems with root intrusion. The existing sewer main is inaccessible for maintenance due to proximity to the creek, and the trees and shrubs growing over the sewer main cause pipe offsets and root intrusion. A 125 foot segment of existing 6-inch VCP is proposed to be upgraded to 8-inch pipe, with 300 feet of new 8-inch pipe, for a total project length of 425 feet.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 4
DEL REY PARK SEWER LINE UPGRADE

NOTES:
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Near Term Project No. 5: Del Monte Blvd Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

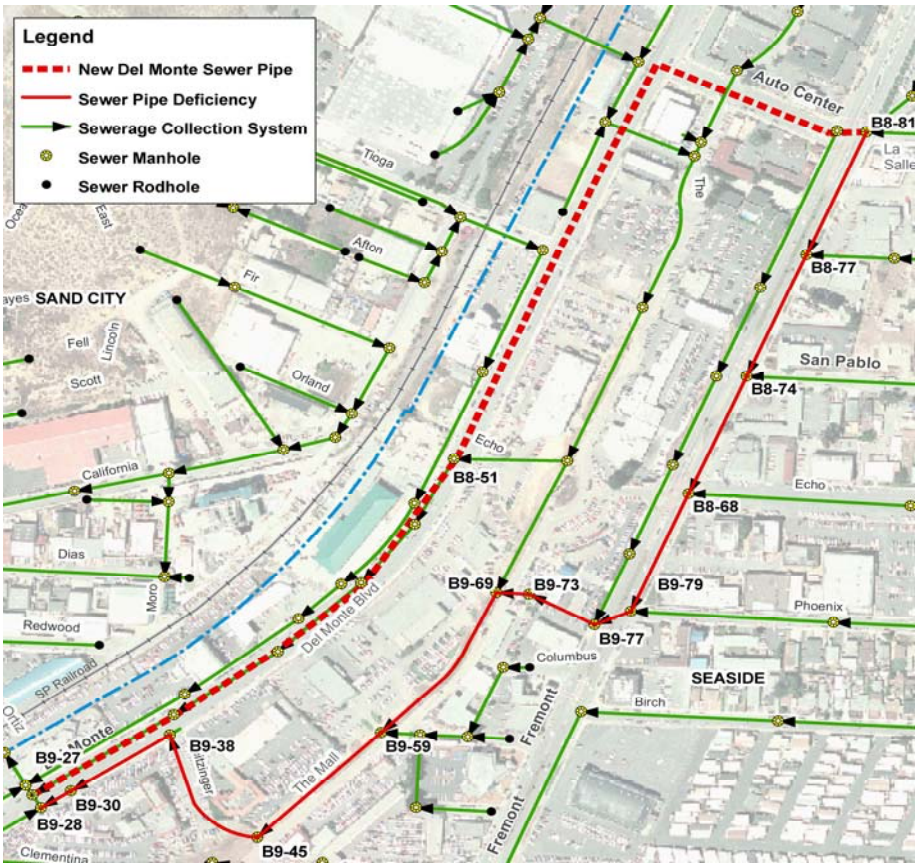
Existing Customers	44%		
New Development	56%		
Region A	18%		
Region B	0%	Region D1	0%
Region C	38%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [x] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 12 weeks



Project Need

- [x] Insufficient capacity for existing flow
- [x] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$738,400
Planning, Engineering, CM, Legal/Admin (40%)	$295,360
Total Project Cost	**$1,033,760**

Project Description

The Del Monte Boulevard project proposes to replace and reroute existing sewer main in Fremont Boulevard. The existing main has potential for overflow due to insufficient capacity. Relocating the new sewer in Del Monte Boulevard allows for multiple existing mains to be abandoned and consolidated, and limits construction in Fremont Boulevard which is costly due to the thickness of existing asphalt and concrete in the roadway. Total length of new 15-inch sewer main is approximately 3,200 feet. The new line is sized to accept future flow.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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San Luis Obispo, CA

NEAR TERM PROJECT NO. 5
DEL MONTE BLVD SEWER LINE UPGRADE

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 6: Military Lift Station Replacement

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [x] Upgrade Lift Station
- [x] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 16 weeks

Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$395,000
Planning, Engineering, CM, Legal/Admin (40%)	$158,000
Total Project Cost	**$553,000**

Project Description

The existing Military Lift Station is in poor physical condition and experiences high levels of inflow and infiltration during storm events. The Lift Station project proposes to replace the station in it's entirety, with a new station that matches existing pump and wet well capacity. In addition, the installation of a sealed lid at the station may prevent some inflow at the wet well.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
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San Luis Obispo, CA

NEAR TERM PROJECT NO. 6
MILITARY LIFT STATION REPLACEMENT

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 7: Fremont Blvd Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

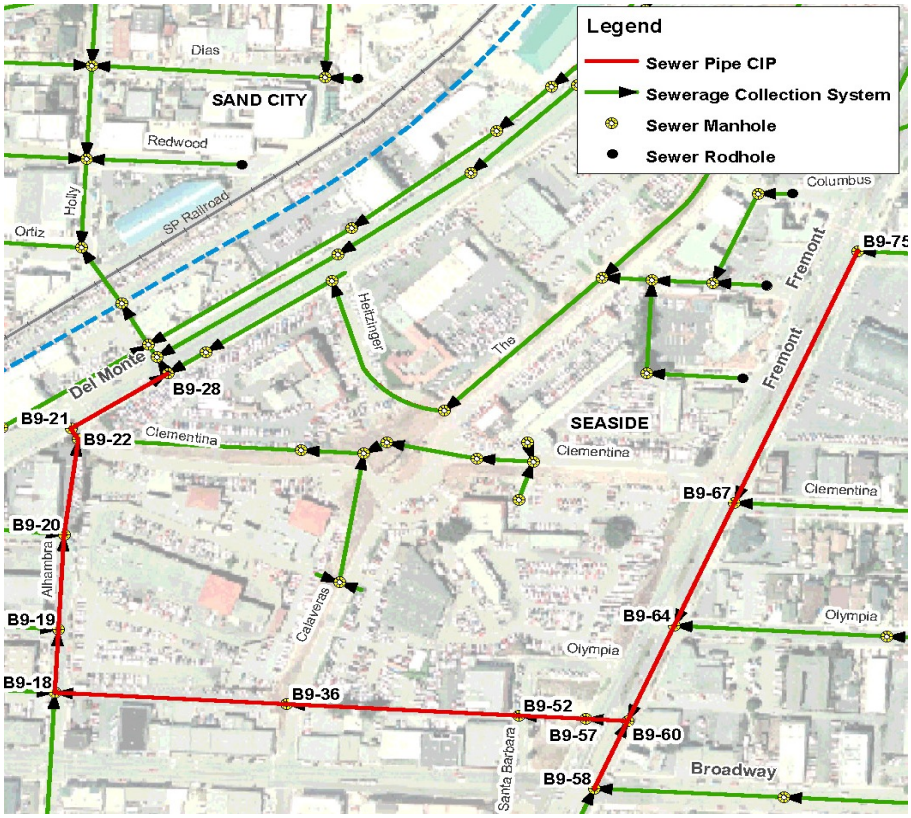
Existing Customers	72%		
New Development	28%		
Region A	9%		
Region B	0%	Region D1	0%
Region C	19%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 14 weeks



Project Need

- [x] Insufficient capacity for existing flow
- [x] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$827,250
Planning, Engineering, CM, Legal/Admin (40%)	$330,900
Total Project Cost	**$1,158,150**

Project Description

The Fremont Boulevard upgrade project proposes to replace approximately 3,200 feet of sewer main to provide capacity for existing flow conditions. Existing flow causes segments of pipes and manholes to surcharge during peak flow conditions. The existing 10, 12, and 15-inch pipe will be upsized one standard pipe diameter to 12, 15, and 18-inch, respectively. Although future development will contribute additional flow to this pipe segment, the pipe does not need to be upsized further to accept future flow conditions.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 7
FREMONT BLVD SEWER LINE UPGRADE

NOTES:
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Near Term Project No. 8: Luzern Street Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 6 weeks

Project Need

- [x] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$257,400
Planning, Engineering, CM, Legal/Admin (40%)	$102,960
Total Project Cost	**$360,360**

Project Description

The Luzern project proposes to replace approximately 1,430 feet of 6-inch sewer main with 8-inch, from the Military Lift Station discharge location to La Salle Avenue. In addition, three existing manholes will be upgraded with bolted manhole covers, due to their shallow depth and likelihood of overflow due to the pressure flow from the lift station. This location has overflowed in the past, and both the increased pipe capacity and bolted manhole covers will help to alleviate this problem.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 8
LUZERN STREET SEWER LINE UPGRADE

NOTES:
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Near Term Project No. 9: La Salle Avenue Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

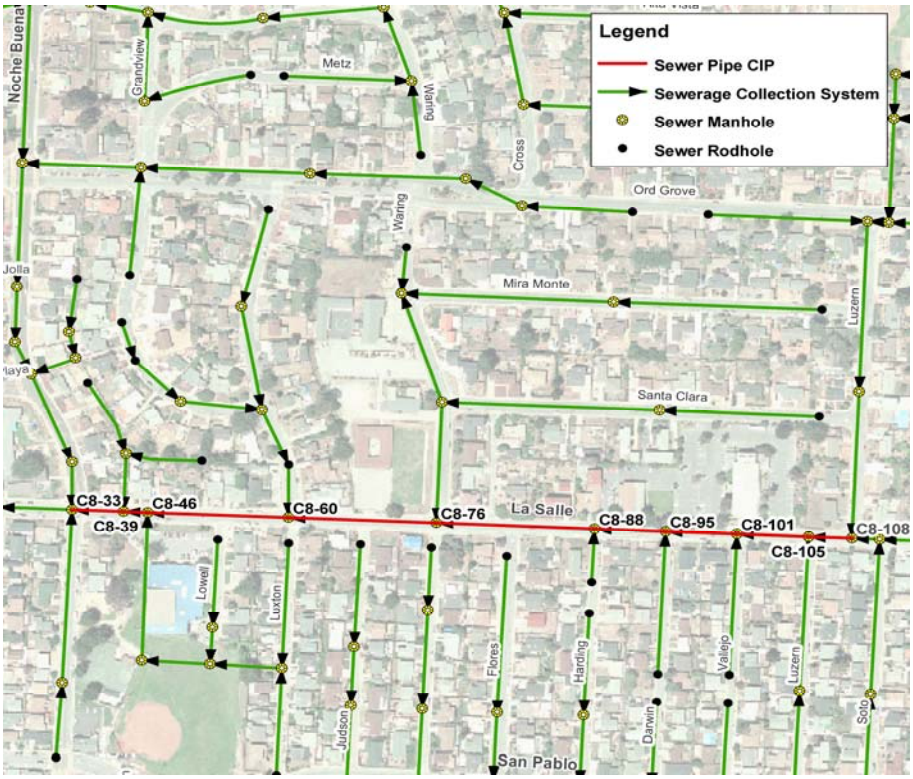
Existing Customers	75%		
New Development	25%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	25%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 6 weeks



Project Need

- [x] Insufficient capacity for existing flow
- [x] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$384,150
Planning, Engineering, CM, Legal/Admin (40%)	$153,660
Total Project Cost	**$537,810**

Project Description

The La Salle Avenue project proposes to upgrade approximately 1,430 feet of 6-inch sewer to 10-inch, from Luzern Street to Noche Buena Street. This location has insufficient capacity for existing conditions, and exhibits potential for overflow near to the La Salle and Luzern intersection during peak flow conditions. The new pipe is sized to meet future needs due to potential flow contribution from Region C.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 9
LA SALLE AVENUE SEWER LINE UPGRADE

NOTES:
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Near Term Project No. 10: Tioga Lift Station Feasibility Analysis

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [ ] City of Seaside
- [ ] City of Del Rey Oaks
- [x] Sand City

Project Benefit

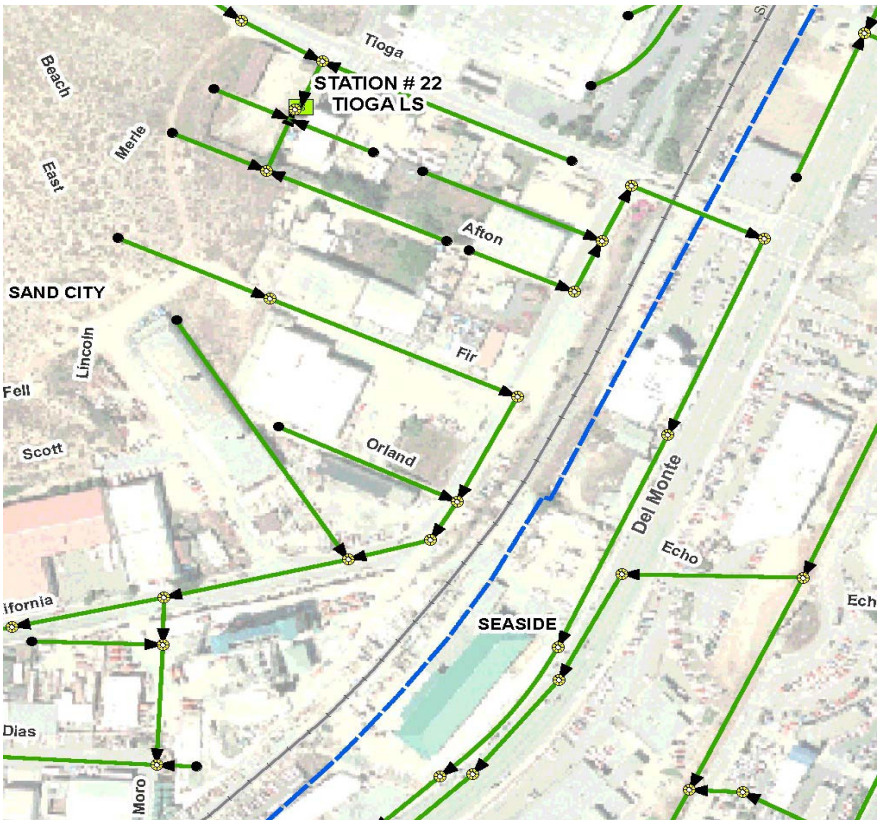
Existing Customers	3%		
New Development	97%		
Region A	97%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [x] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 0 weeks



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Analysis Cost[1]	$10,000
Planning, Legal/Admin (15%)	$1,500
Total Project Cost	**$11,500**

Project Description

The Tioga Lift Station receives a very small volume of flow from existing development on and near to Tioga Avenue. Low inflow to a lift station may result in formation of hydrogen sulfide gas, causing safety and odor issues. The Tioga project proposes to complete a feasibility study to determine if the lift station can be abandoned, and existing sewer connections re-located to a gravity sewer main. The abandonment would result in cost savings to the District due to the elimination of operations and maintenance costs.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 10
TIOGA LIFT STATION FEASIBILITY ANALYSIS

NOTES:
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Near Term Project No. 11: Birch Avenue Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

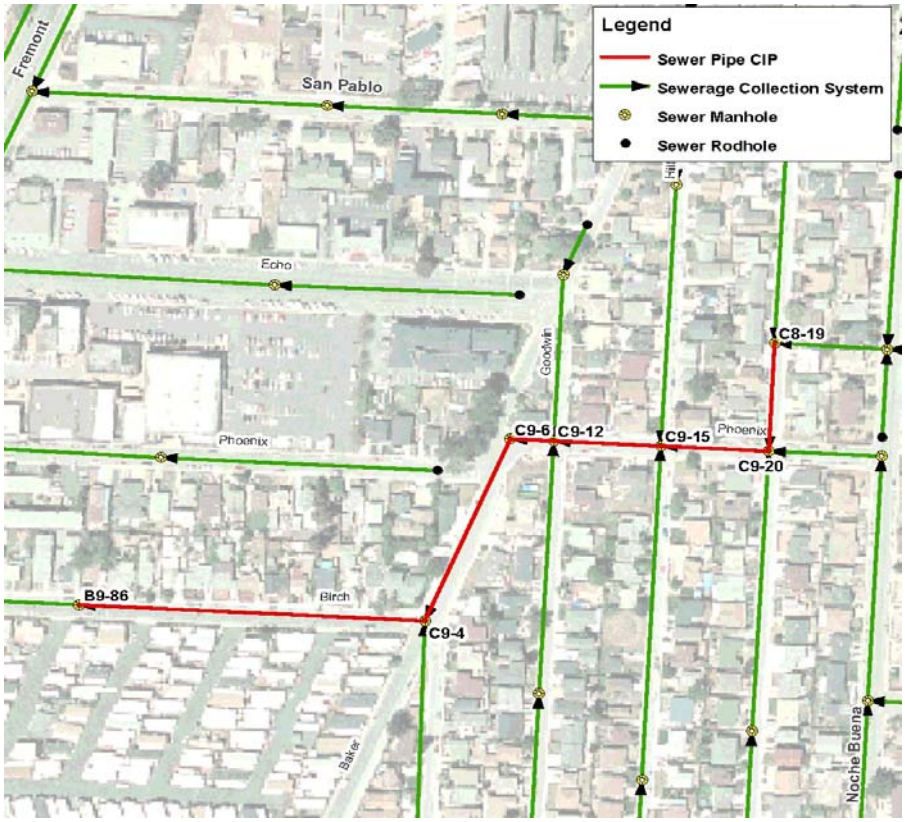
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 7 weeks



Project Need

- [x] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$321,500
Planning, Engineering, CM, Legal/Admin (40%)	$128,600
Total Project Cost	**$450,100**

Project Description

The Birch Avenue project proposes to replace approximately 1,600 feet of 8-inch and 10-inch sewer main with 10-inch and 12-inch pipe, respectively. This sewer main flows near to maximum capacity under peak flow conditions. This project includes replacing existing pipe on Laguna Street, Phoenix Avenue, Baker Street, and Birch Avenue.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 11
BIRCH AVENUE SEWER LINE UPGRADE

NOTES:
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Near Term Project No. 12: Root Intrusion Sewer Line Replacement

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [x] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

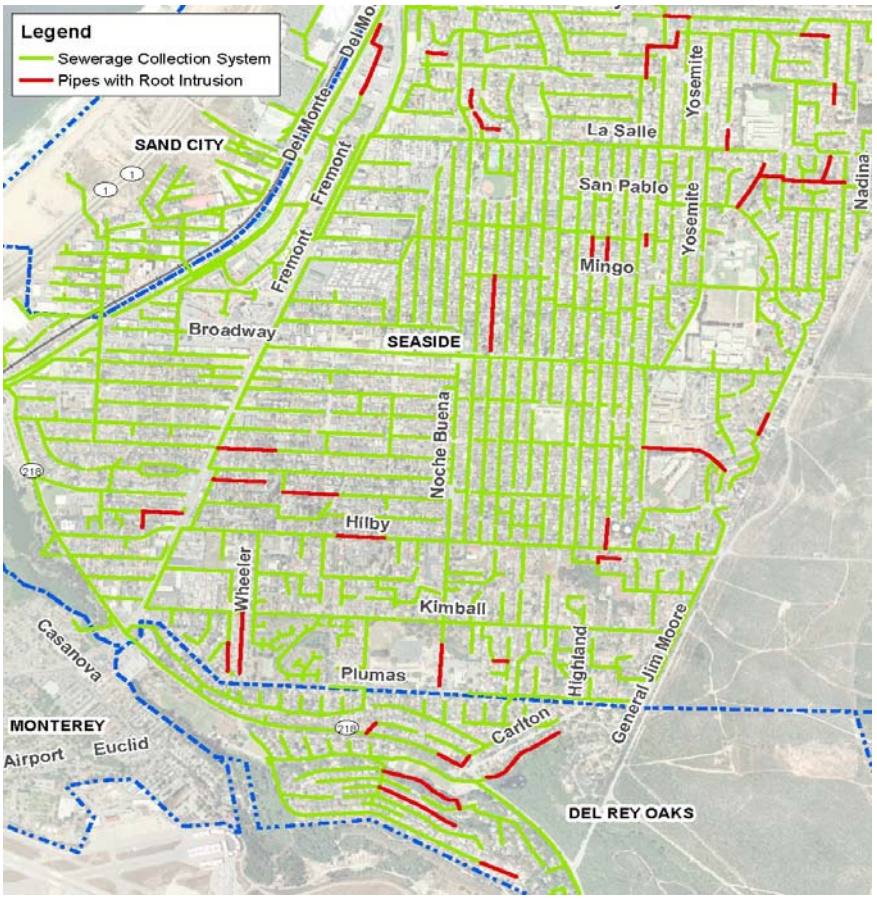
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

N/A



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [x] Reduction of I/I & sand infiltration

Project Cost Breakdown

Video Inspection Cost[1]	$1,131,000
Planning, Legal/Admin (15%)	$169,650
Total Project Cost	**$1,300,650**

Project Description

SCSD has over 3.5 miles of sewer main that are treated yearly for continual root intrusion. This effort is both time consuming and costly, and requires the use of chemicals and cleaning equipment. The Root Intrusion Replacement project proposes to video inspect all sewer mains with known root intrusion and identify pipes for replacement that appear to be in poor condition. At this time it is estimated that approximately 30% of the existing sewer mains with root intrusion will need to be replaced.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 12
ROOT INTRUSION SEWER LINE REPLACEMENT

NOTES:
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Near Term Project No. 13: Brick Manhole Inspection

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [x] City of Del Rey Oaks
- [x] Sand City

Project Benefit

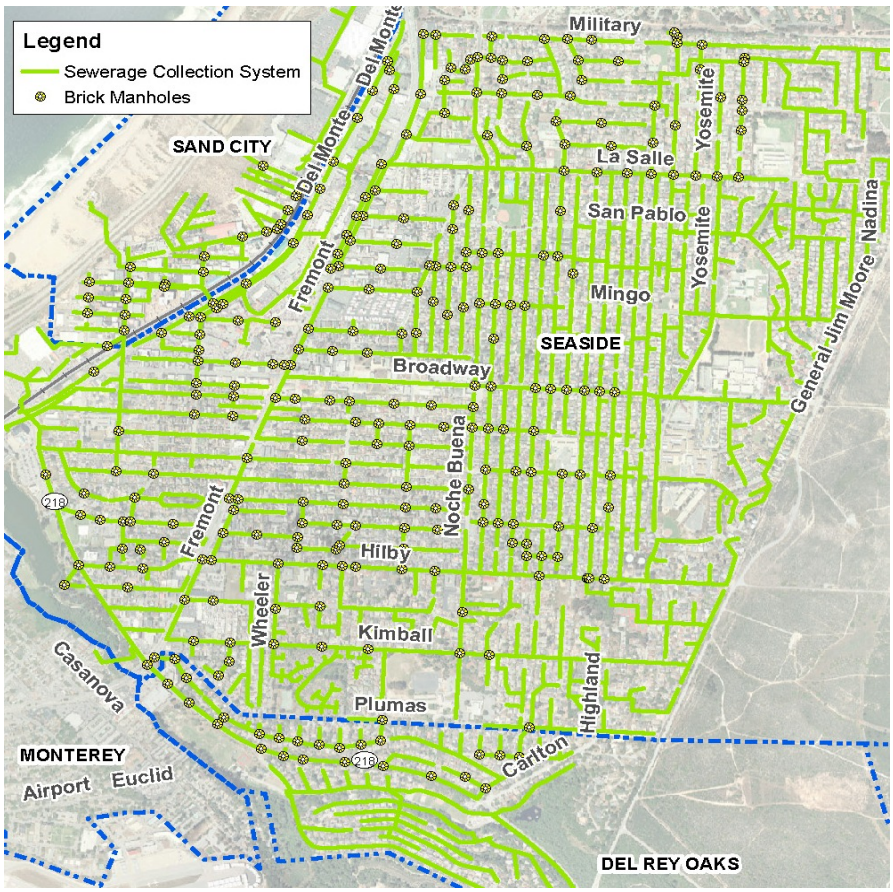
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [x] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

N/A



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [x] Reduction of I/I & sand infiltration

Project Cost Breakdown

Inspection Cost[1]	$73,750
Planning, Legal/Admin (15%)	$11,063
Total Project Cost	**$84,813**

Project Description

The Brick Manhole Inspection project proposes to inspect all existing brick manholes, to identify locations with water and/or sand infiltration or evidence of deterioration. Once identified, problem manholes will be slated for upgrad with epoxy lining to protect against corrosion or replacement, as required. There are approximately 295 brick manholes in the SCSD system.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 13
BRICK MANHOLE INSPECTION

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 14: Drop Manhole Inspection

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [x] City of Del Rey Oaks
- [x] Sand City

Project Benefit

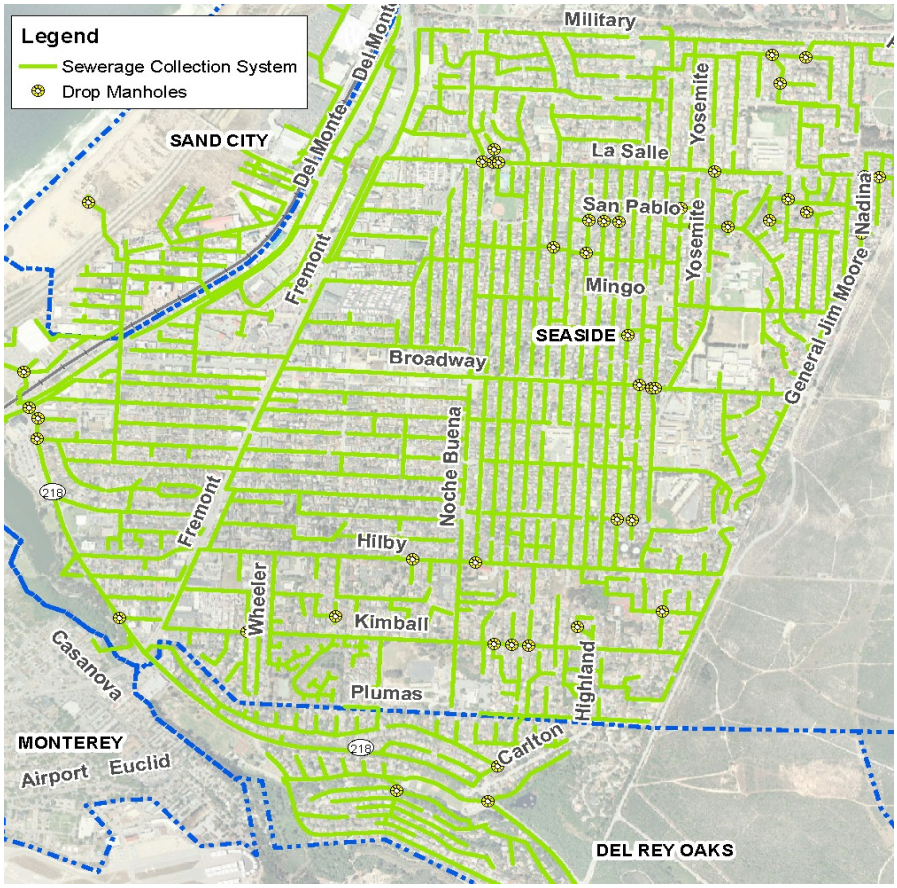
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [x] Inspection and/or analysis
- [x] Replace Manhole or Rodhole

Project Scheduling

N/A



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Inspection Cost[1]	$69,000
Planning, Legal/Admin (15%)	$10,350
Construction Cost[1]	$240,000
Planning, Engineering, CM, Legal/Admin (40%)	$96,000
Total Project Cost	**$415,350**

Project Description

The Drop Manhole Inspection project proposes to inspect all existing drop manholes to determine where drop manholes were improperly constructed. Once identified, drop manholes would be reconstructed to SCSD standards to limit turbulence and odor issues. There are approximately 92 drop manholes in the SCSD system, including brick manholes that are also drop manholes. It is anticipated that approximately 30 of the existing drop manholes in the system will need to be replaced.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 14
DROP MANHOLE INSPECTION

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 15: Manhole Lid Replacement

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [x] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

N/A

Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [ ] Existing condition limits O&M
- [x] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$53,200
Planning, Engineering, CM, Legal/Admin (40%)	$21,280
Total Project Cost	**$74,480**

Project Description

The Manhole Lid Replacement project proposes to install either solid gasketed manhole lids or manhole inserts in locations where water and sand infiltration and inflow is an ongoing maintenance problem. The solid lids would prevent sand and water from entering the manhole, and inserts in the manholes would capture sand and water before it enters the collection system. Approximately 76 manholes have been identified for this project.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 15
MANHOLE LID REPLACEMENT

NOTES:
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Near Term Project No. 16: Rod Hole Replacement

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [x] City of Del Rey Oaks
- [x] Sand City

Project Benefit

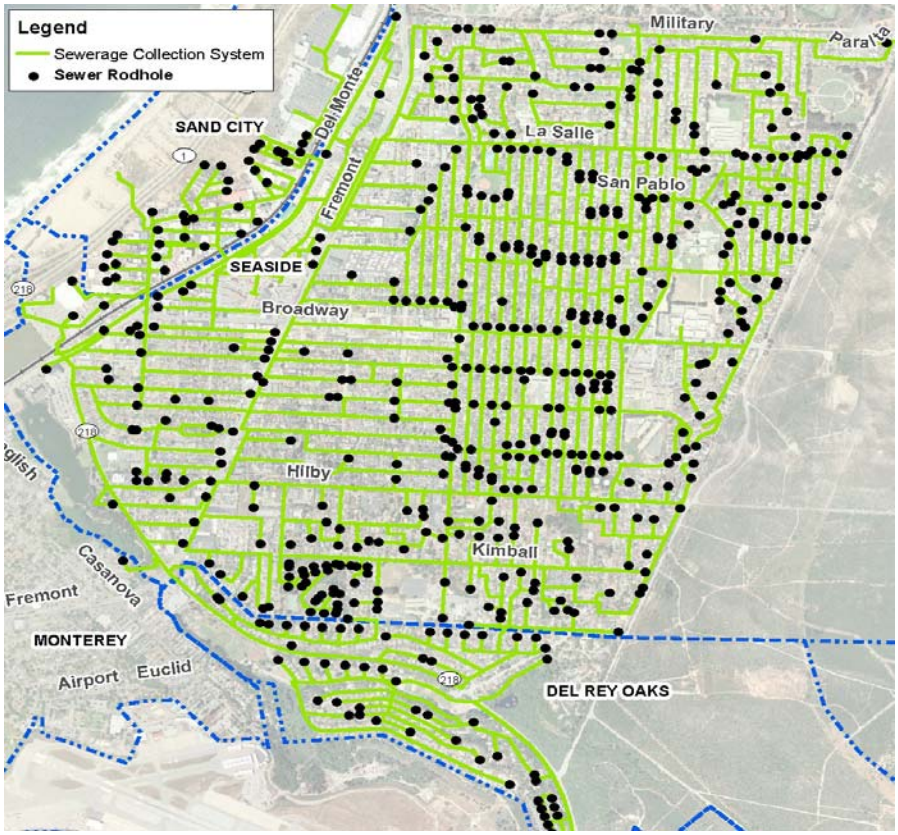
Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] Replace Manhole or Rodhole

Project Scheduling

N/A



Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$668,400
Planning, Engineering, CM, Legal/Admin (40%)	$267,360
Total Project Cost	**$935,760**

Project Description

The Rod Hole Replacement project proposes to upgrade all existing rod holes with an 8-inch riser to allow for operations and maintenance access. Rod holes were installed throughout the SCSD system at the end of sewer mains, similar to cleanouts, and are not accessible for inspection and cleaning of the sewer mains. The most critical maintenance locations would be replaced first, with the remainder of the rod holes replaced over an extended period of time. There are approximately 557 rodholes throughout the SCSD system. In addition, a new video camera that fits within the 8-inch risers would be purchased for video inspection of the sewer mains.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 16
ROD HOLE REPLACEMENT

NOTES:
Wallace Group did not perform boundary survey services for this map. Not a legal document.

Near Term Project No. 17: New Manhole Installation

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [x] City of Del Rey Oaks
- [x] Sand City

Project Benefit

Existing Customers	100%		
New Development	0%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	0%	Region D2	0%

Project Components

- [ ] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] Install New Manhole

Project Scheduling

N/A

Project Need

- [ ] Insufficient capacity for existing flow
- [ ] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$1,656,000
Planning, Engineering, CM, Legal/Admin (40%)	$662,400
Total Project Cost	**$2,318,400**

Project Description

The New Manhole Installation project proposes to install a new manhole on existing sewer mains with an existing length greater than 400 feet (manhole to manhole). Current SCSD standards require a maximum pipe length of 400 feet, which allows for adequate access for operation and maintenance crews to clean the sewer mains properly. Approximately 207 pipes in the SCSD system have a length greater than 400 feet.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 17
NEW MANHOLE INSTALLATION

NOTES:
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Near Term Project No. 18: Canyon Del Rey CMP Sewer Line Replacement

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Jurisdiction

- [x] City of Seaside
- [ ] City of Del Rey Oaks
- [ ] Sand City

Project Benefit

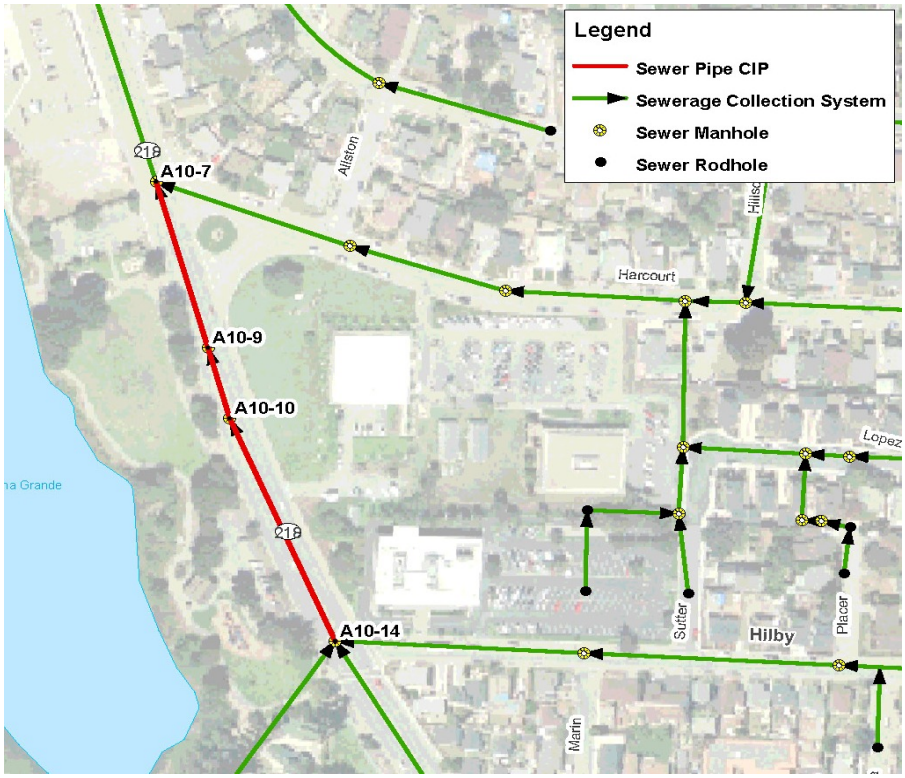
Existing Customers	90%		
New Development	10%		
Region A	0%		
Region B	5%	Region D1	2%
Region C	0%	Region D2	3%

Project Components

- [x] Upgrade Gravity Pipeline
- [ ] New Gravity Pipeline
- [ ] Upgrade Lift Station
- [ ] Upgrade Force Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 6 weeks



Project Need

- [ ] Insufficient capacity for existing flow
- [x] Insufficient capacity for future flow
- [x] Existing condition limits O&M
- [ ] Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$218,925
Planning, Engineering, CM, Legal/Admin (40%)	$87,570
Total Project Cost	**$306,495**

Project Description

The Canyon Del Rey CMP project proposes to replace three existing sewer pipe segments due to potentially poor physical condition. Through routine maintenance operations, the District has determined this sewer main may not be structurally sound, and a nearby stretch of sewer main originally constructed at the same time has already failed and been replaced. The project includes approximately 810 feet of existing 12-inch pipe on Canyon Del Rey from Hilby Avenue to Harcourt Avenue. The pipe segment at Harcourt Avenue, approximately 285 feet, will be upsized to 15-inch to provide capacity for future flow conditions.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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NEAR TERM PROJECT NO. 18
CANYON DEL REY CMP SEWER LINE REPLACEMENT

NOTES:
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Long Term Project No. 1: Highway 218 Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☐ City of Seaside
- ☑ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

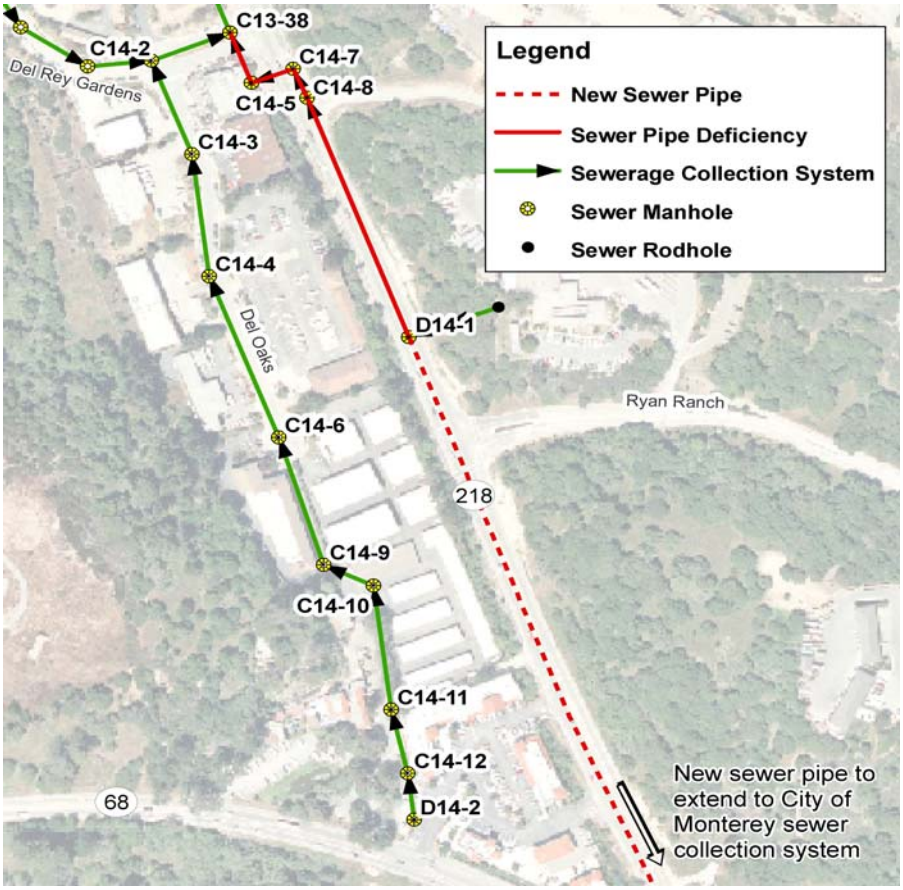
Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	0%	Region D1	100%
Region C	0%	Region D2	0%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☑ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 14 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☐ Insufficient capacity for future flow
- ☑ Existing condition limits O&M
- ☑ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$732,000
Planning, Engineering, CM, Legal/Admin (40%)	$292,800
Total Project Cost	**$1,024,800**

Project Description

The Highway 218 project proposes to reroute existing City of Monterey (Region D1) sewer to the SCSD system. Region D1 currently flows to a lift station with known maintenance problems, and poor pipe condition results in a high level of inflow and infiltration during storm events. Rerouting the D1 piping to SCSD would allow for the City's lift station to be abandoned, and the new piping could reduce infiltration and inflow. Approximately 800 feet of existing SCSD sewer in Highway 218 would be upsized from 6-inch to 8-inch to accommodate the Region D1 flow. Approximately 2,250 feet of new main is required to route D1 to SCSD.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 1
HIGHWAY 218 SEWER LINE UPGRADE

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Long Term Project No. 2: Ortiz Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☑ Sand City

Project Benefit

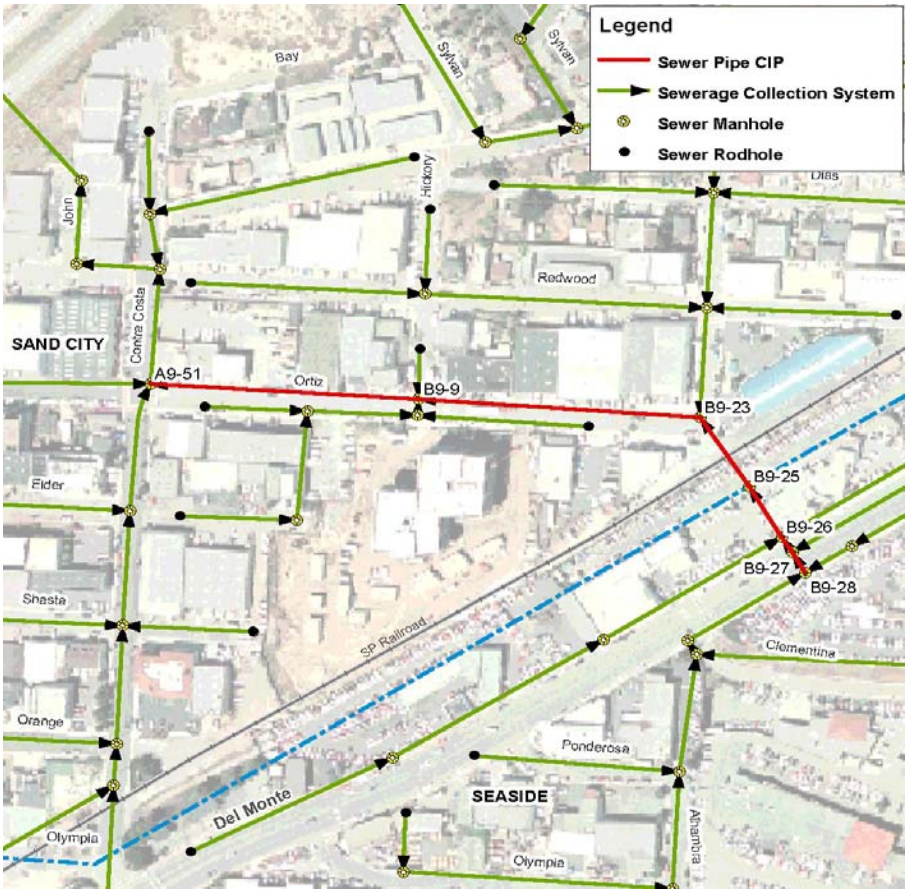
Existing Customers	0%		
New Development	100%		
Region A	32%		
Region B	0%	Region D1	0%
Region C	68%	Region D2	0%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 11 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$402,000
Planning, Engineering, CM, Legal/Admin (40%)	$160,800
Total Project Cost	**$562,800**

Project Description

The Ortiz upgrade project proposes to replace approximately 1,200 feet of existing 21-inch sewer main, on Ortiz Avenue from Del Monte Boulevard to Contra Costa Street. This project includes approximately 320 feet of new 24-inch sewer main and approximately 880 feet of new 27-inch sewer main, and is recommended to be complete prior to any future service connection to the existing collection system. This project requires construction within the Southern Pacific Railroad right-of-way.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 2
ORTIZ SEWER LINE UPGRADE

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Long Term Project No. 3: Del Monte Lift Station VFD Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

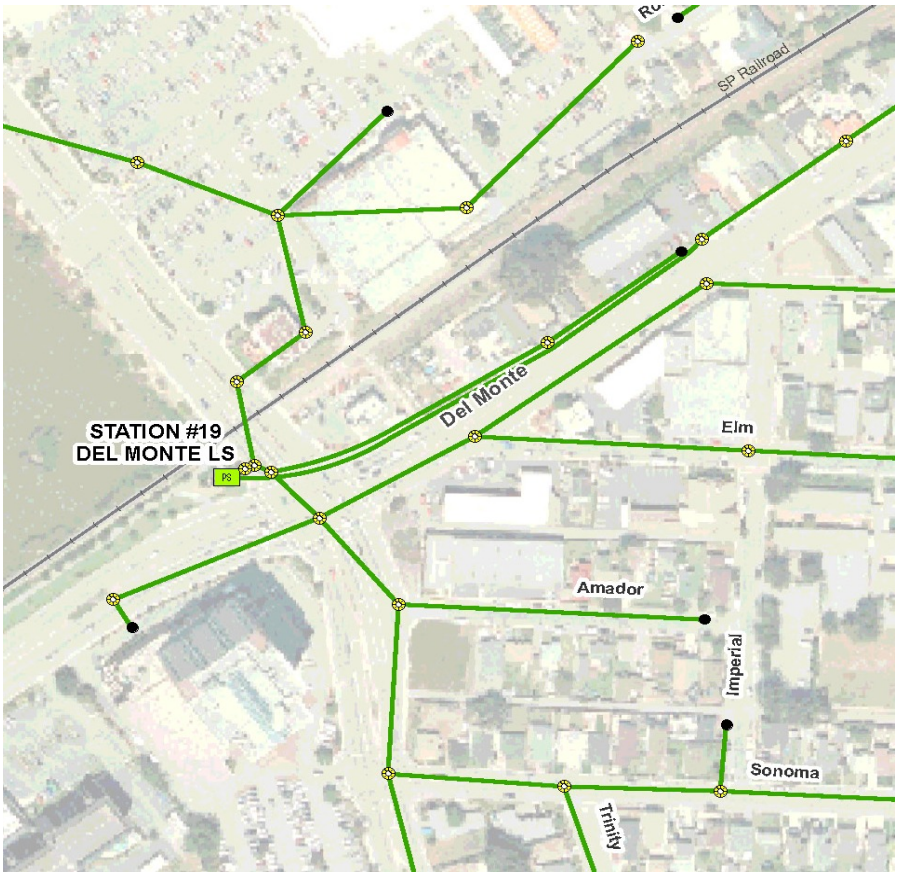
Existing Customers	40%		
New Development	60%		
Region A	10%		
Region B	20%	Region D1	13%
Region C	0%	Region D2	17%

Project Components

- ☐ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☑ Upgrade Lift Station
- ☑ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 30 weeks



Project Need

- ☑ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$1,250,000
Planning, Engineering, CM, Legal/Admin (50%)	$625,000
Total Project Cost	**$1,875,000**

Project Description

The Del Monte Lift Station VFD project proposes to replace the existing lift station with a new wetwell and three new VFD operated submersible pumps. Additional required infrastructure includes a permanent stand-by generator, upgraded force main, and new valve vault. The existing lift station is not capable of pumping potential future flows, and the wetwell has insufficient capacity for existing inflow. The installation of VFDs will minimize downstream collection system impacts due to potential increased flows to the Del Monte lift station.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 3
DEL MONTE LIFT STATION VFD UPGRADE

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Long Term Project No. 4: Rosita Lift Station VFD Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☐ City of Seaside
- ☑ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

Existing Customers	19%		
New Development	81%		
Region A	0%		
Region B	33%	Region D1	21%
Region C	0%	Region D2	27%

Project Components

- ☐ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☑ Upgrade Lift Station
- ☑ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 24 weeks

Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$575,000
Planning, Engineering, CM, Legal/Admin (40%)	$230,000
Total Project Cost	**$805,000**

Project Description

The Rosita Lift Station VFD project proposes to replace the existing lift station with a new wet well and VFD operated pumps to provide capacity for potential future inflow. The existing force main is required to be replaced to accommodate the increase lift station flow. The installation of VFDs will minimize downstream collection system impacts due to potential increased flows to the Rosita lift station. In addition, the existing wet well could be used for an overflow basin for emergency storage in the case of pump failure.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 4
ROSITA LIFT STATION VFD UPGRADE

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Long Term Project No. 5: Angelus Way Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☐ City of Seaside
- ☑ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

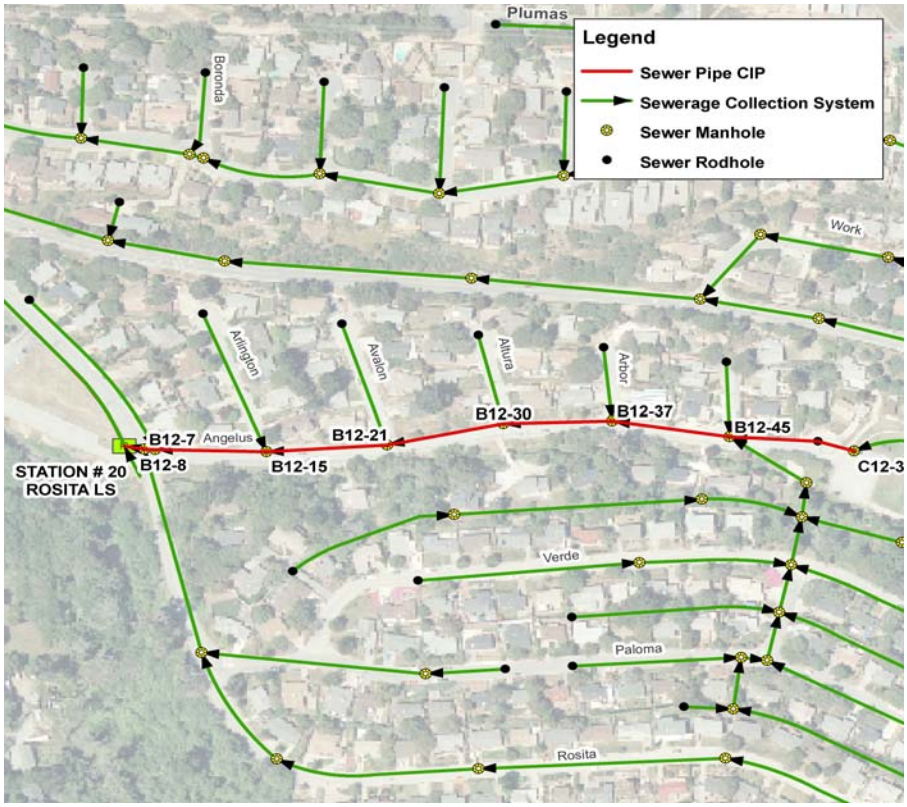
Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	41%	Region D1	26%
Region C	0%	Region D2	33%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 9 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$305,450
Planning, Engineering, CM, Legal/Admin (40%)	$122,180
Total Project Cost	**$427,630**

Project Description

The Angelus Way project proposes to upgrade approximately 1,490 feet of 8-inch pipe to 12-inch, from Del Rey Park to the Rosita Lift Station. This project increases collection system capacity to provide potential sanitary sewer service to Regions B, D1, and D2. Existing sewer piping upstream from this recommended upgrade is 12-inch.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 5
ANGELUS WAY SEWER LINE UPGRADE

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Long Term Project No. 6: Canyon Del Rey Sewer Line Upgrade (1)

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☑ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

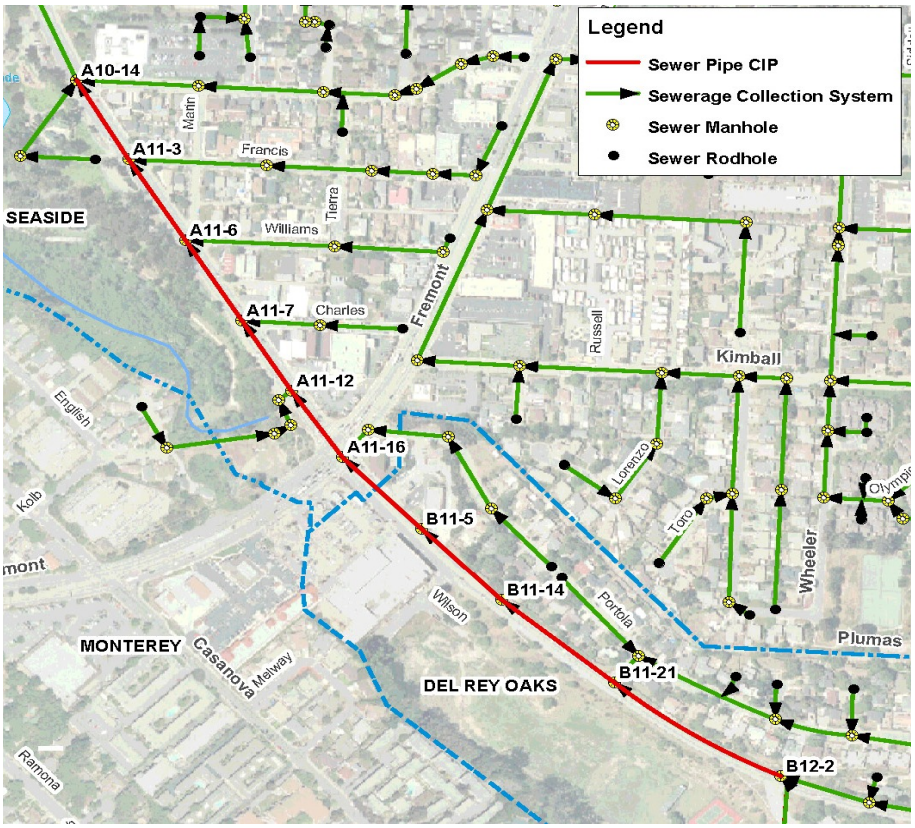
Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	41%	Region D1	26%
Region C	0%	Region D2	33%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 15 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$869,200
Planning, Engineering, CM, Legal/Admin (40%)	$347,680
Total Project Cost	**$1,216,880**

Project Description

The Canyon Del Rey (1) project proposes to upgrade approximately 3,280 feet of 8-inch sewer main to 12-inch, from the Rosita Lift Station to Hilby Avenue. This project increases collection system capacity to provide potential sanitary sewer service to Regions B, D1, and D2, and accommodate the potential increased flow from the proposed Rosita Lift Station upgrade.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 6
CANYON DEL REY SEWER LINE UPGRADE (1)

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Long Term Project No. 7: Canyon Del Rey Sewer Line Upgrade (2)

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

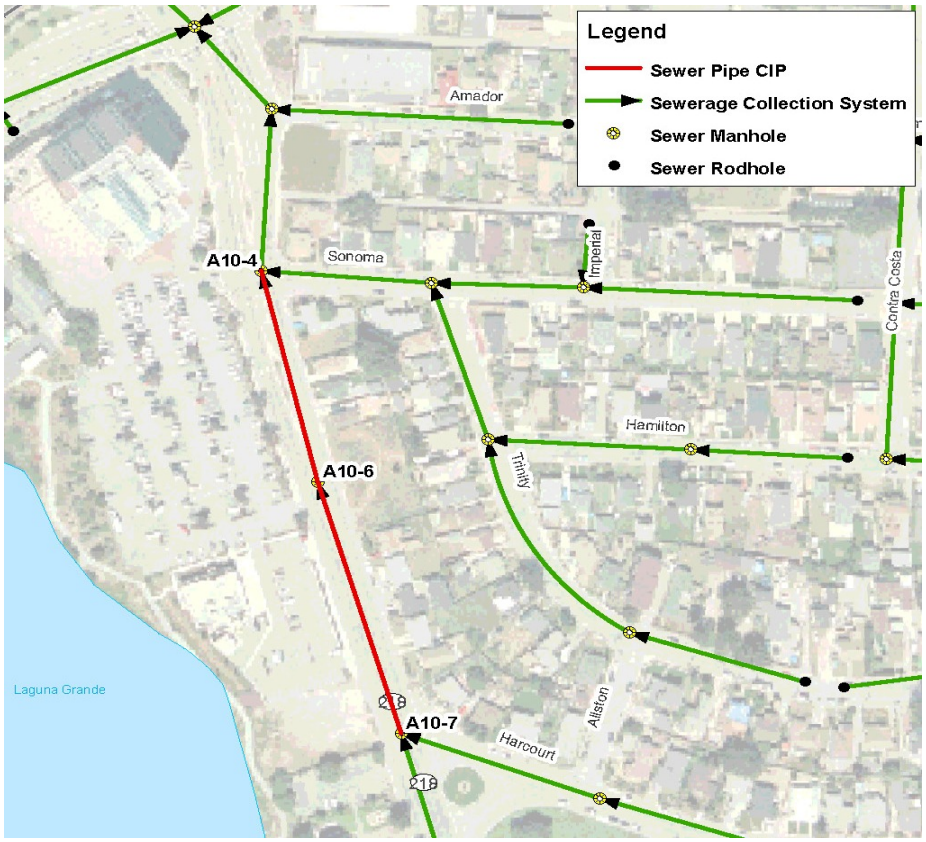
Existing Customers	0%
New Development	100%
Region A 0%	
Region B 41%	Region D1 26%
Region C 0%	Region D2 33%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 7 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$224,000
Planning, Engineering, CM, Legal/Admin (40%)	$89,600
Total Project Cost	**$313,600**

Project Description

The Canyon Del Rey (2) project proposes to upgrade approximately 800 feet of 12-inch sewer main to 15-inch, from Harcourt Avenue to Sonoma Avenue. This project increases collection system capacity to provide potential sanitary sewer service to Regions B, D1, and D2, and accommodate potential increased flow from the proposed Rosita Lift Station upgrade.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 7
CANYON DEL REY SEWER LINE UPGRADE (2)

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Long Term Project No. 8: La Salle Avenue Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	100%	Region D2	0%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☑ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 15 weeks

Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$775,000
Planning, Engineering, CM, Legal/Admin (40%)	$310,000
Total Project Cost	**$1,085,000**

Project Description

The La Salle Avenue project proposes to upgrade existing sewer main and construct new sewer main to provide potential sanitary sewer service to the Region C development. Approximately 1,050 feet of existing 6-inch main and 1,200 feet of 8-inch main would be upsized to 8-inch and 10-inch respectively. Approximately 2,200 feet of new 8-inch pipe is required on La Salle from Mariposa Avenue to General Jim Moore Boulevard.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 8
LA SALLE AVENUE SEWER LINE UPGRADE

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Long Term Project No. 9: Broadway Avenue Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet
2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	100%	Region D2	0%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 18 weeks

Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$1,199,250
Planning, Engineering, CM, Legal/Admin (40%)	$479,700
Total Project Cost	**$1,678,950**

Project Description

The Broadway Avenue project proposes to upgrade approximately 3,690 feet of 6-inch sewer main and 2,460 feet of 8-inch sewer main to 10-inch, from General Jim Moore Boulevard to Fremont Avenue. This project would increase collection system capacity to provide sanitary sewer service to potential development in Region C.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 9
BROADWAY AVENUE SEWER LINE UPGRADE

NOTES:
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Long Term Project No. 10: Hilby Avenue Sewer Line Upgrade

Seaside County Sanitation District Capital Improvement Project Information Sheet

2010 Sewer Collection System Master Plan

Project Trigger

- ☐ Existing Condition
- ☑ Future Condition

Jurisdiction

- ☑ City of Seaside
- ☐ City of Del Rey Oaks
- ☐ Sand City

Project Benefit

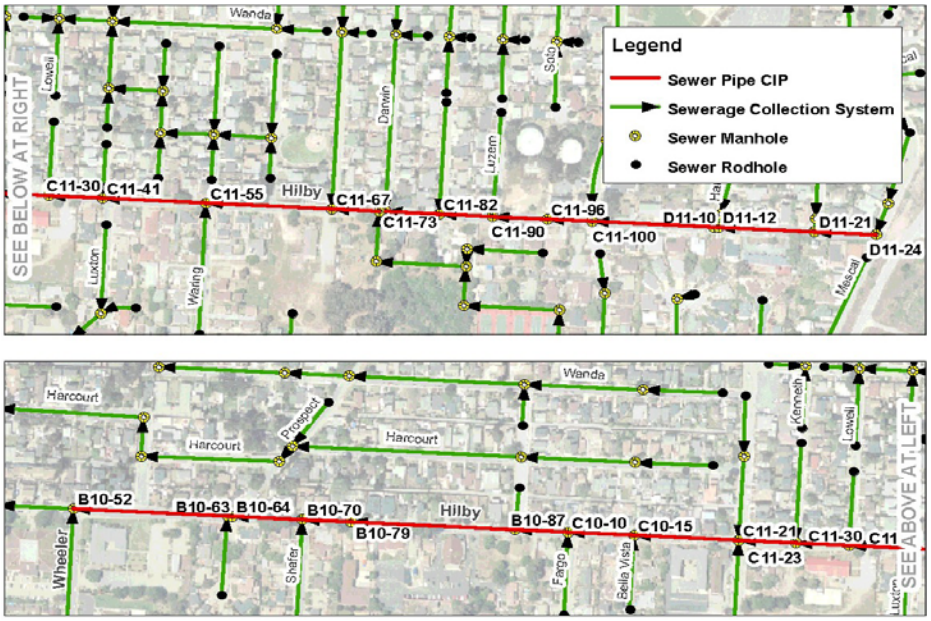
Existing Customers	0%		
New Development	100%		
Region A	0%		
Region B	0%	Region D1	0%
Region C	100%	Region D2	0%

Project Components

- ☑ Upgrade Gravity Pipeline
- ☐ New Gravity Pipeline
- ☐ Upgrade Lift Station
- ☐ Upgrade Force Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☐ Replace Manhole or Rodhole

Project Scheduling

Est. Construction Duration: 17 weeks



Project Need

- ☐ Insufficient capacity for existing flow
- ☑ Insufficient capacity for future flow
- ☐ Existing condition limits O&M
- ☐ Reduction of I/I & sand infiltration

Project Cost Breakdown

Construction Cost[1]	$1,043,250
Planning, Engineering, CM, Legal/Admin (40%)	$417,300
Total Project Cost	**$1,460,550**

Project Description

The Hilby Avenue project proposes to upgrade approximately 4,420 feet of 6-inch sewer main and 930 feet of 8-inch sewer main to 10-inch, from General Jim Moore Boulevard to Wheeler Street. This project would increase collection system capacity to provide sanitary sewer service to potential development in Region C.

1. Construction costs are expressed in Year 2009 dollars, using an ENR construction Cost Index of 8592, and will need to be escalated to the year or years scheduled for the work.

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LONG TERM PROJECT NO. 10
HILBY AVENUE SEWER LINE UPGRADE

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CHAPTER 10

SEWER RATE STUDY

This Chapter presents the sewer rate study prepared by David Taussig & Associates with support from District staff, District Board and Wallace Group.

INTRODUCTION

Seaside County Sanitation District ("SCSD" or the "District") is a special district responsible for the maintenance and operation of the sanitary sewer collection system serving the Cities of Del Rey Oaks, Sand City and Seaside. The District's sanitary sewer collection system serves an area of approximately 2,400 acres with a population of about 37,000. The sewer system consists of approximately 73 miles of pipeline with 740 manholes, 560 rod holes, and 4 lift stations. The wastewater is ultimately pumped to the Monterey Regional Water Pollution Control Agency ("MRWPCA") regional wastewater treatment plant.

SCSD has engaged David Taussig & Associates, Inc. ("DTA") to review and update the District's current sewer rate structure. This study provides the background, legal justification and cost of service analysis to support the recommended rate structure provided herein. The recommended rate structure accomplishes the following objectives:

- Generate revenues to fund annual operating costs, capital costs and reserve requirements;
- Determine sewer rates that are equitable to all users; and
- Create sewer rates that are Proposition 218 compliant.

The scope of services necessary to accomplish the objectives above is outlined below:

- Review current rate structure and recommend any changes to the rate structure;
- Document the legal justification for imposing the recommended rate structure;
- Define an Equivalent Dwelling Unit ("EDU") Methodology;
- Perform a Revenue Requirement and Cost of Service Analysis using rate modeling techniques. The model will provide a 15 year horizon, however the rate structure will cover the first five years of the model;
- Calculate sewer rates needed to fund all costs on a pay-as-you-go basis; and
- Design a recommended rate structure for the various user classes and describe a path for implementation.

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LEGAL JUSTIFICATION

Ongoing fees for sewer service are commonly called rates. These sewer rates must be supported by a cost of service study showing the revenue requirement will be met

through the collection of sewer rates as well as a method of reasonably apportioning the costs of service to the various customer classes. Sewer rates for ongoing sewer service have a direct relationship to land ownership, hence are considered property-related fees subject to the limitations of Article XIII D, Section 6 of the California Constitution ("Proposition 218").

Proposition 218 was adopted in 1996, adding Article XIII C and D to the California Constitution dealing with the initiative process and procedures involving real property-related fees and charges. While some real property-related fees and charges require voter approval, it is clear that sewer rates are exempt from such requirement. However, sewer agencies that provide sewer services to landowners are still subject to certain limitations of Proposition 218, including:

1. Revenues derived from the fee or charge shall not exceed the funds required to provide the property-related service;
2. Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed;
3. The amount of fee or charge imposed on any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to that parcel;
4. No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question; and
5. The fee or charge is subject to a majority protest and individual notices regarding such fee or charge must be mailed to all affected utility customers/property owners.

The rate structure recommended in this study will meet all of the limitations of Proposition 218 in both revenue requirements and proportionality.

CURRENT RATE STRUCTURE AND RECOMMENDED CHANGES

SCSD currently funds the majority of its operational and capital improvement costs through sewer rate revenue. SCSD's current sewer rates are charged as a percentage add-on to the rates charged by MRWPCA and are included as a separate line item on MRWPCA's bi-monthly bills. The current SCSD sewer rate is equal to 66.4% of the MRWPCA rate as shown in Table 1 of Exhibit A. For residential users, this equates to $7.97 per month (66.4% of MRWPCA rate of $12.00 per month).

MRWPCA cost of service includes operations, maintenance and capital improvement costs required to provide sewage collection and treatment to its customers. MRWPCA's rates are based on three cost factors: i) contributing sewage flow, measured in gallons per day; ii) sewage strength measured in milligrams per liter ("mg/l") of biochemical oxygen demand; and iii) suspended solids, measured in parts per million ("ppm"). This makes sense for MRWPCA because they are a sewer treatment agency and their costs are related to these three factors. However, since SCSD is a sewer "collection" agency, it was determined that in order to meet the benefit requirements of Proposition 218, the sewer rate should be based solely on sewage flow.

In the past it has been generally accepted that a percentage add-on (66.4% for example) was an acceptable and easy to implement rate structure to cover SCSD cost of service. However, as discussed in Introduction above, the limitations of Proposition 218 include the requirement that "revenues derived from the fee or charge shall not exceed the funds required to provide the property-related service." In order to, as best as possible, ensure that SCSD revenues match their costs of service, an equivalent dwelling unit ("EDU") methodology will be used, as explained in more detail in the EDU Analysis Section in this Chapter.

EDU ANALYSIS

An equivalent dwelling unit ("EDU") is the means by which we relate benefits of service for a particular customer to a base customer, which in this case would be a customer residing in a residential unit. The EDU represents the relative magnitude of average sewage flow, consequently the average impact to the collection system and therefore average cost recovery responsibility within the service area as compared to those same variables for a residential dwelling unit. The EDU factor for a specific land use is expressed as a ratio of the magnitude of the demand variable for that land use to the magnitude of the demand variable for a base customer or land use, in this case a residential dwelling unit. The demand variable in this EDU analysis is the average sewer generation rate in gallons per day ("GPD") as shown in Table 2 of Exhibit A. Data on average flow by land use category was provided by MRWPCA. For instance, a residential unit is expressed as 1.00 EDU for our analysis and a motel/hotel room is expressed as 0.43 (82 GPD for "Motel/Hotel" divided by 189 GPD for "Residential") EDUs. Therefore, the sewer rate charged per motel/hotel room would be 0.43 times the amount charged for a residential unit. The EDUs for all other land use categories are based on the average flow for each land use as compared to the flow for a residential unit. Please note that certain customers considered "special users" as identified in Table 2 of Exhibit A, are charged annually based on water usage, which is considered a proxy for sewer flow rate.

The various land uses that are used in this analysis are consistent with the land use categories used by MRWPCA as shown in Tables 1, 2, and 3 of Exhibit A. MRWPCA provided data regarding existing customers along with the appropriate usage factors by various land use categories within the SCSD service area. These customer counts were then multiplied by their corresponding EDU factors, calculating an aggregate EDU count of 10,754, as shown in Table 2 of Exhibit A.

REVENUE REQUIREMENTS AND COST OF SERVICE

The sewer revenue requirement analysis determines the level of revenues necessary to cover the cost of providing sewer collection services to its customers. Because Proposition 218 restricts the total revenue requirement to only that which is necessary to fund the cost of service, annual budgets need to be developed to identify and quantify operation and maintenance costs, to include a capital improvement and capital replacement program and to fund a reserve program for rate stabilization. A Financial Model was developed (see Exhibit B) that forecasts revenues and operational and maintenance costs over a 15 year period. The net revenue (revenue less operational

expenses) will then fund a rate stabilization reserve program and also a capital replacement program. A 15 year projected time period (fiscal years 2011-12 through 2025–26) was chosen in order to match the timing of operational expenses and capital replacement projects as described in further detail below.

Expenditures include (i) operations and maintenance and other outside services, (ii) capital replacement, and (iii) reserve stabilization. The District's principal sources of revenue to recover these costs include the sewer rates, the District's share of property taxes, and use of money and property charges. The new sewer rates are calculated to fund all costs on a pay-as-you-go basis.

A description of the revenues, operating and maintenance expenses, capital replacement costs, reserve requirements, and capital facilities replacement fund are shown below.

Revenues

Annual operating revenues for the District consist of rate revenue, ad valorem property taxes, revenue from use of money and property, and estimated capacity fee revenues.

For purposes of the Financial Model, the ad valorem property tax revenue was assumed to decrease from the current level of $255,778 by 3% in year one, hold constant in year two and increase at 2% per year for every year thereafter. Revenue from use of money and property is based on the District's budget and is assumed to remain level each year at $51,157. Capacity fee calculations and fair share allocations to new development were not a part of the current scope of work. However, for purposes of the Financial Model, capacity fee revenues are estimated at $136,327 annually starting in year six. The estimated capacity fee revenues were calculated based on the amount of escalated costs allocated to new development of approximately $2.7 million (based on unescalated cost of $2.2 million in Table 10-1, located at the end of the Chapter) and assumed to be collected in equal amounts each year for 20 years.

Operating and Maintenance Expenses

Annual operating expenses are grouped into two categories: District employee labor and materials allocated to sewer operations and outside services. The sewer operations budget for year one is $745,000 as shown in Table 9-5. For purposes of the Financial Model, the sewer operating expenses are assumed to increase each year by 3%. Outside services consist of video inspections, sewer system management plan, GIS mapping, LS maintenance and PG&E costs. These costs are estimated to be approximately $84,000 in year one. For purposes of the Financial Model, the video inspection costs increase from $30,000 in year one to $82,400 in year two and then increase by 3% each year thereafter. Sewer system management plan costs are assumed to be incurred every other year beginning in year one. All other costs are assumed to increase by 3% each year beginning in year two. Operating expenses do not include the Fats, Oils and Grease ("FOG") program costs as shown in Table 9-5, which are expected to be funded through a separate fee on food service establishments.

Capital Improvement Program

The District intends to use sewer rates to fund the following projects from the Sewer Master Plan: (i) all 18 Near Term Capital Projects from Table 9-2 (Health and Safety Projects and Efficiency Projects), (ii) all Capital Outlay Expenses from Table 9-6, and (iii) Long Term Capital Projects two through four from Table 9-3. The total amount to be funded through the sewer rates is equal to $13,684,308 (unescalated) as shown in Table 10-1. For purposes of the Financial Model, capital costs are assumed to increase by 3% each year to the year constructed.

While certain costs have been allocated to new development outside the District's current service boundary (see Exhibit C), the proposed rate structure assumes that existing development will have to carry the full cost of the three (3) Long Term Projects until sufficient capacity fee revenues become available. This is because the facilities are needed to serve future development within the existing service boundary and the District may not be able to wait to accumulate sufficient funds from new development to construct the facilities. As discussed above, the estimated capacity fee revenues will partially offset the costs of facilities needed to serve both existing and future development over the 15 year term as shown in Exhibit B.

For purposes of the rate analysis, the Near Term Capital Projects have been divided into two groups based on funding priority. As noted in Chapter 9 of this report, the first 11 Near Term Capital Projects are a high priority due to health and safety concerns and need to be constructed within the first six years. Near Term Capital Projects 12 through 18 can be delayed beyond year six without impacting the health and safety of the residents of the District. Table 10-1 summarizes the costs to be funded through sewer rate revenues. A more detailed listing of the individual projects is included in Exhibit C.

Rate Stabilization Fund

It is recommended that the District establish a rate stabilization reserve fund in order to provide a funding source from which the District can draw during years of revenue shortfall resulting from higher than expected operations and maintenance costs or lower than expected revenues.

For purposes of the Financial Model, contributions from net operating revenue to the rate stabilization fund are assumed to equal 15% of operational expenses on an annual basis until the fund reaches a maximum of $200,000. A balance of $200,000 represents an average of greater than 20% of annual operation and maintenance costs within the five year study rate period. Subsequent to reaching this maximum, all net operating revenue would be contributed to the capital replacement fund.

Capital Facilities Replacement Fund

Facilities are funded as sufficient rate revenues are accumulated in the capital replacement fund. For purposes of the Financial Model, it was assumed that the capital replacement fund will have a starting balance of $600,000 (before any contributions are made from rates).

As discussed in the Capital Improvement Program section, the year one sewer rate (along with the recommended annual escalator – see Proposed Rate Structure Section) has been calculated in order to fund the Near Term Capital Outlay Projects (projects one through eleven) and Capital Outlay Projects by year six and the remaining projects identified in Table 10-1 by year 15 on a pay-as-you-go basis.

PROPOSED RATE STRUCTURE

In order to meet projected revenue requirements as projected over the next five years, it is recommended to include an annual increase in the sewer rate per EDU, as summarized in Table 10-2. The recommended rate structure by land use class for years one through five is shown in Table 3 of Exhibit A. Table 10-3 details the annual percentage change in the monthly sewer rate per EDU for each fiscal year for the first five years.

Table 10-1. Rate Study Costs to be Funded

Master Plan Table	Projects	Costs allocated to Existing Development (unescalated)	Costs allocated to New Development (unescalated)	Total Costs (unescalated)
Table 9-2	Near Term Capital Projects (Health and Safety Projects 1 - 11)	$3,422,107	$1,038,453	$4,460,560
Table 9-2	Near Term Capital Projects (Health and Safety Projects 12 – 18)	$5,405,299	$30,650	$5,435,948
Table 9-6	Capital Outlay Projects (Efficiency Projects)	$545,000	$0	$545,000
Table 9-7	Region A Long Term Capital Projects (Projects 2 through 4)	$2,039,350	$1,203,450	$3,242,800
NA	Total	$11,411,756	$2,272,553	$13,684,308

Table 10-2. Monthly Sewer Rate Per EDU

	Effective July 1, 2011	Effective July 1, 2012	Effective July 1, 2013	Effective July 1, 2014	Effective July 1, 2015
Rate per month per EDU	$11.88	$12.13	$12.39	$12.66	$12.93

Table 10-3. Annual Change of Sewer Rate

	Effective July 1, 2011	Effective July 1, 2012	Effective July 1, 2013	Effective July 1, 2014	Effective July 1, 2015
Rate per month per EDU	49.01%	2.15%	2.15%	2.15%	2.15%

EXHIBIT A

TABLES 1 THROUGH 3

TABLE 1. CURRENT SEWER RATES

Description	Category Code [1]	Units	Monthly SCSD Sewer Rate
Business/Govt	001-099 [2]	Location/Each Business	$5.51
Residential-Vacant	101	Each Living Unit	$4.78
Residential/Apartments	102	Each Living Unit	$7.97
Residential/Apartments	105	Each Living Unit	$7.97
Residential-Vacant	106	Each Living Unit	$4.78
Condo/Retirement	107	Each Living Unit	$7.97
Condo/Retirement	109	Each Living Unit	$7.97
Minimum/Vacancy	211	Location/Each Business	$4.22
Motel/Hotel	221	Each Room	$3.29
Bed & Breakfast Inn	222	Each Room	$2.19
Supermarkets	231	Location	$52.02
Medical Office	241	Each Licensed Physician	$7.10
Dental Office	242	Each Licensed Dentist	$9.59
Rest Home/Convalescent	243	Each Bed of Licensed Capacity	$2.06
General Hospital	244	Each Bed of Licensed Capacity	$12.18
Animal Hospital	245	Location/Each Licensed Business	$14.28
Restaurant 1 meal/day	261	Each Restaurant Seat	$0.50
Restaurant 2 meals/day	262	Each Restaurant Seat	$0.76
Restaurant 3 meals/day	263	Each Restaurant Seat	$1.43
Restaurant with Bar	264	Each Restaurant Seat	$1.43
Bar	265	Location/Each Business	$12.45
Nightclub	266	Location/Each Business	$36.29
Takeout Food - Small	267	1 Cash Register or Checkout Line	$17.60
Takeout Food - Medium	268	2 or 3 Cash Registers or Checkout Lines	$42.56
Takeout Food - Large	269	4 or More Cash Registers or Checkout Lines	$77.22
Bakery	270	Location/Each Business	$19.99
Theater	281	Per Screen @ Each Location	$16.83
Bowling Center	282	Location/Each Business	$51.26
Gym	283-289 [3]	Per 500 members	$5.51
Mortuary	290	Location/Each Business	$25.50
School (Minimum)	291	Location/Each Business	$5.51
School (Grades 0-6)	292	School Population	$0.07
School (7-College)	293	School Population	$0.13
Boarding School	294	School Population	$1.59
Instructional Facility	295	Location/Each Business	$5.51
Church	296-297 [4]	Per 100 members	$5.51
Photo / Laboratory / Printer	301-326 [2]	Per 10 employees	$5.51
Service Station/Garage	331	Location/Each Business	$5.84
Paint and Body Shops	341-346 [2]	Per 10 employees	$5.51
Commercial Laundry	352	Per 100 GPD of water usage	NA
Dry Cleaner	353	Location/Each Business	$17.60
Laundromat	354	Each Washing Machine	$4.45
Major Hotel	361	Per 100 GPD of water usage	NA
Car Wash	366	Per 100 GPD of water usage	NA
Special User	401	Per 100 GPD of water usage	NA
Rec Sports Facility	407	Per 100 GPD of water usage	NA
Ground Water	410	Per 100 GPD of water usage	$4.22

[1] Category codes established by Monterey Regional Water Pollution Control Agency.
[2] Sewer rate increases by $5.51 for every 10 employees.
[3] Sewer rate increases by $5.51 for every 500 members.
[4] Sewer rate increases by $5.51 for over 100 members.

TABLE 2. EDU FACTORS

Description	Category Code [1]	Units	Existing Units/Users [2] Del Rey Oaks	Seaside	Sand City	GPD Avg. Flow [2]	EDU Factor	Total EDUs
Business/Govt	001-099	Location/Each Business	40	433	232	146	0.77	544
Residential-Vacant	101	Each Living Unit	1	19	21	0	0.00	0
Residential/Apartments	102	Each Living Unit	544	5,139	69	189	1.00	5,752
Residential/Apartments	105	Each Living Unit	17	2,759	51	189	1.00	2,827
Residential-Vacant	106	Each Living Unit	1	2		0	0.00	0
Condo/Retirement	107	Each Living Unit	148	175		189	1.00	323
Condo/Retirement	109	Each Living Unit				189	1.00	0
Minimum/Vacancy	211	Location/Each Business	1	61	15	0	0.00	0
Motel/Hotel	221	Each Room		478		82	0.43	207
Bed & Breakfast Inn	222	Each Room				54	0.29	0
Supermarkets	231	Location	1	5	1	797	4.22	30
Medical Office	241	Each Licensed Physician	3	15	2	195	1.03	21
Dental Office	242	Each Licensed Dentist	1	9	1	269	1.42	16
Rest Home/Convalescent	243	Each Bed of Licensed Capacity		111		54	0.29	32
General Hospital	244	Each Bed of Licensed Capacity				320	1.69	0
Animal Hospital	245	Location/Each Licensed Business				356	1.88	0
Restaurant 1 meal/day	261	Each Restaurant Seat	90	116		7	0.04	8
Restaurant 2 meals/day	262	Each Restaurant Seat		1,379	61	11	0.06	84
Restaurant 3 meals/day	263	Each Restaurant Seat		233	62	21	0.11	33
Restaurant with Bar	264	Each Restaurant Seat	174	370		21	0.11	60
Bar	265	Location/Each Business	1	6		317	1.68	12
Nightclub	266	Location/Each Business				950	5.03	0
Takeout Food - Small	267	1 Cash Register or Checkout Line	6	17	6	354	1.87	54
Takeout Food - Medium	268	2 or 3 Cash Registers or Checkout Lines	1	9	2	871	4.61	55
Takeout Food - Large	269	4 or More Cash Registers or Checkout Lines	1	3	2	1,588	8.40	50
Bakery	270	Location/Each Business	1	6	4	287	1.52	17
Theater	281	Per Screen @ Each Location				471	2.49	0
Bowling Center	282	Location/Each Business				1,433	7.58	0
Gym	283-289	Per 500 members		6	2	146	0.77	6
Mortuary	290	Location/Each Business		2		387	2.05	4
School (Minimum)	291	Location/Each Business		7		146	0.77	5
School (Grades 0-6)	292	School Population		4,014		2	0.01	44
School (7-College)	293	School Population		307		4	0.02	6
Boarding School	294	School Population				40	0.21	0
Instructional Facility	295	Location/Each Business		2	1	146	0.77	2
Church	296-297	Per 100 members	1	33		146	0.77	26
Photo / Laboratory / Printer	301-326	Per 10 employees	1	10	1	146	0.77	9
Service Station/Garage	331	Location/Each Business	2	46	13	140	0.74	45
Paint and Body Shops	341-346	Per 10 employees	2	14	6	146	0.77	17
Commercial Laundry	352 [3]	Per 100 GPD of water usage				100	0.53	NA
Dry Cleaner	353	Location/Each Business		2		483	2.56	5
Laundromat	354	Each Washing Machine		116		127	0.67	78
Major Hotel	361 [3]	Per 100 GPD of water usage		1		100	0.53	NA
Car Wash	366 [3]	Per 100 GPD of water usage		2	1	100	0.53	NA
Special User	401 [3]	Per 100 GPD of water usage		7	1	100	0.53	NA
Rec Sports Facility	407 [3]	Per 100 GPD of water usage		3		100	0.53	NA
Ground Water	410 [3]	Per 100 GPD of water usage		1		100	0.53	NA
Special User		Per 100 GPD of water usage				71,918	380.52	381
							Total EDUs:	10,754

[1] Category codes established by Monterey Regional Water Pollution Control Agency.
[2] Based on information provided by Monterey Regional Water Pollution Control Agency.
[3] The EDUs for categories 352, 361, 366, 401, 407, and 410 are included in the "Special User" category.

TABLE 3. RECOMMENDED SEWER RATES FY 2011-2012 THROUGH FY 2015-2016

Description	Category Code [1]	Units	Sewer Rate per Month [2] FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Business/Govt	001-099 [3]	Location/Each Business	$9.17	$9.37	$9.57	$9.78	$9.99
Residential-Vacant	101	Each Living Unit	$0.00	$0.00	$0.00	$0.00	$0.00
Residential/Apartments	102	Each Living Unit	$11.88	$12.14	$12.40	$12.67	$12.94
Residential/Apartments	105	Each Living Unit	$11.88	$12.14	$12.40	$12.67	$12.94
Residential-Vacant	106	Each Living Unit	$0.00	$0.00	$0.00	$0.00	$0.00
Condo/Retirement	107	Each Living Unit	$11.88	$12.14	$12.40	$12.67	$12.94
Condo/Retirement	109	Each Living Unit	$11.88	$12.14	$12.40	$12.67	$12.94
Minimum/Vacancy	211	Location/Each Business	$0.00	$0.00	$0.00	$0.00	$0.00
Motel/Hotel	221	Each Room	$5.16	$5.27	$5.38	$5.50	$5.62
Bed & Breakfast Inn	222	Each Room	$3.40	$3.47	$3.55	$3.62	$3.70
Supermarkets	231	Location	$50.11	$51.19	$52.29	$53.41	$54.56
Medical Office	241	Each Licensed Physician	$12.26	$12.53	$12.80	$13.07	$13.35
Dental Office	242	Each Licensed Dentist	$16.91	$17.27	$17.64	$18.02	$18.41
Rest Home/Convalescent	243	Each Bed of Licensed Capacity	$3.40	$3.47	$3.55	$3.62	$3.70
General Hospital	244	Each Bed of Licensed Capacity	$20.12	$20.55	$20.99	$21.44	$21.90
Animal Hospital	245	Location/Each Licensed Business	$22.39	$22.87	$23.36	$23.86	$24.38
Restaurant 1 meal/day	261	Each Restaurant Seat	$0.44	$0.45	$0.46	$0.47	$0.48
Restaurant 2 meals/day	262	Each Restaurant Seat	$0.69	$0.70	$0.72	$0.73	$0.75
Restaurant 3 meals/day	263	Each Restaurant Seat	$1.32	$1.35	$1.38	$1.41	$1.44
Restaurant with Bar	264	Each Restaurant Seat	$1.32	$1.35	$1.38	$1.41	$1.44
Bar	265	Location/Each Business	$19.93	$20.36	$20.79	$21.24	$21.70
Nightclub	266	Location/Each Business	$59.72	$61.01	$62.32	$63.66	$65.03
Takeout Food - Small	267	1 Cash Register or Checkout Line	$22.26	$22.74	$23.22	$23.72	$24.23
Takeout Food - Medium	268	2 or 3 Cash Registers or Checkout Lines	$54.76	$55.93	$57.14	$58.37	$59.62
Takeout Food - Large	269	4 or More Cash Registers or Checkout Lines	$99.84	$101.99	$104.18	$106.42	$108.71
Bakery	270	Location/Each Business	$18.05	$18.44	$18.83	$19.24	$19.65
Theater	281	Per Screen @ Each Location	$29.61	$30.25	$30.90	$31.56	$32.24
Bowling Center	282	Location/Each Business	$90.10	$92.04	$94.01	$96.04	$98.10
Gym	283-289 [4]	Per 500 members	$9.17	$9.37	$9.57	$9.78	$9.99
Mortuary	290	Location/Each Business	$24.34	$24.86	$25.39	$25.94	$26.50
School (Minimum)	291	Location/Each Business	$9.17	$9.37	$9.57	$9.78	$9.99
School (Grades 0-6)	292	School Population	$0.13	$0.13	$0.14	$0.14	$0.14
School (7-College)	293	School Population	$0.25	$0.25	$0.26	$0.27	$0.27
Boarding School	294	School Population	$2.52	$2.57	$2.63	$2.69	$2.74
Instructional Facility	295	Location/Each Business	$9.17	$9.37	$9.57	$9.78	$9.99
Church	296-297 [5]	Per 100 members	$9.17	$9.37	$9.57	$9.78	$9.99
Photo / Laboratory / Printer	301-326 [3]	Per 10 employees	$9.17	$9.37	$9.57	$9.78	$9.99
Service Station/Garage	331	Location/Each Business	$8.81	$8.99	$9.19	$9.39	$9.59
Paint and Body Shops	341-346 [3]	Per 10 employees	$9.17	$9.37	$9.57	$9.78	$9.99
Commercial Laundry	352	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
Dry Cleaner	353	Location/Each Business	$30.37	$31.03	$31.69	$32.37	$33.07
Laundromat	354	Each Washing Machine	$7.99	$8.16	$8.33	$8.51	$8.69
Major Hotel	361	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
Car Wash	366	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
Special User	401	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
Rec Sports Facility	407	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
Ground Water	410	Per 100 GPD of water usage	$6.29	$6.42	$6.56	$6.70	$6.84
		Percentage Increase:		2.15%	2.15%	2.15%	2.15%

[1] Category codes established by Monterey Regional Water Pollution Control Agency.
[2] If approved, Sewer Rates shown would be effective as of July 1 of each fiscal year.
[3] Sewer Rate increases by $9.17 for every 10 employees.
[4] Sewer Rate increases by $9.17 for every 500 members.
[5] Sewer Rate increases by $9.17 for over 100 members.

EXHIBIT B

FINANCIAL MODEL

Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; fund first 11 projects and capital outlay projects by Year 6; fund remaining projects by Year 15

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$11.88	$12.13	$12.39	$12.66	$12.93	$13.12	$13.41	$13.70	$13.99	$14.29	$14.60	$14.91	$15.23	$15.56	$15.89
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,532,639	$ 1,565,591	$ 1,599,251	$ 1,633,635	$ 1,668,758	$ 1,692,770	$ 1,729,165	$ 1,766,342	$ 1,804,318	$ 1,843,111	$ 1,882,738	$ 1,923,217	$ 1,964,566	$ 2,006,804	$ 2,049,950
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,831,901	$ 1,864,852	$ 1,903,475	$ 1,942,920	$ 1,983,205	$ 2,148,810	$ 2,190,576	$ 2,233,231	$ 2,276,796	$ 2,321,289	$ 2,366,729	$ 2,413,138	$ 2,460,536	$ 2,508,944	$ 2,558,384
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 1,002,901	$ 944,032	$ 970,943	$ 966,022	$ 993,883	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 878,551	$ 868,382	$ 970,943	$ 966,022	$ 993,883	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Budget Surplus (deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 558,361	$ 674,545	$ 552,145	$ 1,029,091	$ 330,684	$ 5,520	$ 185,339	$ 627,817	$ 146,636	$ 81,236	$ 1,267,069	$ 2,469,802	$ 383,959	$ 1,603,982
Contribution to capital replacement reserves	$ 878,551	$ 868,382	$ 970,943	$ 966,022	$ 993,883	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Interest Earnings on Fund Balance	$ -	$ 2,792	$ 3,373	$ 2,761	$ 5,145	$ 1,653	$ 28	$ 927	$ 3,139	$ 733	$ 406	$ 6,335	$ 12,349	$ 1,920	$ 8,020
Less use of funds (based on 100% of costs)	$ (920,190)	$ (754,990)	$ (1,096,716)	$ (491,836)	$ (1,697,436)	$ (1,439,236)	$ (961,212)	$ (692,173)	$ (1,647,625)	$ (1,220,955)	$ -	$ -	$ (3,305,484)	$ -	$ (2,836,106)
Ending Fund Balance	$ 558,361	$ 674,545	$ 552,145	$ 1,029,091	$ 330,684	$ 5,520	$ 185,339	$ 627,817	$ 146,636	$ 81,236	$ 1,267,069	$ 2,469,802	$ 383,959	$ 1,603,982	$ 4,713
Near Term Capital Projects Funded	1,2,3,4,9,10	6	5	11	7	8,13,14,15,18	NA	NA	12	16	NA	NA	17	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	4	2	NA	NA	NA	NA	NA	NA	3
Remaining Project Costs	$ 13,147,042	$ 12,763,813	$ 12,017,110	$ 11,871,032	$ 10,478,804	$ 9,310,754	$ 8,600,028	$ 8,145,091	$ 6,692,390	$ 5,635,579	$ 5,804,646	$ 5,978,786	$ 2,753,501	$ 2,836,106	$ -

Assumptions:

Base Annual rate increase (%) (thru Year 5) =	49.02%	2.15%	2.15%	2.15%	2.15%	1.49%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%
O&M Inflation=	3.00%														
rate stabilization threshold=	$200,000														
Property Tax Increase starting in Year 3=	2.00%														
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Total EDU's =	10,754
Year 1 $ per EDU (monthly) =	$11.88
one time increase/(decrease) in year 6=	1.49%

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

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EXHIBIT C

CAPITAL IMPROVEMENT COSTS

Near Term Capital Projects 1 through 11 (Table 9-2, Sewer Master Plan)

Project Number	Title	Description	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Accumulated
1	Del Monte Lift Station	Lift Station Upgrades including expanding wetwell capacity to meet current demand	$17,500	100%	$17,500	$17,500
2	Rosita Lift Station	Lift station upgrades including pump control modifications and maintenance related repairs	$61,600	100%	$61,600	$79,100
3	942 Angeles Way Sewer	Replace existing steel pipe with ductile iron pipe at creek crossing	$50,400	100%	$50,400	$129,500
4	Del Rey Park Sewer Line	re-route existing main for maintenance purposes	$267,750	100%	$267,750	$397,250
5	Del Monte Blvd. Sewer Line	replace and re-route existing sewer line. Consolidates capacity from older lines	$1,033,760	44%	$454,854	$852,104
6	Military Lift Station Replacement	replace entire lift station	$553,000	100%	$553,000	$1,405,104
7	Fremont Blvd. Sewer	replace existing pipeline. Additional capacity is needed to meet current demand	$1,158,150	72%	$833,868	$2,238,972
8	Luzern Street Sewer Line	replace existing sewer line. Upgrade three existing manholes	$360,360	100%	$360,360	$2,599,332
9	La Salle Avenue Sewer Line	replace existing pipeline. Additional capacity is needed to meet current demand	$496,440	75%	$372,330	$2,971,662
10	Tioga Lift Station Feasibility Analysis	Investigate the possiblility of abandonment	$11,500	3%	$345	$2,972,007
11	Birch Avenue Sewer Line	replace exisitng sewer main	$450,100	100%	$450,100	$3,422,107
Subtotal Near Term Capital Projects (1 through 11)			**$4,460,560**		**$3,422,107**	

Near Term Capital Projects 12 through 18 (Table 9-2, Sewer Master Plan)

Project Number	Title	Description	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Accumulated
12	Root Intrusion Replacements	inspect and replace pipes damaged by root intrusion	$1,300,650	100%	$1,300,650	$4,722,757
13	Brick Manhole Inspection	inspect all brick manholes for infiltration and deterioration	$84,813	100%	$84,813	$4,807,570
14	Drop Manhole Inspection	Inspect all drop manholes for improper construction and needed upgrades to meet current standards	$415,350	100%	$415,350	$5,222,920
15	Manhole Lid Replacements	install upgraded manhole liods to prevent sand and water infiltration	$74,480	100%	$74,480	$5,297,400
16	Rod Hole Replacement	Replace rod holes (cleanouts) with standard manholes	$935,760	100%	$935,760	$6,233,160
17	New Manhole Installation	Install new manholes where existing sewer line pipe runs exceed 400 feet	$2,318,400	100%	$2,318,400	$8,551,560
18	Canyon Del Rey Sewer line	replace existing sewer lines that have little or no structural integrity	$306,495	90%	$275,846	$8,827,406
Subtotal Near Term Capital Projects (12 through 18)			**$5,435,948**		**$5,405,299**	

SCSD Capital Outlay (Table 9-6, Sewer Master Plan)

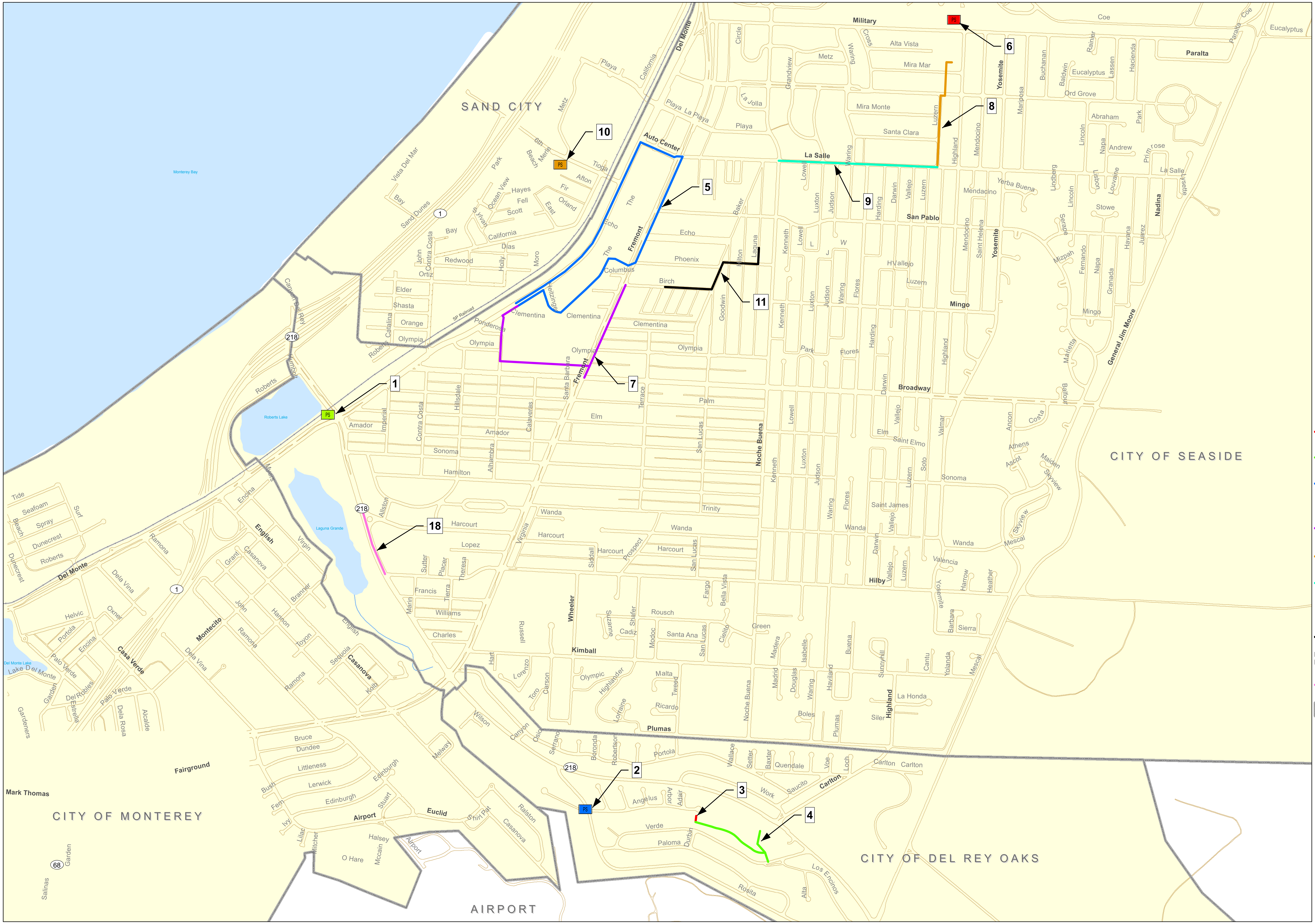
Project Number	Project	Description	2010 Construction Cost	Allocation to existing development	Capital Outlay Costs Allocated to Existing Development	Accumulated
1	Video Inspection	GIS Software/hardware, video camera	$15,000	100%	$15,000	$8,842,406
2	Vehicle	one jetter truck	$160,000	100%	$160,000	$9,002,406
3	Vehicle	one pickup	$20,000	100%	$20,000	$9,022,406
4	Vactor Truck	one truck	$350,000	100%	$350,000	$9,372,406
Subtotal Capital Outlay Projects			**$545,000**		**$545,000**	

Region A Long Term Capital Cost (Table 9-3, Sewer Master Plan)

Project Number	Project	Description	2010 Construction Cost	Allocation to existing development	Region A Long Term Capital Costs Allocated to Existing Development	Accumulated
2	Ortiz		$562,800	0%	$0	$9,372,406
3	Del Monte Lift Station VFD Upgrade		$1,875,000	80%	$1,500,000	$10,872,406
4	Rosita Lift Station VFD Upgrade		$805,000	67%	$539,350	$11,411,756
Subtotal Region A Long Term Capital Projects			**$3,242,800**		**$2,039,350**	

Total

Project Number	Project	Description	2010 Construction Cost	Allocation to existing development	Total Capital Costs Allocated to Existing Development	Accumulated
Total Capital Replacement Costs			**$13,684,308**		**$11,411,756**	



SEWER MASTER PLAN MAY 2011

NEAR TERM CAPITAL IMPROVEMENT PROJECTS

Legend

- PS — 1: Del Monte LS Upgrade
- PS — 2: Rosita LS Upgrade
- 3: 942 Angelus Way Sewer Line Upgrade
- 4: Del Rey Park Sewer Line Upgrade
- 5: Del Monte Blvd Sewer Line Upgrade
- PS — 6: Military LS Replacement
- 7: Fremont Blvd Sewer Line Upgrade
- 8: Luzern Street Sewer Line Upgrade
- 9: La Salle Avenue Sewer Line Upgrade
- PS — 10: Tioga LS Feasibility Analysis
- 11: Birch Avenue Sewer Line Upgrade

PROJECT NO. 12-17 Maintenance Improvements Not Shown on Map

- 18: Canyon Del Rey CMP Sewer Line Replacement
- CITY LIMITS

1 inch = 500 feet

0 250 500 Feet

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NOTES:
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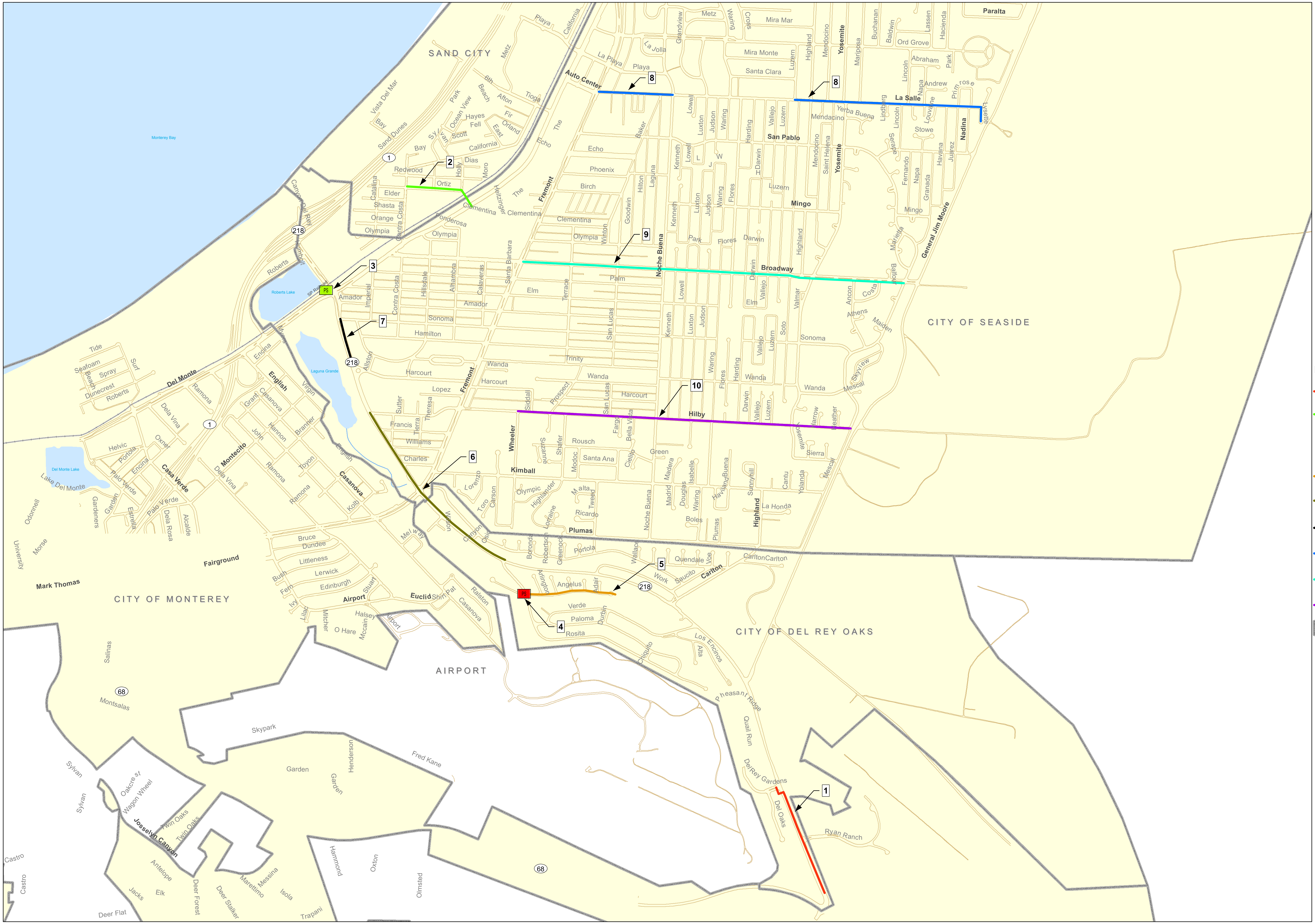

SEWER MASTER PLAN MAY 2011

LONG TERM CAPITAL IMPROVEMENT PROJECTS

Legend

- 1: Highway 218 Sewer Line Upgrade
- 2: Ortiz Sewer Line Upgrade
- 3: Del Monte LS VFD Upgrade
- 4: Rosita LS VFD Upgrade
- 5: Angelus Way Sewer Line Upgrade
- 6: Canyon Del Rey Sewer Line Upgrade (1)
- 7: Canyon Del Rey Sewer Line Upgrade (2)
- 8: La Salle Avenue Sewer Line Upgrade
- 9: Broadway Avenue Sewer Line Upgrade
- 10: Hilby Avenue Sewer Line Upgrade
- CITY LIMITS

1 inch = 650 feet

0 325 650 Feet

NOTES:
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SEASIDE COUNTY SANITATION DISTRICT

Appendix for Sewer Master Plan and Rate Study

MAY 10, 2011

PREPARED BY

WALLACE GROUP®

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Appendix A

Fluid Resource Management
Seaside County Sanitation District
Lift Station Inspections
February 11, 2009

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FLUID RESOURCE MANAGEMENT, INC.

Operation · Maintenance · Construction

Seaside County Sanitation District

Lift Station Inspections

February 11, 2009

Produced by:
M. Ellison – Mechanical Superintendent
R. Ellison – Maintenance Manager

Del Ray Lift Station-

The Del Ray Lift Station is overall functional, there are some recommendations to increase longevity and ease repair work.

Wet well condition- Lid has light aggregate showing at lid. Riser rings appear to be in satisfactory condition. FRM would recommend coating this Lift Station in the future to prevent further deterioration of the concrete.

Rails and top rail bracket- Rails are galvanized pipe and top rail bracket is made of steel. Top rail bracket is corroding. FRM would recommend replacing these items with stainless steel components.

Lifting chains- made of zinc/galvanized plated steel. Appears to be in working condition, if chain degrades it could break while removing pump. FRM would recommend replacing chain with rated stainless steel chain/ clevis.

Piping- Made of ductile iron, bolts are plated with zinc. Condition is satisfactory. FRM would recommend coating piping and replacing bolts with stainless steel.

Discharge Bases- cast iron and appear to not be attached to floor of lift station. This can cause shifting of pump and pipe work, eventually causing discharge plumbing to break. FRM would recommend realigning bases and anchoring them to the floor of the lift station.

Check valve vault- ductile iron construction with minor surface corrosion. Isolation and check valves are functional. The vault has standing water, no drain was installed. Vault lid has been damaged; integral supports have been removed from lid and could pose a safety issue. FRM would recommend installing or fixing vault lid. Install a drain or sealed lid to prevent standing water in vault. Coat valves and pipe work.

Electrical panel- panel is in good working condition. Alarms were tested and functioned satisfactorily.

Pump 1- pump one's motor is in good condition. Slide rail components appear to be worn out, causing recirculation in wet well and a loss of 140 GPM. FRM would recommend replacing impeller, volute, discharge base, and pump discharge bracket.

Pump 2- Pump two's motor is in good working condition. Wear ring is missing from volute and impeller is showing signs of wear due to this. Pump discharge bracket is missing right side ear. This most likely was removed because of close tolerances of the concrete platform. FRM would recommend replacing impeller and volute. FRM would also recommend replacing pump discharge bracket and notch concrete for installation and removal of pump.

SITE NAME: **Del Rey Lift Station**

MANUFACTURER: Flygt/Tesco

WETWELL CONDITION Fair -Non Coated-Light Aggregate exposed @ top of L/S

PIPING CONDITION: Fair- Non-Coated Ductile- Non S/S bolts

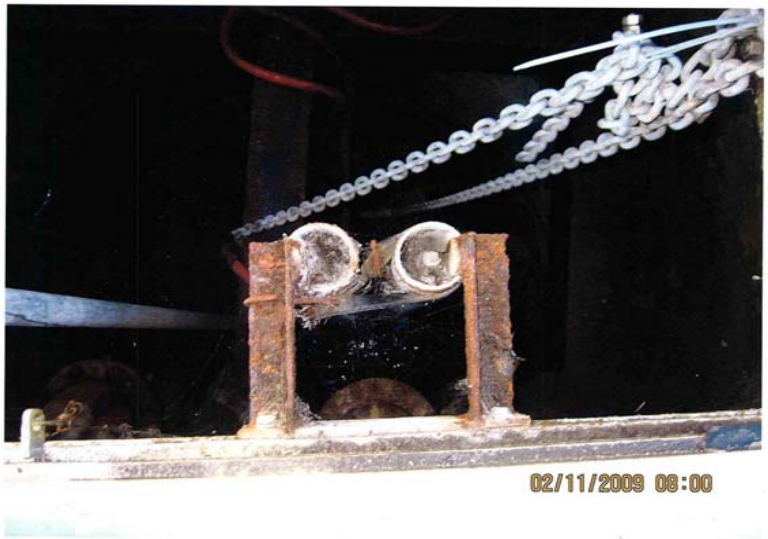
SLIDERAIL CONDITION Fair- Galv. Slide Rails and Galv. Pick Chains/ Discharge Bases Appear to be floating

	PUMP#1	PUMP#2
GPM	273gpm	416gpm
MOTOR	No Name plate	No name plate
Make:	Flyght	Flyght
Model:		
Serial#:		
HP:		
Voltage	240	240
Amperage:	100	100
Serv. Factor:		
PUMP		
Make	Flyght	Flyght
Model:		
Serial#:		
Trim:	12"	12"
Panel		
Starter Size:		
Heater#:	52amp	52amp
Alarmed:	autodialer/mission control	autodialer/mission control
L1		
FLA:	49.8	49
MegΩ	150mΩ	150mΩ
L2		
FLA:	48.6	49.6
MegΩ	150mΩ	150mΩ
L3		
FLA:	49.1	49.4
MegΩ	150mΩ	150mΩ
Hours:	**6779.7**	**6549.2**
Notes:	Slide rail assembly worn out not allowing to seat. Flange on pump showing excessive wear.	Wear on leading edge of impeller Controls OK, 200amp main


02/11/2009 07:52


02/11/2009 07:53


02/11/2009 07:53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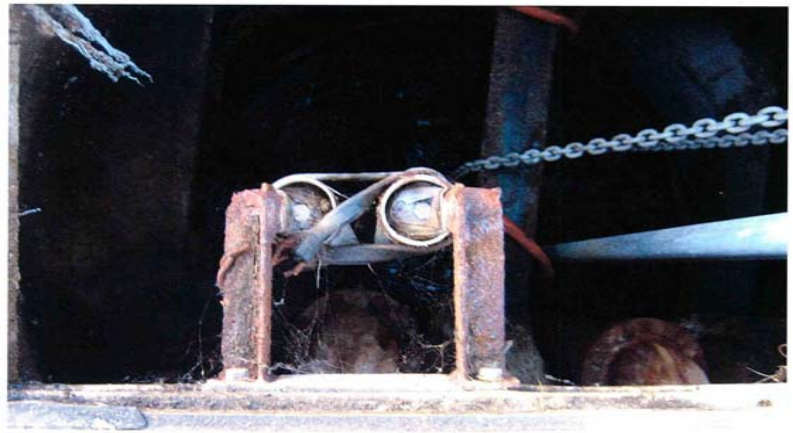
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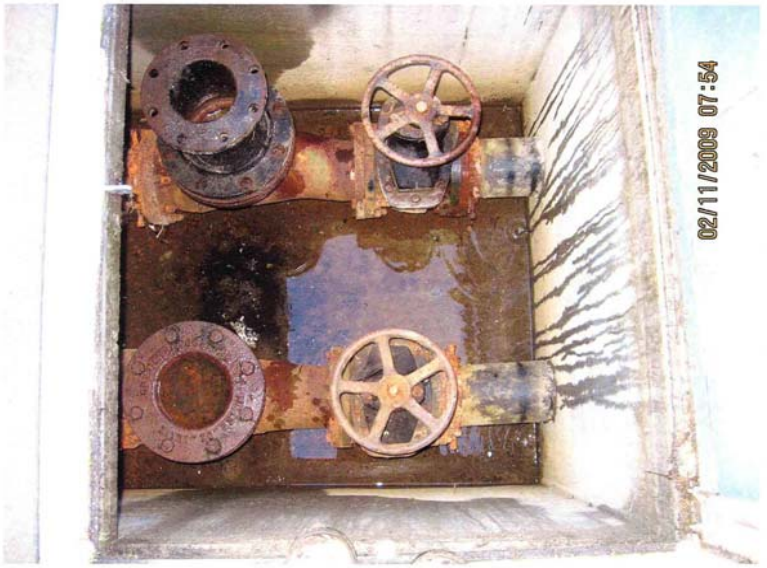

02/11/2009 07:54

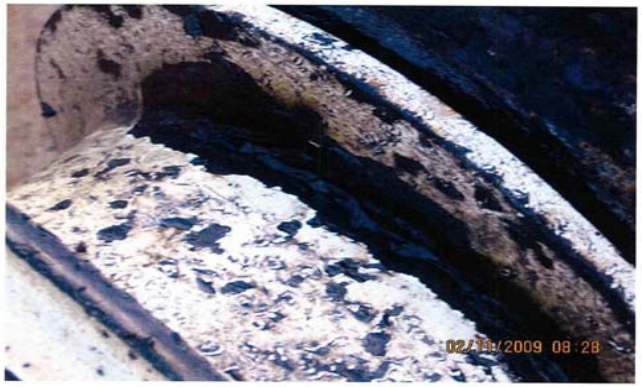

Missing Structural support SAFETEY ISSUE
02/11/2009 07:53


02/11/2009 07:55

Pump 1 volute

Pump 1

Pump 1 impellar

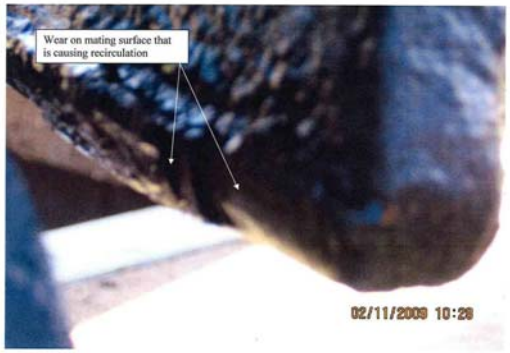


Pump 1 Volute mating flange


02/11/2009 08:35


02/11/2009 10:28

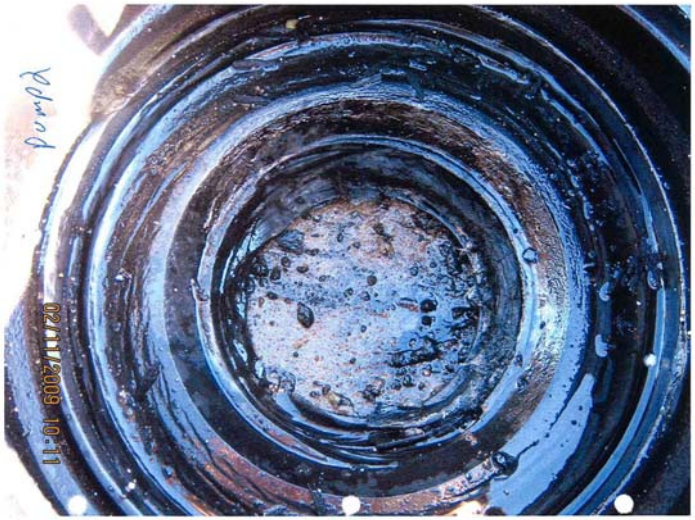

02/11/2009 08:35


Wear on mating surface that
is causing recirculation
02/11/2009 10:28

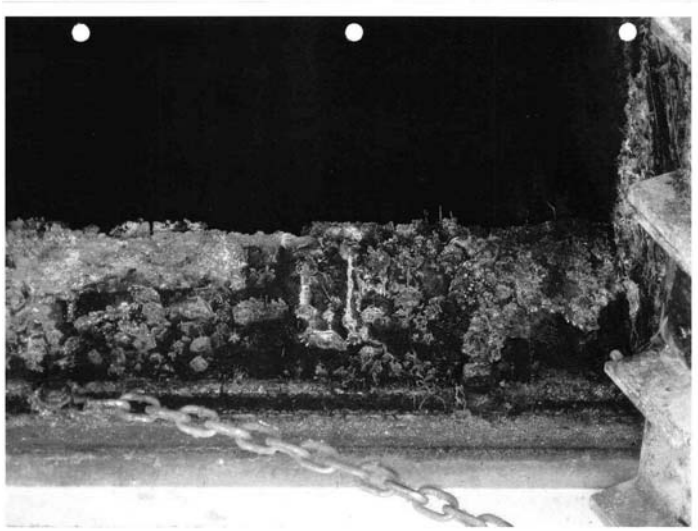
Pump 2

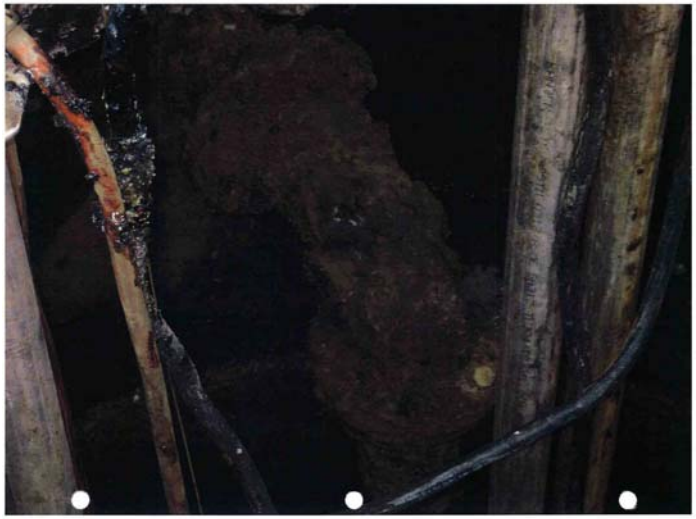

Missing Wear Ring
02/11/2009 10:10

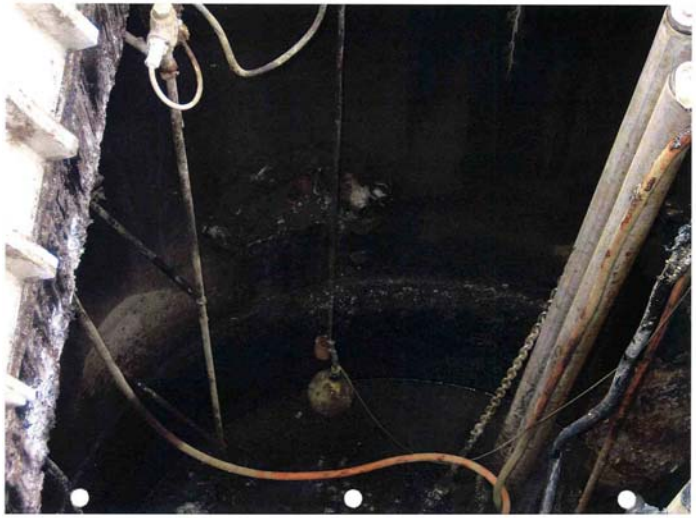

Pump 2 Impeller Wear
10 10


Pump
02/11/2009 10:11


Pump
02/11/2009 10:11







Tioga Lift Station-

The Tioga Lift Station is overall functional, there are some recommendations to increase longevity and ease repair work.

Wet well condition- Lid has aggregate showing at lid. Riser rings appear to be in satisfactory condition. FRM would recommend recoating this Lift Station in the future to prevent further deterioration of the concrete. Lift station lid is missing bolts from the hinge; FRM would recommend replacing missing bolts.

Rails and top rail bracket- Rails are stainless pipe and top rail bracket is made of stainless steel.

Lifting chains- Made of stain steel.

Piping- Made of ductile iron, bolts are stainless steel. Piping is showing signs of corrosion. FRM would recommend coating piping.

Check valve vault- ductile iron construction with minor surface corrosion. Isolation and check valves are functional. FRM would recommend coating valves and pipe work.

Electrical panel- panel is in good working condition. Alarms were tested and functioned satisfactorily.

Pump 1- Pump is waiting approval to be replaced due to faulty motor.

Pump 2- Pump two's motor is in good working condition. Pump is in satisfactory condition.

SITE NAME: **Tioga Lift Staion**

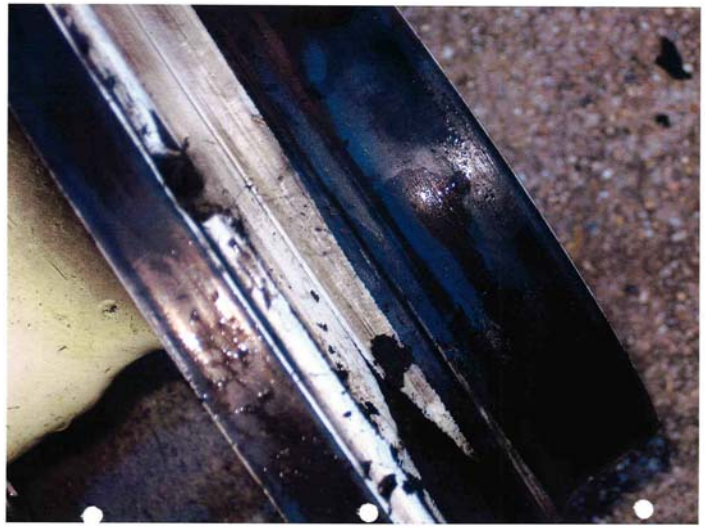
MANUFACTURER: Flygt

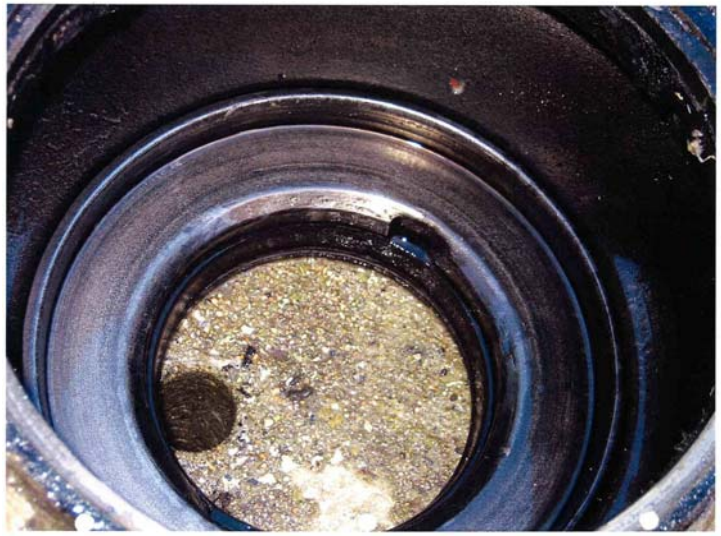
WETWELL CONDITION O.K.-Coating is peealingoff

PIPING CONDITION: Poor-Rusted needs coating/replacement

SLIDERAIL CONDITION Good- S/S rails- S/S pick chains

	PUMP#1	PUMP#2
GPM	0	18.7 gpm
MOTOR	No Name plate	
Make:	Flyght	Flyght
Model:		3085.092-0830033
Serial#:		
HP:		3
Voltage		460/230
Amperage:		4.3/8.7
Serv. Factor:		1.15
PUMP		
Make		
Model:		
Serial#:		
Trim:		
Panel		
Starter Size:		1
Heater#:		FH41
Alarmed:		No
L1		
FLA:	0	6.5
MegΩ	.3kΩ	125mΩ
L2		
FLA:	0	6.54
MegΩ	.3kΩ	125mΩ
L3		
FLA:	0	6.56
MegΩ	.3kΩ	125mΩ
Hours:	N/A	N/A
Notes:	Pump out of Service	Lid has hinge problems (Lid no longer attached) Extremely low flow L/S





Del Monte Lift Station-

The Del Monte Lift Station is overall functional, there are some recommendations to increase longevity and ease repair work.

Wet well condition- Wet well condition appears to have light aggregate showing. FRM would recommend coating lift station.

Dry well condition- Exterior of dry well has corrosion. FRM recommends coating exterior of wet well.

Piping- Made of ductile iron/ weldable steel. Piping is in good working condition.

Check valves and valves- Check valves are in satisfactory condition. Discharge valves are in satisfactory condition. Suction valves on pumps one and three are in good working condition. Suction valve on pump 2 has obstruction and cannot be closed. FRM recommends clearing obstruction and testing valve for proper operation.

Electrical panel- panel is in good working condition. Alarms were tested and functioned satisfactorily.

Pump 1- Motor on pump one is in good working condition. Impeller and wear surfaces are in satisfactory condition.

Pump 2- Motor on pump two is in good working condition. Impeller could not be inspected due to obstructed suction valve. Pump 2 is producing 160 GPM less than other pumps. Loss of flow is most likely due to obstruction in suction valve. FRM would recommend clearing obstruction and retesting.

Pump 3- motor on pump three is in good working condition. Impeller and wear surfaces are in satisfactory condition.

SITE NAME: **Del Monte Lift Station**

MANUFACTURER: Smith & Loveless

WETWELL CONDITION O.K. not coated
DRYWELL CONDITION Excellent- well maintained
PIPING CONDITION: Good

Pump Rating: 1200gpm @ 27.5TDH

SLIDERAIL CONDITION N/A

PUMP#1		PUMP#2		PUMP#3	
GPM	614gpm	**GPM**	462gpm	**GPM**	630gpm
MOTOR		**MOTOR**		**MOTOR**	
Make:	S&L	Make:	S&L	Make:	S&L
Model:	875082c-3	Model:	875082c-2	Model:	875082c-1
Serial#:	0150E-1HAN-001	Serial#:	0150E-1HAN-001	Serial#:	0150E-1HAN-001
HP:	15	HP:	15	HP:	15
Voltage	230/460	Voltage	230/460	Voltage	230/460
Amperage:	37.6/18.8	Amperage:	37.6/18.8	Amperage:	37.6/18.8
Serv. Factor:	1.15	Serv. Factor:	1.15	Serv. Factor:	1.15
PUMP		**PUMP**		**PUMP**	
Make	S&L	Make	S&L	Make	S&L
Model:		Model:		Model:	
Serial#:	870829	Serial#:	870827	Serial#:	870828
Trim:		Trim:		Trim:	
Panel		**Panel**		**Panel**	
Starter Size:	2	Starter Size:	2	Starter Size:	2
Heater#:	FH55	Heater#:	FH55	Heater#:	FH55
Alarmed:		Alarmed:		Alarmed:	
L1		**L1**		**L1**	
FLA:	28.3	FLA:	26.4	FLA:	30.1
MegΩ	150mΩ	MegΩ	150mΩ	MegΩ	150mΩ
L2		**L2**		**L2**	
FLA:	26.4	FLA:	26.2	FLA:	29.7
MegΩ	150mΩ	MegΩ	150mΩ	MegΩ	150mΩ
L3		**L3**		**L3**	
FLA:	26.1	FLA:	26.1	FLA:	27.5
MegΩ	150mΩ	MegΩ	150mΩ	MegΩ	150mΩ
Hours:	9012	**Hours:**	9784	**Hours:**	9243
Notes:		Notes:	Appears to be an obstruction in suction line	Notes:	


EMERGENCY POWER INSTRUCTIONS


LANDIS & GYR
CL 200
240 V
FORM
TYPE MT-15S
TWO STATOR WATTHOUR ME
29 406 1
PGE
34769

Pump 1

Pump 3


SEAL FILTERS
CLEANED

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Appendix B

Lift Station Pump Curves

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Del Monte Lift Station

PUMP STATION ENGINEERING ORDER
CUSTOM SERIES

LOCATION Seaside, California — STATION SERIAL NO. 10-7157-U
OWNER Seaside County Sanitation District — ENGINEER Creegan D'Angelo

1. Station Size Custom (Dia.) 10'-6" Height 8'-6" Sump Pump Part No. 8L1
2. Suction Piping (P.E.) (Stl.) Pump 1 10" Pump 2 10" Pump 3 10" Pump 4 _____
3. Suction (Plug) Valve Pump 1 10" Pump 2 10" Pump 3 10" Pump 4 _____
4. Pump Discharge (Plug) Valve Pump 1 10" Pump 2 10" Pump 3 10" Pump 4 _____
5. Common Discharge Outlet (P.E.) (Stl.) Size 12"
6. Entrance Tube 36" Dia. x 11'-6" Long
7. Main Conduit Size 2" Aux. Conduit (2) 1/2" (Describe) Alarm Blower Part No. 7L277
8. Electrical Service System Data: 3 Phase 60 Cycle 230 Volts 3 Wire
9. 110V Single Phase Current (not) available 2 KVA Trans. Req'd 230 V to 120 VAC
10. Depth of Bury Ground Elevation to Base Pad _____' - _____" Base Reinforcing Package (No).

PUMP & MOTOR DATA

PUMP DATA	PUMP 1	PUMP 2	PUMP 3	PUMP 4
Design Characteristics (GPM @ TDH)	1200 @ 27.5	1200 @ 27.5	1200 @ 27.5	
Pump Model	6C3	6C3	6C3	
Impeller Diameter	10-3/4"	10-3/4"	10-3/4"	
Rotation (CW) (CCW)	CW	CW	CCW	
S&L Mech. Seal-Filter Ass'y (Size)	2-1/8"	2-1/8"	2-1/8"	
Pump Serial Number				
MOTOR DATA (INVENTORY CODE)				
Horsepower	15	15	15	
R.P.M.	1170	1170	1170	
Phase/Cycle/Volts	3/60/230	3/60/230	3/60/230	
Motor Serial No. (Code Ltr.)				
Squirrel Cage (SC) or Wound Rotor (WR)	SC	SC	SC	
Special Modifications				
Across-The-Line (AL) or Part Winding (PW) Start	AL	AL	AL	

CONTROL PANEL DATA TYPE NEMA 1 — WIRING DIAGRAM NO. C10-7157-30

MOTOR CONTROL EQUIPMENT

		PUMP 1	PUMP 2	PUMP 3	PUMP 4
Circuit Breaker - Trip Rating - Amps	70	4L202L	4L202L		
Magnetic Starter - Nema Size	2	4L330CC	4L330CC		
O.L. Coil No. FH					

AUXILIARY CIRCUIT BREAKERS	LIGHTS	BLOWER DEHUMIDIFIER	SUMP PUMP	AIR COMPRESSORS & CONTROL	TRANSFOMER
Trip Rating-Amps	15	20	15	15	

S&L BUBBLER CONTROL SYSTEM PRESSURE SWITCH SETTINGS	LOW LEVEL	LEVEL	STANDBY	LOW WATER ALARM	HI WATER ALARM
P. S. S&L Part No.	4L200	4L200	4L200	4L200	4L200
High Level Actuation (Feet)	4.0	4.5	5.0	2.5	6.0
Low Level Actuation (Feet)	2.0	2.5	3.0	1.5	5.0

OTHER CONTROL & AUXILIARY APPARATUS:

(The following equipment is standard equipment on all Smith & Loveless Pump Stations. It is listed here for the engineers and customers information only. Any deviations shall be listed in space provided below).

Automatic Alternator
Air Compressors
S&L Air Flow Indicator
Nema 3 Wire 1 Phase Duplex Receptacle
S&L Damtite Seal (Spare)
Dehumidifier
Plastic "Level-Set" Indicator Tube
Magnesium Anodes (2 provided)
Spare Volute Gaskets
Spare Pump Filter Cone
Touch-Up Kit (Paint-Brushes)
Blower Timer

SPECIAL MODIFICATIONS - ADDITIONS - AUXILIARY EQUIPMENT

1. Running time meters (1) each pump.
2. Duplex stored air system with purge valve.
3. Time delay relays.
4. Unauthorized entry.
5. Power failure.
6. Normally open auxiliary contacts on starters for telemetering.
7. Extended base beams total 12'-6".
8. 1/4" tapped & plugged gauge connection in pump suction.
9. 3-1/2" dia. discharge pressure gauges w/tee handle & second gauge cock & diaphragm for gauge, 0-30 PSI.

SALES ENGINEERING
PREPARED BY DATE
B. Johnson 3-2-87

Maintenance Manual Qty.
Rep 1
Job File 0
Contractor 5

COMPANION JOB SERIAL NOS.
NONE

SPECIAL MATERIAL

Location Seaside, California Station No. 10-7157-U

10. Green pump running lights (1) each pump.

11. High and low wet well level alarm sensors, each unit with red panel mounted light.

12. Alarms to have remote and local relays with one normally open contact for common alarm signal for telemetering system.

13. Common alarm silence push button on panel.

14. Cast iron suction elbows with 3" clean out plugs.

15. Eight (8) 17# anodes with test box (9) position switch.

16. Space for telemetering system to be mounted in station, with C.B. in panel.

17. Spare parts:
    (3) pump seals
    (3) pump seal filter elements
    (3) volute gaskets

18. California Electrical Code.

19. Low level alarm to be also redundant pumps off.

20. Provide 1" dia. plain end 4" long pipe extension for bubbler line connection suitable for PVC connection.

PUMP DATA AND TEST PERFORMANCE

Job No. 10-7157-H Location: - Seaside, Ca. Tested By: CR Date: 28 Sept 87 Approved By:

Pump Model: 6 C 3 GPM: 1200 TDH: 27.5' Other:

	Pump Serial Numbers	Motor Serial Numbers	Manufacturer	HP	RPM	Phase	Cycle	Voltage	Amperage
CW	870829	875082C-3	Reuland	15	1200	3	60	230/460	37.6/18.8
W	" 827	875082C-2	"	"	"	"	"	"	"
W	" 828	875082C-1	"	"	"	"	"	"	"

PUMP NO. & ROTATION	#1 - CCW									
GPM	0	1200	1500	0	1200	1500	0	1200	1500	
DISCHARGE HEAD H_2O'	27.6 / ~~52.4~~	14.5/33.5	10.4/24.0	27.5/63.5	15.1/34.8	11.2/25.9	27.5/63.8	15.0/34.7	10.5/24.3	
SUCTION HEAD H_2O' or SUCTION LIFT H_2O'	- 9.8	- 2.3	- /	-4.2/9.7	-1.5/3.5	-	3.8/8.8	-1.0 2.3	- /	-
	+ /	+ /	0.6	+ /	+ /	+1.0/1.13	+ /	+ /	2.3	+
RESULT IN H_2O'	~~52.6~~ 51.9	31.2	24.6	53.6	31.3	27.0	55.0	32.4	26.6	
VELOCITY HEAD ← .5 x 6 ←	see Q25389	-.3	-.318	0	-.3	-.318	0	-.3	-.318	
TDH H_2O'	~~52.6~~ 51.9	30.9	24.2	53.6	~~31.0~~	26.6	55.0	32.1	26.2	
RPM										
AMPERAGE A	18.2	28.7	28.9	20.3	31.1	31.4	19.8	30.0	30.2	
Phase B	18.6	29.4	29.8	17.7	28.6	29.0	20.3	30.1	30.4	
READINGS C	19.6	30.0	30.4	19.0	29.7	30.3	18.3	28.6	29.2	
VOLTAGE (AVG.)	←	236.4	→	←	229.6	→	←	237.4	→	
POWER FACTOR	71.3	84.7	85.0	70.9	84.3	84.6	70.2	82.4	82.5	
INDICATED KW	5.5	10.1	10.3	5.3	10.1	10.3	5.6	10.1	10.3	
BHP	6.2	11.32	11.56	6.2	11.32	11.56	6.31	11.32	11.56	
EFF										

VIBRATION ANALYSIS: Piping Assembly _____ Base Weld Assembly _____ Vibration Package - Yes ___ No ___

Resonant Frequency	PUMP NO. (CCW) VOLTS	137.1/136.3/136.6	VOLTS 137.3/132.5/132.5	VOLTS (CCW) 137.1/136.6/136.7	
	with flow				
	90° to flow				
AMPLITUDE FILTER OUT W/FLOW					
AMPLITUDE FILTER OUT 90° TO FLOW					

Test Facility — Bay 1 — Bay 7 — Other (Describe)

___ North Pump Station
___ South Pump Station
___ North Wet Well Pump Station
___ South Wet Well Pump Station
___ 10" Meter, Small Console
___ 10" Meter, Large Console
___ 14" Meter, Small Console
___ 14" Meter, Large Console

IMPELLER INSPECTIONS AND PUMP CLEARANCE

	CCW	CW	CW	
Diameter (measure)	10 3/4	10 3/4"	10 3/4	
Adapter to Impeller Eye	7.328	7.324	7.332	
Top of Volute to Suction Eye	7.388	7.379	7.382	
Clearance or Interference	+.060	+.055	+.050	
Gasket used (.012, .026, .055")	.012	.012	.012	
Pump Clearance (.015" to .035")	.072	.067	.062	

✓ Correct pump assembly
✓ Front head alignment
✓ Volute and all castings OK
✓ Impeller (measure & inspect)
✓ Motor (record data & Inspect)

Suction Eye Dia. (measure) 5 1/8

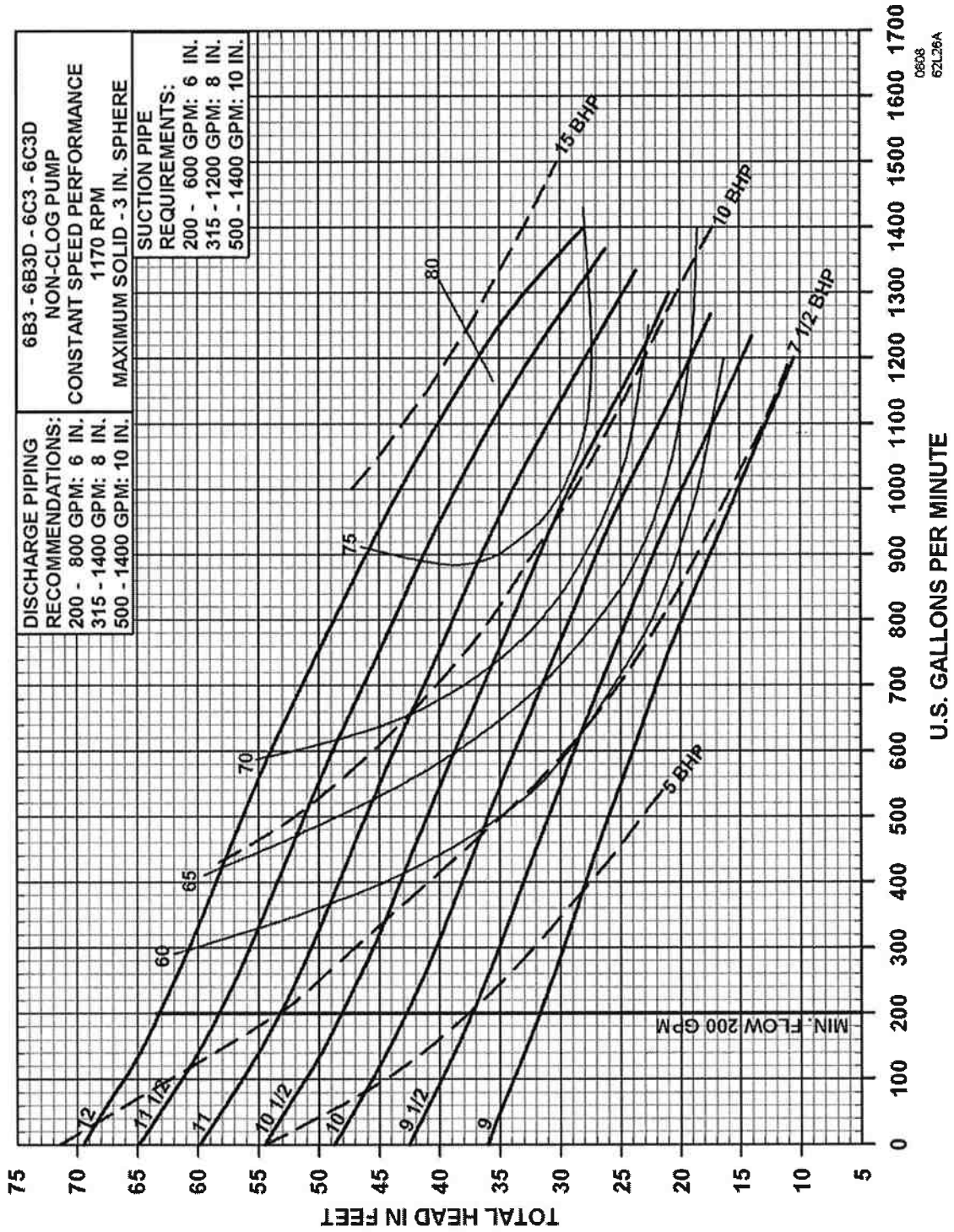
Form No. 04-07-118

ENGINEERING DATA

Smith &
Loveless, Inc.®

14040 West Santa Fe Trail Drive
Lenexa, Kansas 66215-1284

Pump Performance Curves
Constant Speed
Non-Clog Pump
6B3 - 6B3D - 6C3 - 6C3D
1170 RPM
March, 2009



Rosita Lift Station

PERFORMANCE CURVE

PRODUCT	NP3153.091	TYPE	HT
DATE	2009-07-16	PROJECT	
CURVE NO	63-465-00-3050	ISSUE	5

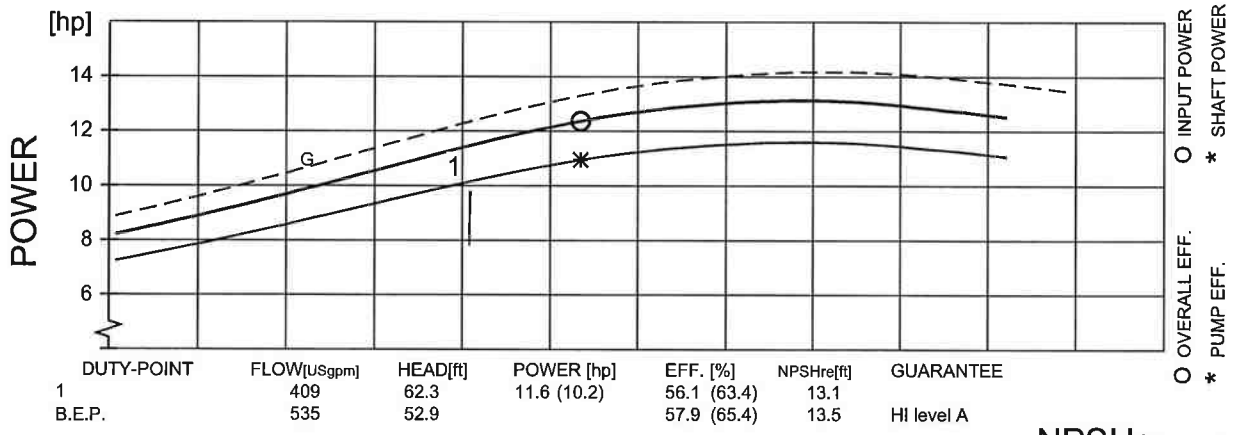
	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.83	0.77	0.66
EFFICIENCY	87.5 %	89.0 %	89.0 %
MOTOR DATA	—	—	—

RATED POWER	20	hp
STARTING CURRENT ...	148	A
RATED CURRENT ...	26	A
RATED SPEED	1755	rpm
TOT.MOM.OF INERTIA ...	0.091	kgm2
NO. OF BLADES	2	

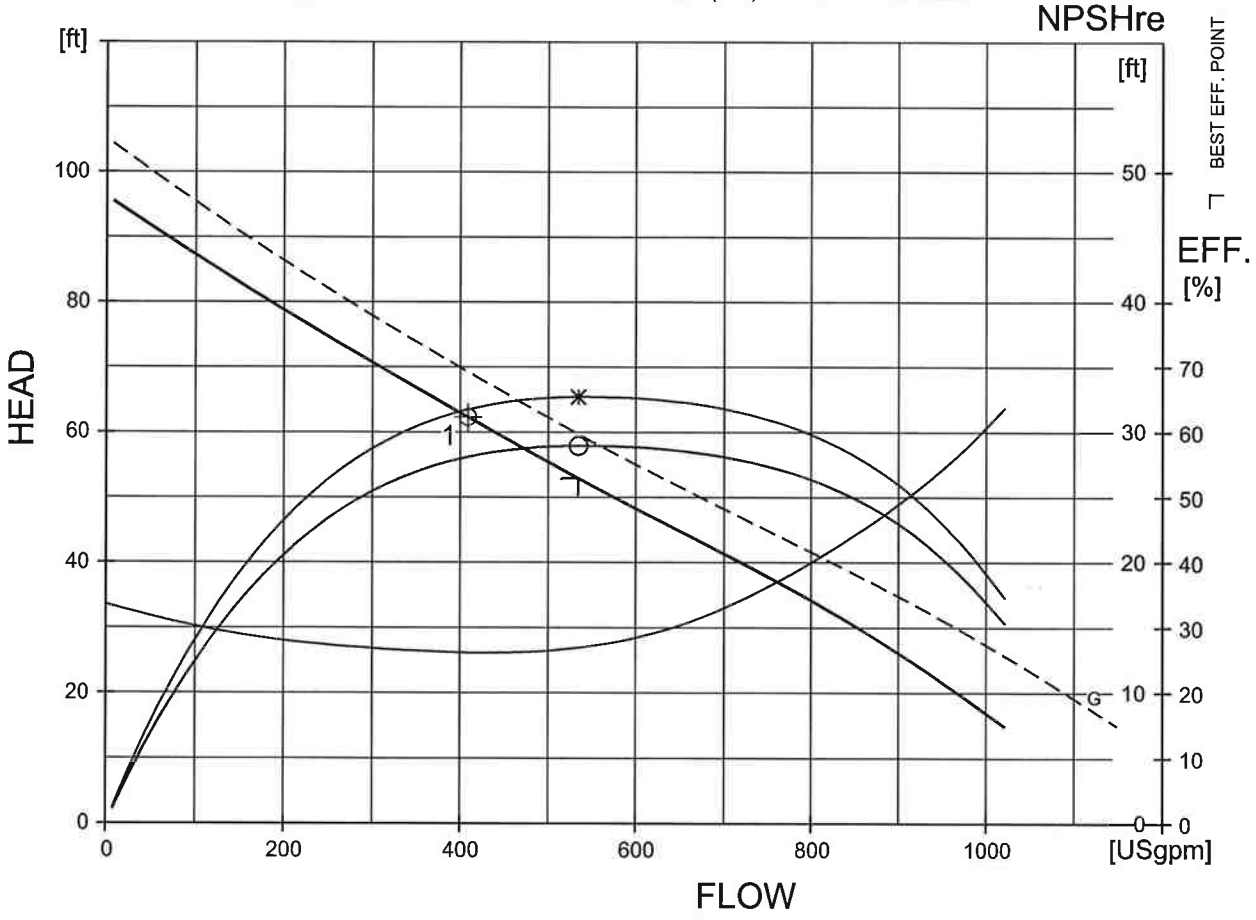
IMPELLER DIAMETER	239 mm
MOTOR #	21-18-4AA
STATOR	05YSER
REV	12
FREQ.	60 Hz
PHASES	3
VOLTAGE	460 V
POLES	4
GEARTYPE	---
RATIO	---

COMMENTS

INLET/OUTLET	-/ 4 inch
IMP. THROUGHLET	---



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]	GUARANTEE
1	409	62.3	11.6 (10.2)	56.1 (63.4)	13.1	
B.E.P.	535	52.9		57.9 (65.4)	13.5	HI level A



FLYPS3.1.6.3 (20060531)

NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

GUARANTEE BETWEEN LIMITS (G) ACC. TO

HI level A

Military LiftStation

PERFORMANCE CURVE

PRODUCT	TYPE
NP3102.181	MT

DATE	PROJECT	CURVE NO	ISSUE
2009-07-21		63-463-00-3703	6

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.81	0.75	0.64
EFFICIENCY	85.0 %	85.5 %	84.0 %
MOTOR DATA	---	---	---

RATED POWER	5	hp
STARTING CURRENT ...	41	A
RATED CURRENT ...	6.7	A
RATED SPEED	1745	rpm
TOT.MOM.OF INERTIA ...	0.027	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 172 mm

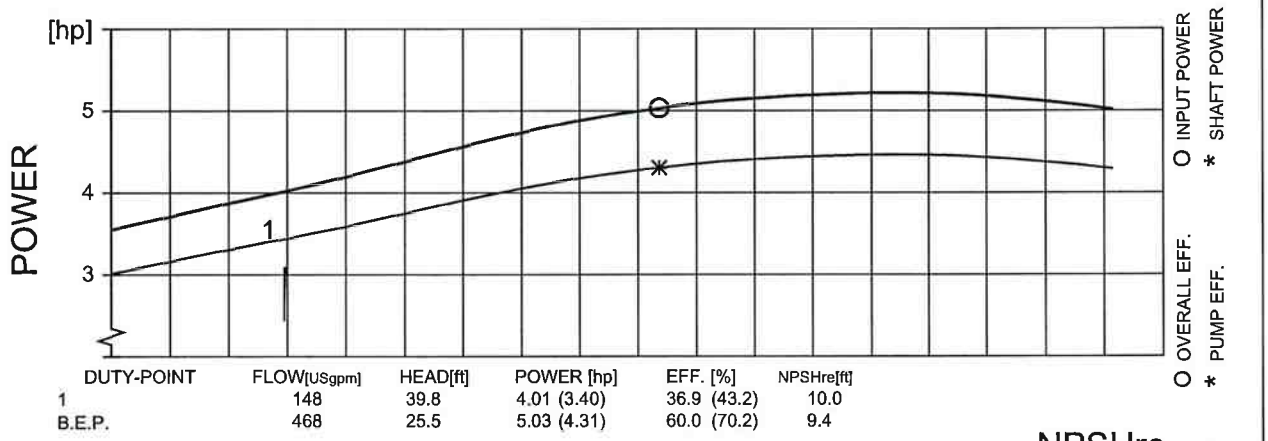
MOTOR #	STATOR	REV
18-11-4AL	61D	10

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	4

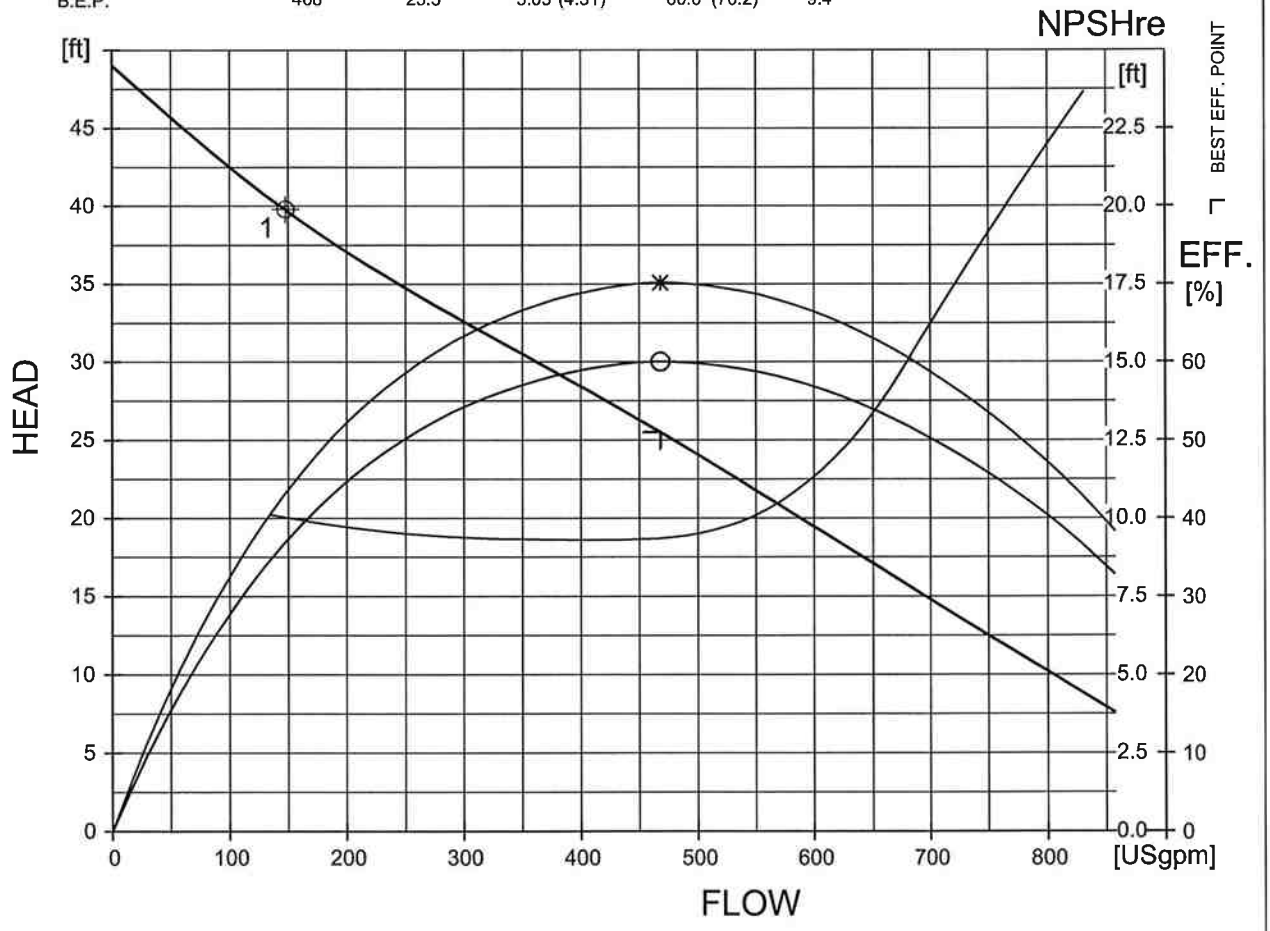
GEARTYPE	RATIO
---	---

COMMENTS

INLET/OUTLET	IMP. THROUGHLET
-/ 4 inch	---



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]
1	148	39.8	4.01 (3.40)	36.9 (43.2)	10.0
B.E.P.	468	25.5	5.03 (4.31)	60.0 (70.2)	9.4



NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

FLYGT HI B Curve

FLYPS3.1.6.3 (20060531)

Tioga Lift Station

PERFORMANCE CURVE

PRODUCT: CP3085.092	TYPE: MT		
DATE: 2009-07-16	PROJECT:	CURVE NO: 63-438-00-3803	ISSUE: 2

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.81	0.74	0.62
EFFICIENCY	77.5 %	78.0 %	76.0 %
MOTOR DATA	---	---	---

RATED POWER	3	hp
STARTING CURRENT ...	25	A
RATED CURRENT ...	4.5	A
RATED SPEED	1705	rpm
TOT.MOM.OF INERTIA ...	0.022	kgm2
NO. OF BLADES	1	

IMPELLER DIAMETER: 148 mm

MOTOR #	STATOR	REV
15-10-4AL	61D	10

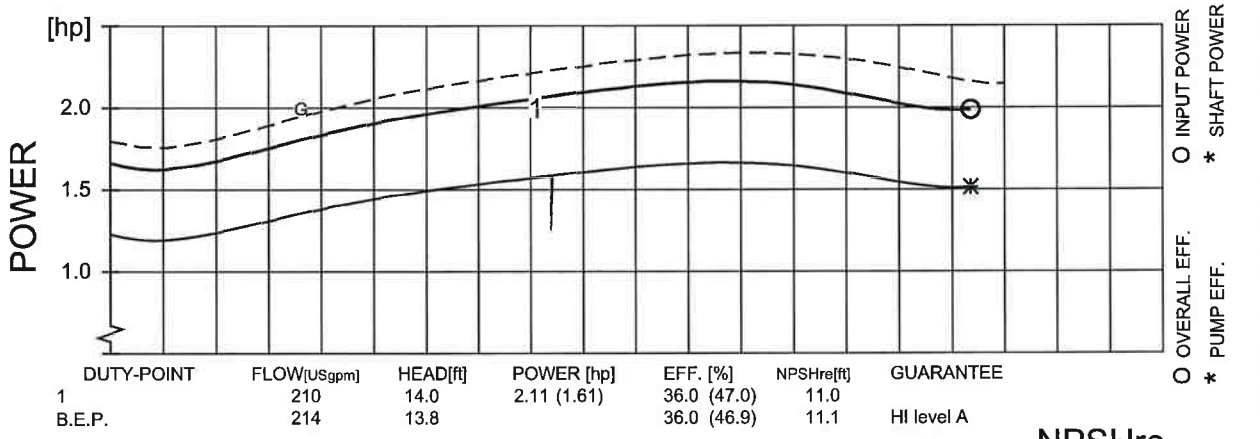
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	4

GEARTYPE: --- RATIO: ---

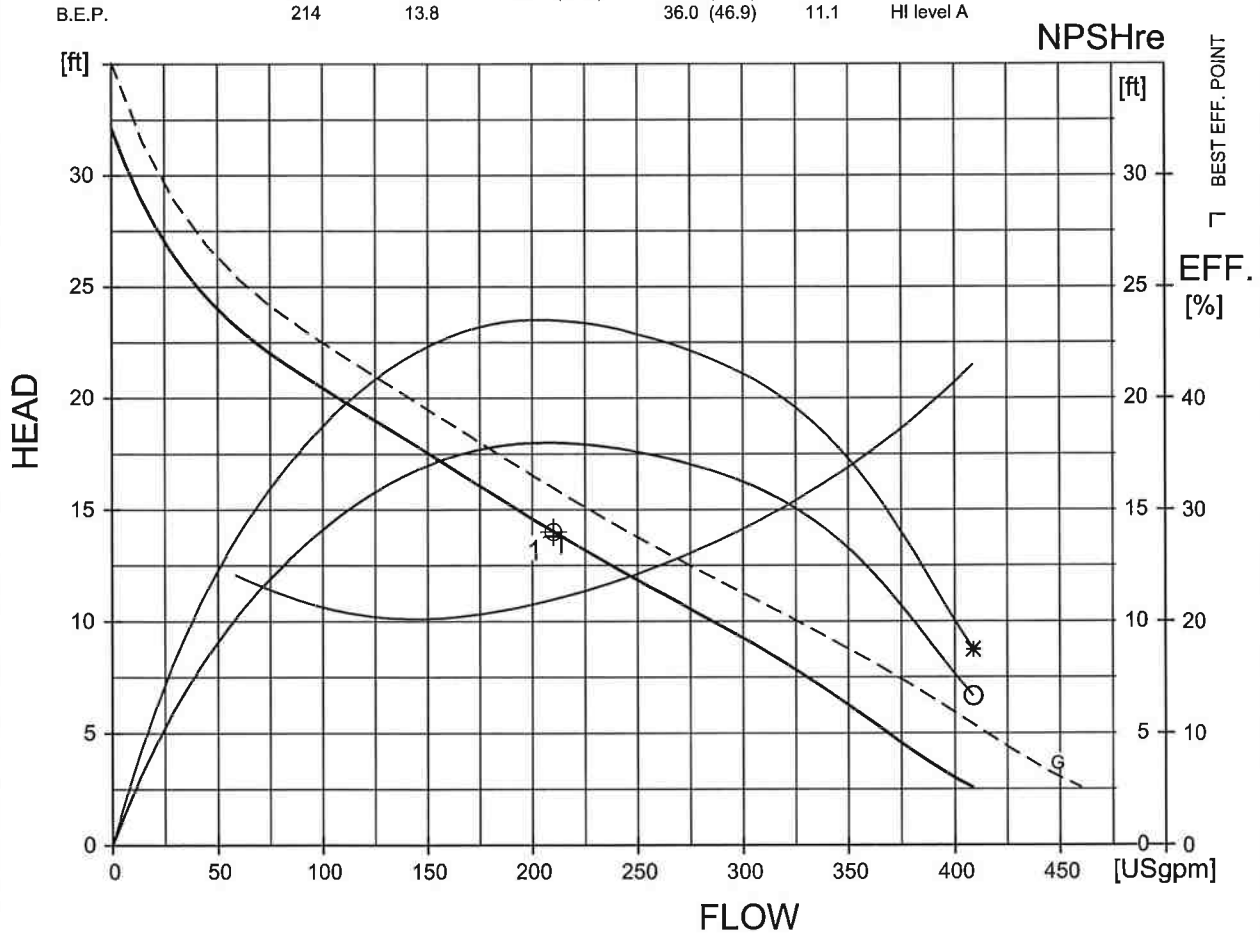
COMMENTS

INLET/OUTLET: - / 3.0 inch

IMP. THROUGHLET: 2.5 inch



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]	GUARANTEE
1	210	14.0	2.11 (1.61)	36.0 (47.0)	11.0	
B.E.P.	214	13.8		36.0 (46.9)	11.1	HI level A



NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

GUARANTEE BETWEEN LIMITS (G) ACC. TO: HI level A

FLYPS3.1.6.3 (20060531)

Private Lift Station on La Salle

LOCATION Seaside, CA STATION SERIAL NO. 15-3669-G

OWNER Granite Construction ENGINEER Whitson Engineers

WET WELL MOUNTED PUMP STATION
TECHNICAL ENGINEERING ORDER

X Two Pump Station
X Standard Top of Wet Well
_____ Three Pump Station
_____ Recessed

Suction Pipe Size 4" Discharge Valve Size 4"

Common Discharge Pipe Size 4" Station Piping Type X

Model S _____ Below Base _____

Type Pumps 4B2B Wet Well Inside Diameter 4'-0"

ELECTRICAL SERVICE DATA

1 Phase 60 Hertz 230 Volts _____ Wire _____ KVA Transformer Required

PRODUCT OPTIONS

_____ Vapor Proof Red Light - 12 VDC
_____ Vapor Proof Red Light - 120 VAC
_____ Weather Proof Horn - 12 VDC
_____ Weather Proof Horn - 120 VAC
_____ Horn & Red Light - 12 VAC
_____ Horn & Red Light - 120 VAC
_____ Weather Proof Bell - 120 VAC
_____ Bell & Red Light - 120 VAC

_____ Spare Check Valve
_____ Spare Vacuum Pump
_____ Auxiliary Heater (4L84)
_____ Tool Kit
_____ Grease Gun
_____ Trouble (Drop) Light - 120 VAC
_____ Trickle Charger - 12 VDC
_____ W. P. Alarm Silence Switch
_____ Manual Reset
*_____ Automatic Reset

X Standard Hood _____ Insulated Hood _____ W. W. Ventilator

_____ Discharge Pressure Gauge _____ Common _____ Each Pump _____ Scale

_____ Standard _____ Sealed _____ Suction Pressure Gauge _____ Scale

X Float Switch Control _____ Bubbler System Control

RECESSED WET WELL MOUNTED PUMP STATIONS ONLY

_____ Lifting Stantion ____ W. W. Screening Basket

_____ Manway Ladder _____ Standard

_____ Direct Air
_____ Stored Air (One A.C.)
_____ Stored Air (Two A.C.)
_____ W.W. Simulating Valve

*Rotated _____ Degrees

*Special Modification

SALES ENGINEERING

PREPARED BY DATE

Chuck Miller 4-5-88

Maintenance Manual Qty.

Rep 1
Job File _____
Contractor 5

COMPANION JOB SERIAL NOS.

S/N 15-3669-G

PUMP AND MOTOR DATA

PUMP DATA	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
Design Characteristics (GPM @ TDH)	75 @ 23'	75 @ 23'	
Pump Model	4B2B	4B2B	
Impeller	7-1/2"	7-1/2"	
Rotation	CCW	CW	
Mechanical Seal Assy (Size)	1-7/8"	1-7/8"	
Static Suction Lift	18'	18'	
Pump Serial Number			
Motor Horsepower	1-1/2	1-1/2	
R.P.M.	1170	1170	
Pump Motor Serial Number			

FLOAT SWITCH CONTROL

FLOAT SWITCH SETTINGS	PUMPS OFF	LOW LEVEL	HIGH LEVEL	HIGH H20 ALARM	ALARM
S&L Part Number	4L291A	4L291A	4L291A	4L291A	
Cut-In (On) Feet		3.5	4.0	4.5	
Cut-Out (Off) Feet	1.5				

BUBBLER SYSTEM CONTROL N/A

PRESSURE SWITCH SETTINGS	PUMPS OFF	LOW LEVEL	HIGH LEVEL	ALARM	ALARM
S&L Part Number					
High Level Actuation (Feet) (Elevation)					
Low Level Actuation (Feet) (Elevation)					

ELECTRICAL CONTROL PANEL DATA

ELECTRICAL DATA		PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
Pump Motor Horsepower		1-1/2	1-1/2	
Pump Motor R.P.M.		1170	1170	
Phase/Hertz/Volts		3/60/230	3/60/230	
Pump Motor Circuit Breaker - Trip Amps	15	4L202B	4L202B	
Pump Motor Starter - Size Mfg.	0	4L330AA	4L330AA	
Overload Coil - Quantity				

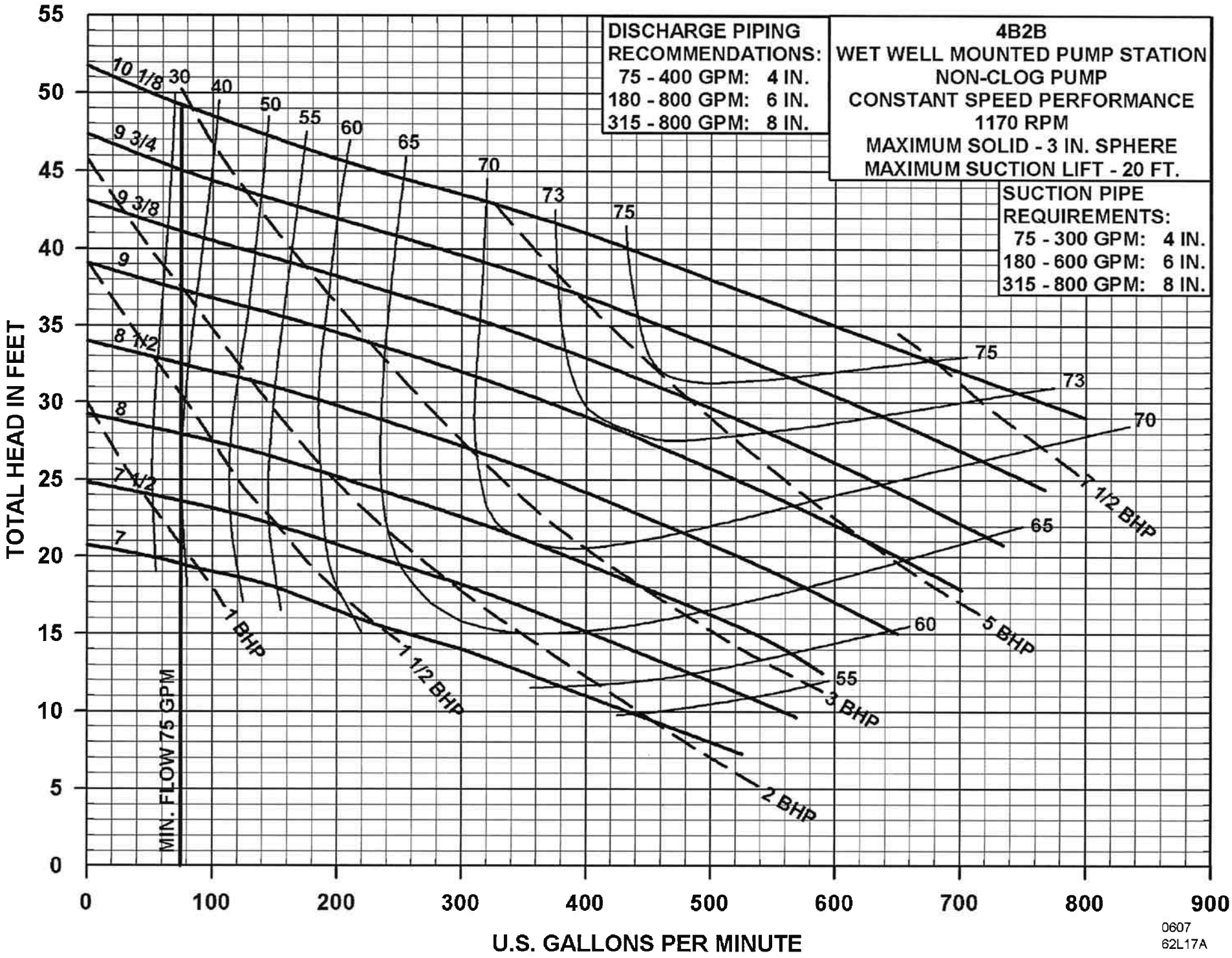
X Std. NEMA 1 Panel _____ U.L.Panel Wiring Diagram C15-3669-30

_____ Lighting Arrestor
X Main Disconnect Switch Calif. Code
_____ Auto-Base 1 Base 2 Operator
_____ Running Time Meters (2)
X Intrinsically Safe Float Switches
_____ Pump Failure Alarm Relays
_____ Test Light & Procedure
X Time Delay Relay To Prevent Simultaneous Starting of Pumps
_____ Panel Mounted Alarm Silence Switch _____ Manual _____ Auto Reset *
_____ Operator Assist Alarm Senser

_____ Surge Capacitor
_____ Transformer Circuit Breaker
_____ Pump Running Lights
_____ Running Time Meters Totalizing (3)
_____ Generator Interlock Relay
_____ Prime Failure Alarm Relays
_____ W. W. Ventilator Switch

* Special Modification - 1) Provide for add-a-phase by others.

87L60 N85-96


DISCHARGE PIPING
RECOMMENDATIONS:
75 - 400 GPM: 4 IN.
180 - 800 GPM: 6 IN.
315 - 800 GPM: 8 IN.
4B2B
WET WELL MOUNTED PUMP STATION
NON-CLOG PUMP
CONSTANT SPEED PERFORMANCE
1170 RPM
MAXIMUM SOLID - 3 IN. SPHERE
MAXIMUM SUCTION LIFT - 20 FT.
SUCTION PIPE
REQUIREMENTS:
75 - 300 GPM: 4 IN.
180 - 600 GPM: 6 IN.
315 - 800 GPM: 8 IN.
TOTAL HEAD IN FEET
U.S. GALLONS PER MINUTE
MIN. FLOW 75 GPM
10 1/8
9 3/4
9 3/8
9
8 1/2
8
7 1/2
7
30
40
50
55
60
65
70
73
75
1 BHP
1 1/2 BHP
2 BHP
3 BHP
5 BHP
7 1/2 BHP
0607
62L17A

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Appendix C

2010 Sewer Model Calibration and Backup Results Data

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APPENDIX C

SEWER MODEL CALIBRATION AND BACKUP RESULTS DATA

SEWER MODEL FLOW ALLOCATION

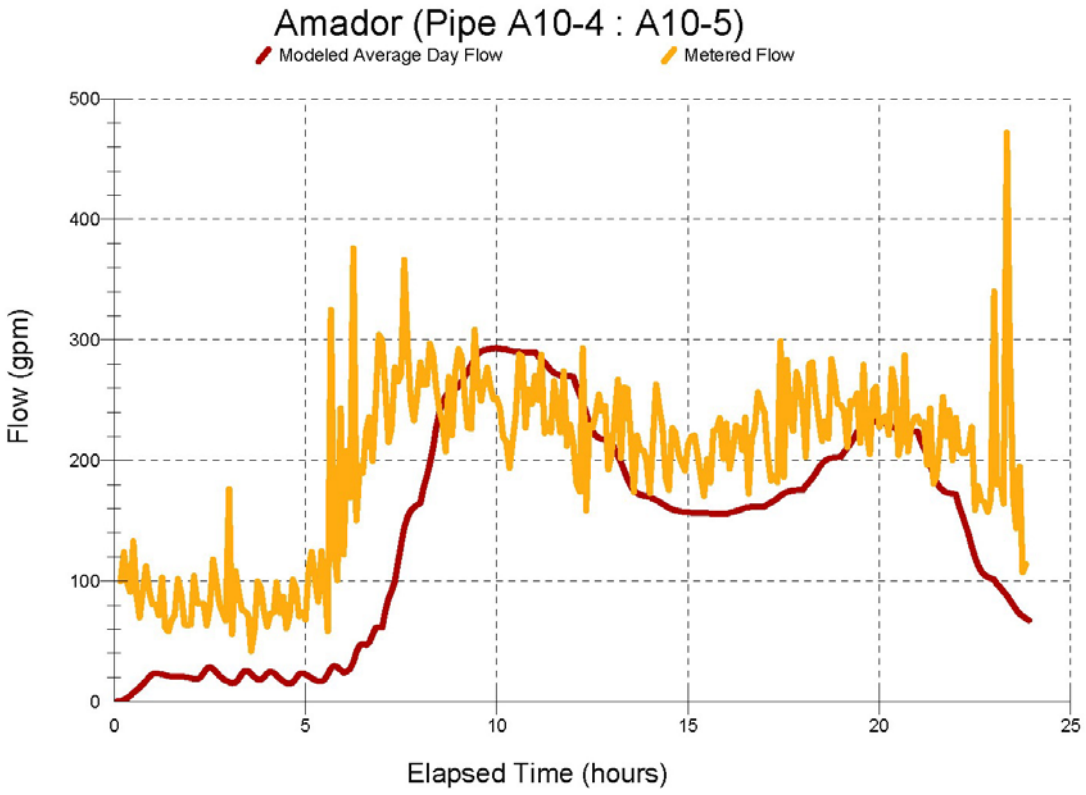
Figures C-1 and C-2 included at the end of this Appendix depict where sewer model flows were allocated within the hydraulic model. Figure C-1 illustrates the tributary flow basins utilized to assign flows to individual manholes. Figure C-2 illustrates where future flows were input to the existing system.

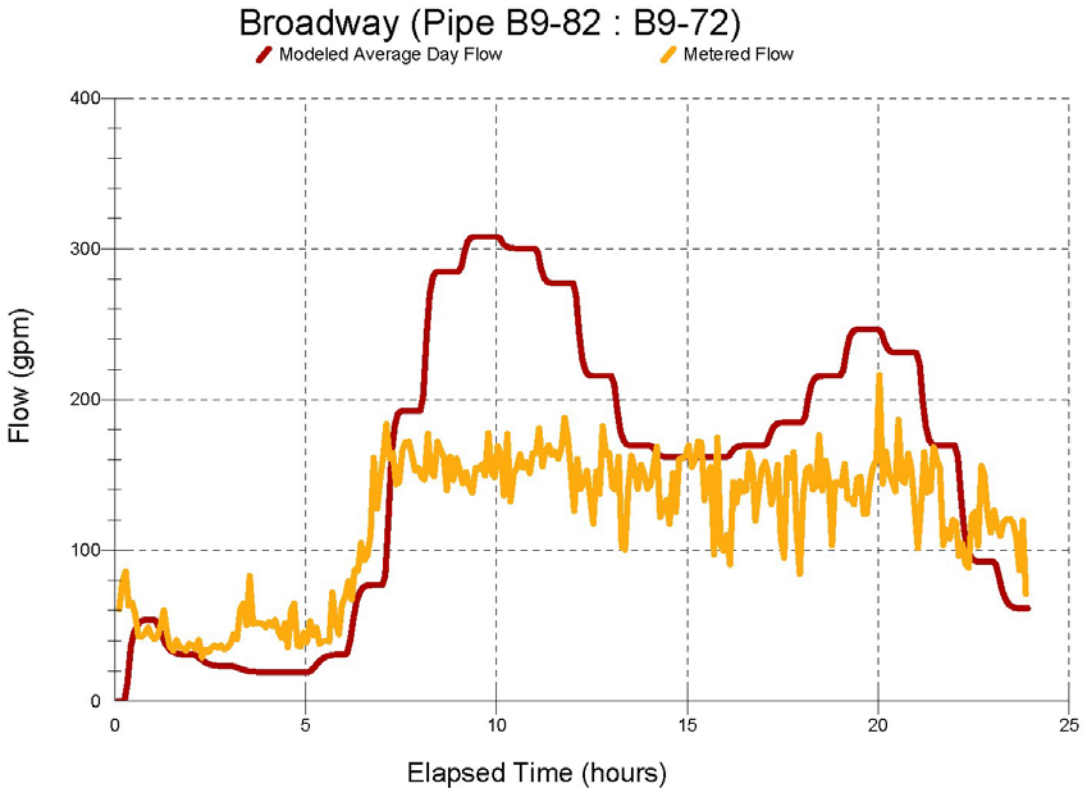
SEWER MODEL RESULTS

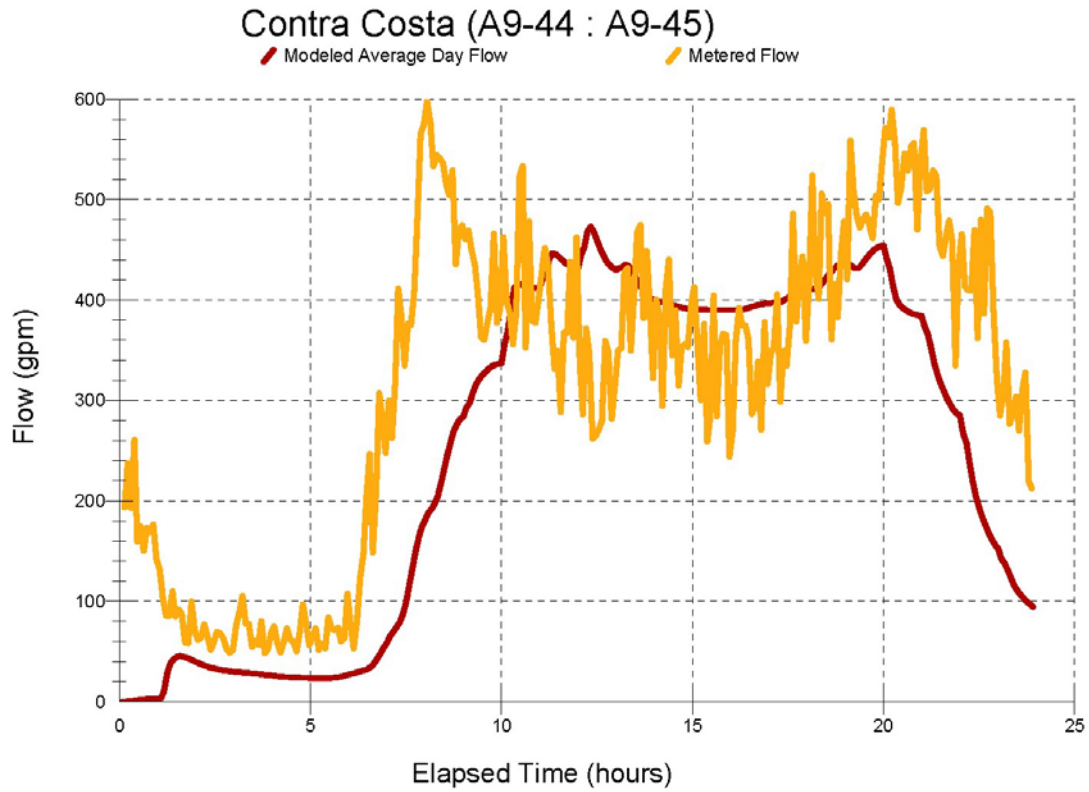
Tables C-1 and C-2 list modeled pipe data for existing and future conditions. Table C-3 identifies pipes with low velocity under existing flow conditions, Figure C-3 illustrates these pipes.

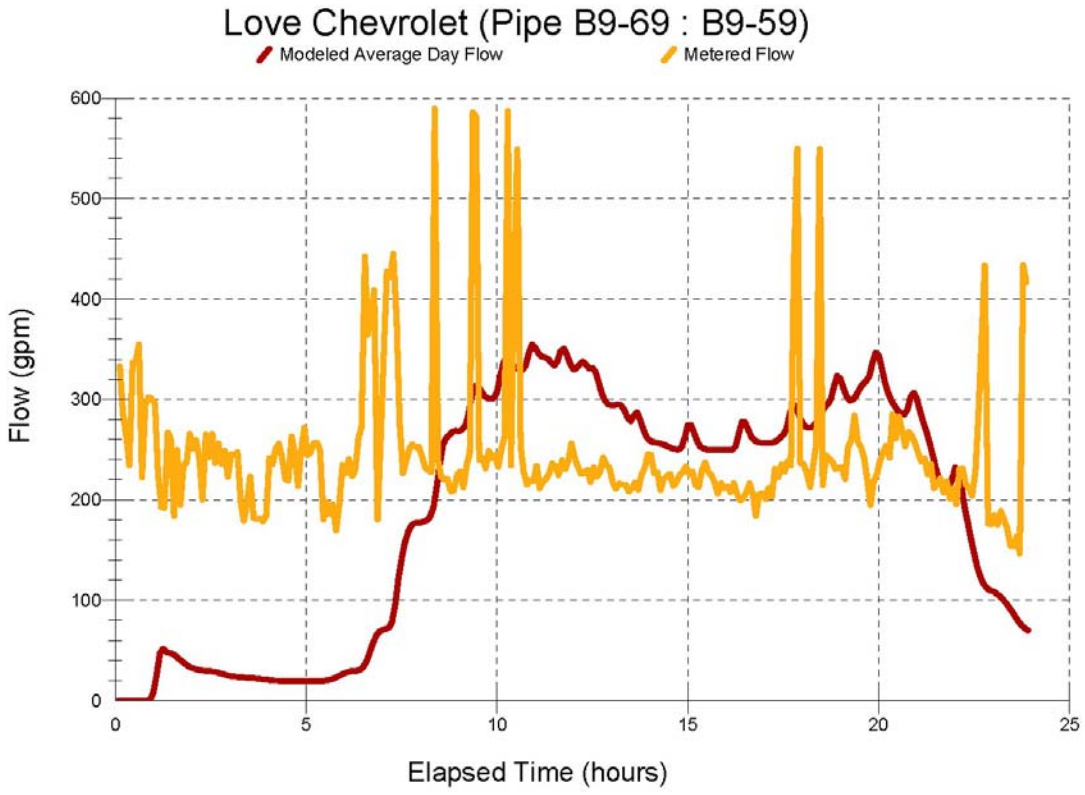
SEWER MODEL CALIBRATION

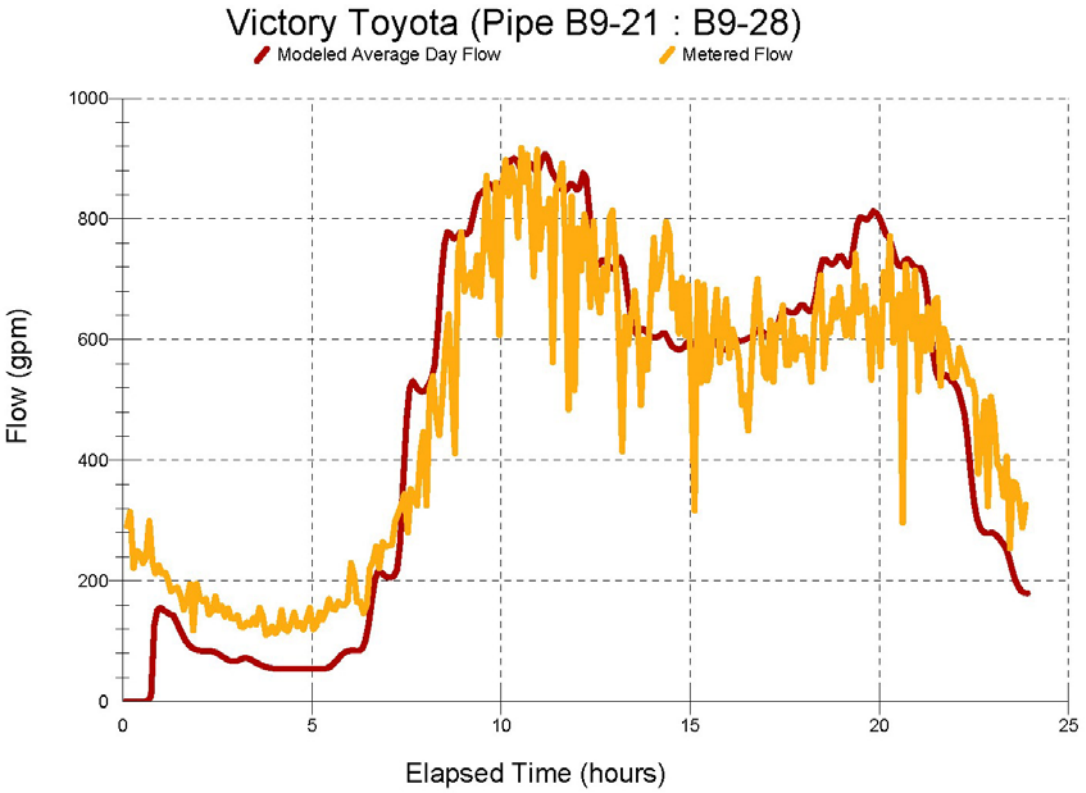
The following graphs illustrate results from the sewer model calibration. These graphs compare the modeled average day flows to the flow meter readings obtained through the flow monitoring effort conducted in support of the Master Plan. Model results may differ from metered flow for a variety of reasons, including: metered flows may not represent average day, anomalies in meter data, system deficiencies not included in the model such as cracked pipes, existing blockages, or other unforeseen existing conditions.




Broadway (Pipe B9-82 : B9-72)
Modeled Average Day Flow
Metered Flow
Flow (gpm)
400
300
200
100
0
0
5
10
15
20
25
Elapsed Time (hours)


Contra Costa (A9-44 : A9-45)
Modeled Average Day Flow
Metered Flow
Flow (gpm)
600
500
400
300
200
100
0
0
5
10
15
20
25
Elapsed Time (hours)


Love Chevrolet (Pipe B9-69 : B9-59)
Modeled Average Day Flow
Metered Flow
Flow (gpm)
600
500
400
300
200
100
0
0
5
10
15
20
25
Elapsed Time (hours)


Victory Toyota (Pipe B9-21 : B9-28)
Modeled Average Day Flow
Metered Flow
Flow (gpm)
1000
800
600
400
200
0
0
5
10
15
20
25
Elapsed Time (hours)

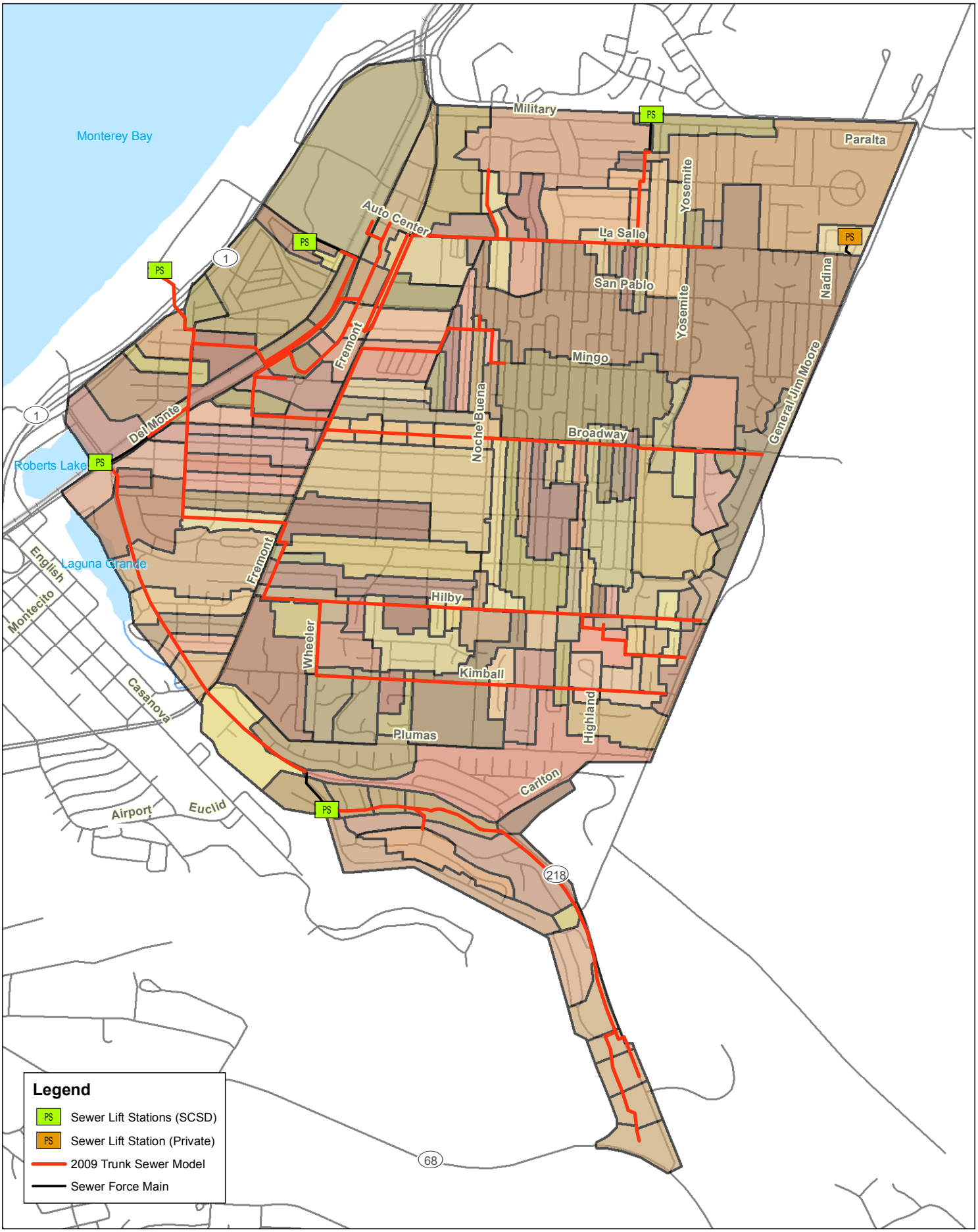


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FIGURE C-1: SEWER FLOW TRIBUTARY BASIN MAP

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED: FEBRUARY 2010

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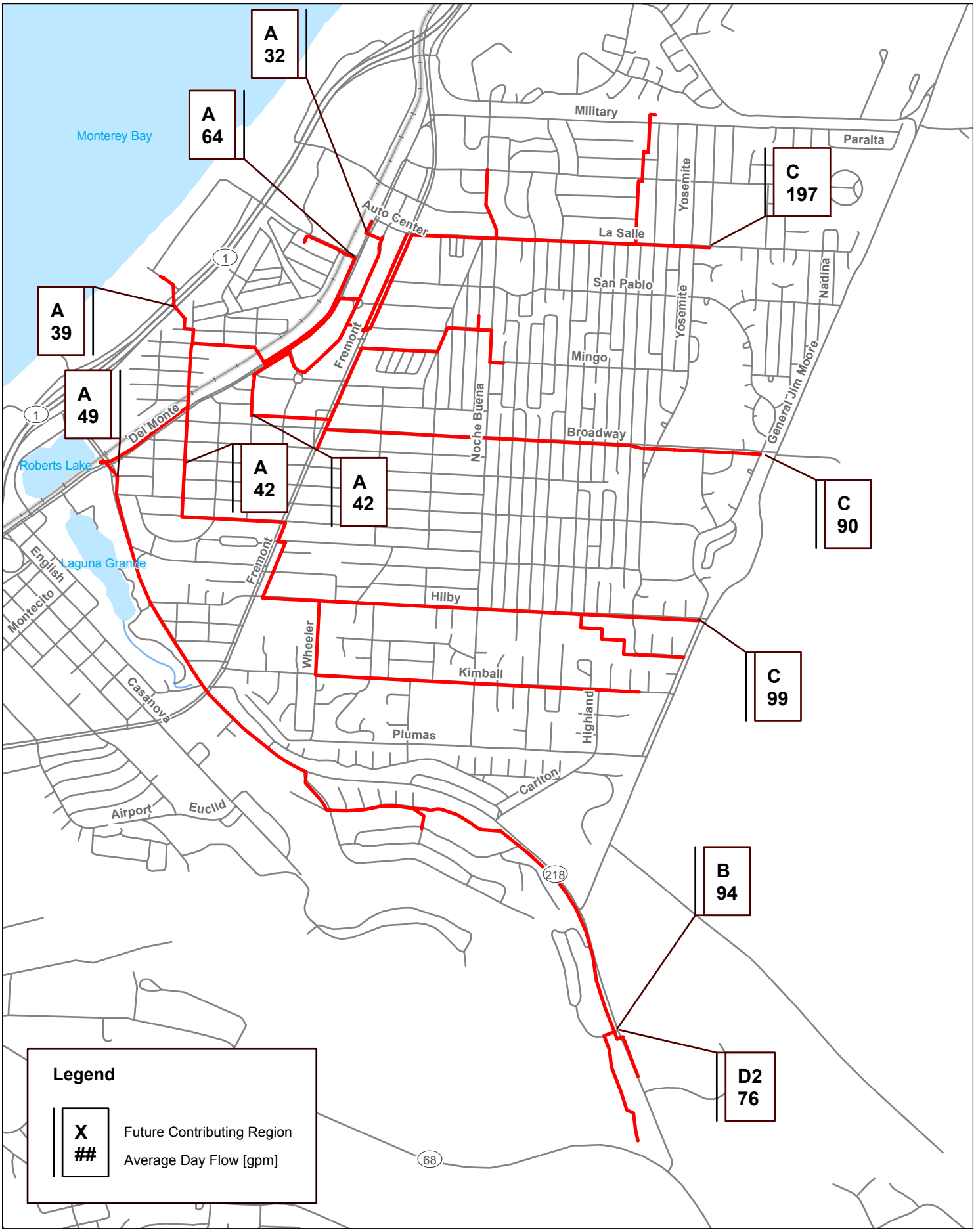

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FIGURE C-2: FUTURE SEWER FLOWS
FLOW ALLOCATION MAP

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED FEBRUARY 2010

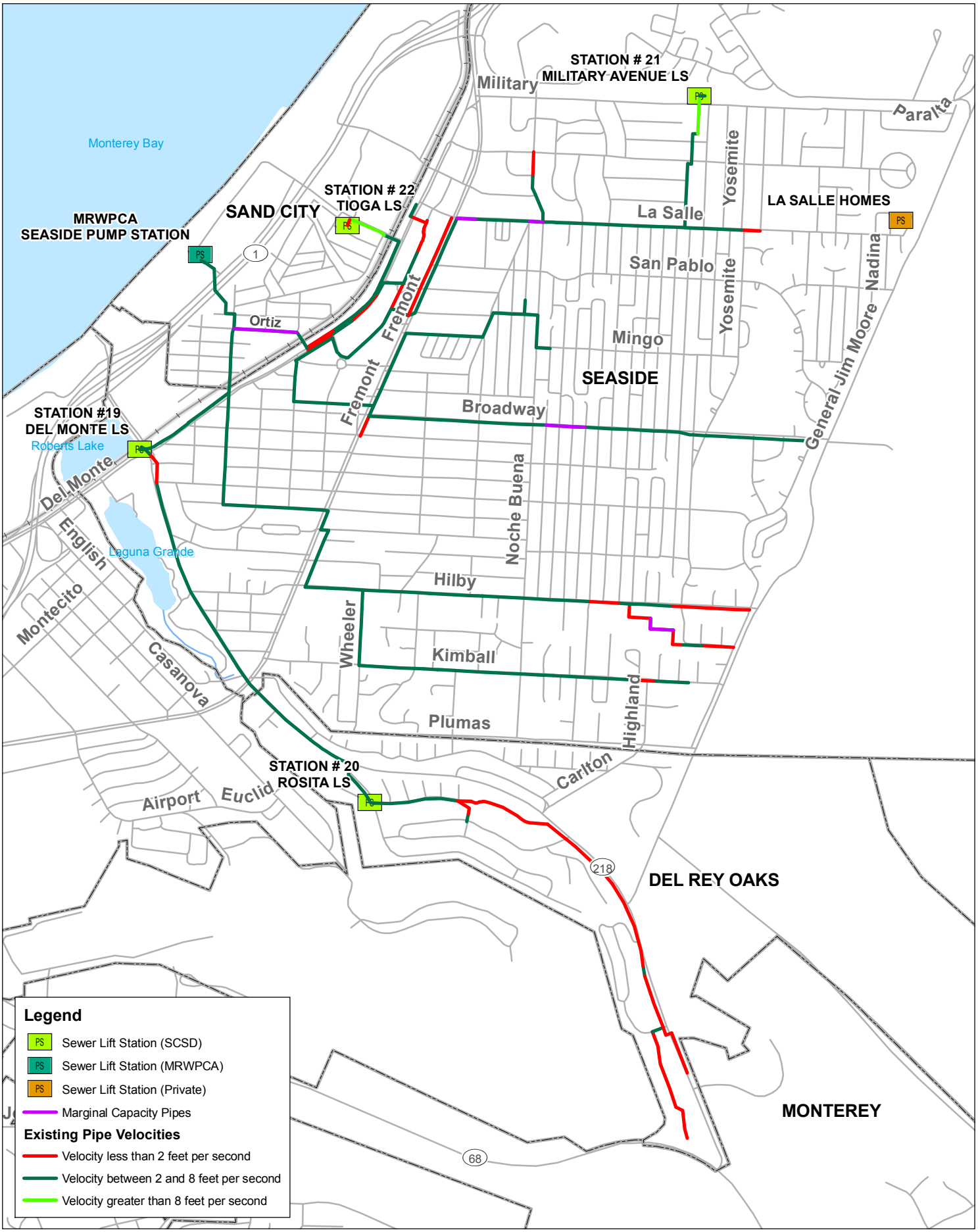

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FIGURE C-3: EXISTING FLOW CONDITIONS
AVERAGE DAY VEOCITIES & MARGINAL PIPE CAPACITY

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED MAY 2011.

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
A10-10-A10-9	122	12	0.44	12	0.44
A10-14-A10-10	401	12	0.36	12	0.36
A10-27-A10-28	255	12	0.57	12	0.57
A10-28-A10-29	266	12	0.58	12	0.58
A10-29-A9-43	266	12	0.60	12	0.60
A10-3-A9-8	100	18	0.25	18	0.25
A10-4-A10-5	264	18	0.42	18	0.42
A10-5-A10-3	176	18	0.39	18	0.39
A10-6-A10-4	354	12	0.60	12	0.60
A10-7-A10-6	428	12	0.64	12	0.64
A10-9-A10-18	285	12	0.58	12	0.58
A11-12-A11-7	284	8	0.62	8	0.62
A11-16-A11-12	275	8	0.64	8	0.64
A11-3-A10-14	314	8	0.53	8	0.53
A11-6-A11-3	326	8	0.54	8	0.54
A11-7-A11-6	325	8	0.61	8	0.61
A11-8-B10-38	283	12	0.41	12	0.41
A8-4-A8-1	58	27	0.37	27	0.37
A8-4-A8-5	6	27	0.43	27	0.44
A8-5-A8-6	161	27	0.56	27	0.56
A8-7-A8-6	294	27	0.65	27	0.66
A8-8-A8-7	235	27	0.69	27	0.70
A9-23-A9-36	257	18	0.38	18	0.39
A9-36-A9-46	438	18	0.37	18	0.38
A9-42-A8-8	144	27	0.65	27	0.66
A9-43-A9-44	257	12	0.55	12	0.55
A9-44-A9-45	143	12	0.49	12	0.49
A9-45-A9-46	368	12	0.53	12	0.53
A9-46-A9-47	194	18	0.39	18	0.40
A9-47-A9-48	73	18	0.45	18	0.46
A9-48-A9-49	205	18	0.47	18	0.47
A9-49-A9-50	199	18	0.42	18	0.43
A9-50-A9-51	224	18	0.70	18	0.71
A9-51-A9-53	200	27	0.63	27	0.64
A9-53-A9-42	134	27	0.61	27	0.62
A9-7-A9-6	14	18	0.31	18	0.31
A9-8-A9-7	26	18	0.40	12	0.40
B10-15-B10-1	450	12	0.70	12	0.70
B10-1-A10-27	450	12	0.65	12	0.65
B10-28-B10-31	377	12	0.43	12	0.43
B10-31-B10-35	318	12	0.44	12	0.44
B10-34-B10-15	496	12	0.67	12	0.67
B10-35-B10-39	154	12	0.43	12	0.43
B10-37-B10-28	299	12	0.42	12	0.42
B10-38-B10-34	68	12	0.54	12	0.54
B10-39-B10-32	110	12	0.41	12	0.41
B10-41-B10-37	92	12	0.39	12	0.39

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
B10-48-B10-41	159	12	0.35	12	0.35
B10-52-B10-48	252	12	0.34	12	0.34
B10-63-B10-52	516	8	0.47	8	0.47
B10-64-B10-63	15	8	0.41	8	0.41
B10-70-B10-64	236	8	0.41	8	0.41
B10-79-B10-70	163	8	0.40	8	0.40
B10-87-B10-79	549	6	0.44	6	0.44
B11-105-B11-93	195	8	0.32	8	0.32
B11-106-B11-105	33	8	0.31	8	0.31
B11-115-B11-106	203	8	0.37	8	0.37
B11-14-B11-5	348	8	0.59	8	0.59
B11-21-B11-14	446	8	0.48	8	0.48
B11-42-B11-43	461	8	0.38	8	0.38
B11-43-B11-44	59	8	0.45	8	0.45
B11-44-B10-52	530	8	0.49	8	0.49
B11-5-A11-16	345	8	0.65	8	0.65
B11-74-B11-42	576	8	0.31	8	0.31
B11-85-B11-74	184	8	0.32	8	0.32
B11-93-B11-85	139	8	0.34	8	0.34
B12-15-B12-8	224	8	0.38	8	0.38
B12-21-B12-15	244	8	0.38	8	0.37
B12-2-B11-21	608	8	0.45	8	0.45
B12-30-B12-21	239	8	0.31	8	0.31
B12-37-B12-30	219	8	0.32	8	0.32
B12-45-B12-37	240	8	0.40	8	0.40
B12-51-B12-52	109	6	0.11	6	0.11
B12-52-B12-53	77	6	0.41	6	0.41
B12-53-B12-45	185	6	0.55	6	0.55
B12-7-RLS	41	8	0.55	8	0.55
B12-8-B12-7	22	6	0.62	6	0.62
B8-34-TLS	86	6	0.08	6	0.08
B8-53-B8-58	223	6	0.38	6	0.36
B8-60-B9-69	402	10	0.61	10	0.16
B8-64-B9-77	212	8	0.66	8	0.27
B8-66-B8-60	459	10	0.32	10	0.18
B8-67-B8-64	267	8	0.68	8	0.44
B8-68-B9-79	352	10	0.88	12	0.19
B8-69-B8-66	443	10	0.36	10	0.20
B8-70-B8-69	41	10	0.26	10	0.17
B8-71-B8-67	266	8	0.50	8	0.41
B8-74-B8-68	354	10	1.00	12	0.18
B8-75-B8-71	266	8	0.25	8	0.25
B8-77-B8-74	365	10	1.00	12	0.16
B8-79-B8-75	470	8	0.25	8	0.25
B9-18-B9-19	135	12	1.00	15	0.52
B9-19-B9-20	203	12	1.00	15	0.53
B9-20-B9-22	205	12	1.00	15	0.50

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
B9-21-B9-28	221	15	0.88	18	0.63
B9-22-B9-21	28	12	1.00	18	0.49
B9-23-B9-9	450	21	0.79	21	0.80
B9-25-B9-23	142	21	0.68	21	0.68
B9-26-B9-25	103	21	0.60	21	0.61
B9-27-B9-26	31	21	0.60	21	0.60
B9-28-B9-27	41	21	0.62	21	0.62
B9-30-B9-28	88	10	0.78	12	0.59
B9-36-B9-18	451	12	0.86	15	0.45
B9-38-B9-30	288	10	0.64	12	0.22
B9-45-B9-38	385	10	0.67	12	0.23
B9-52-B9-36	450	12	0.84	15	0.48
B9-55-B9-58	300	8	0.68	8	0.51
B9-57-B9-52	130	12	0.98	15	0.62
B9-58-B9-60	158	10	0.88	12	0.62
B9-59-B9-45	418	10	0.81	12	0.26
B9-60-B9-57	82	12	1.00	15	0.71
B9-64-B9-60	223	12	0.73	15	0.45
B9-67-B9-64	288	12	0.86	15	0.50
B9-69-B9-59	486	10	1.00	12	0.29
B9-72-B9-58	368	8	0.76	8	0.58
B9-73-B9-69	81	10	0.87	12	0.18
B9-75-B9-67	589	12	0.96	15	0.53
B9-77-B9-73	181	10	0.69	12	0.19
B9-79-B9-77	97	10	0.71	12	0.20
B9-82-B9-72	409	8	0.66	8	0.66
B9-86-B9-75	489	12	0.79	12	0.62
B9-88-B9-82	373	8	0.59	8	0.59
B9-9-A9-51	429	21	0.86	21	0.87
C10-10-B10-87	177	6	0.37	6	0.37
C10-15-C10-10	221	6	0.35	6	0.35
C11-100-C11-96	149	6	0.31	6	0.31
C11-103-C11-97	148	6	0.38	6	0.38
C11-16-C11-6	500	8	0.36	8	0.36
C11-21-C10-15	351	6	0.37	6	0.37
C11-23-C11-21	190	6	0.45	6	0.45
C11-25-C11-16	322	8	0.26	8	0.26
C11-28-C11-25	26	6	0.36	6	0.36
C11-30-C11-23	179	6	0.42	6	0.42
C11-34-C11-28	118	6	0.37	6	0.37
C11-41-C11-30	180	6	0.35	6	0.35
C11-43-C11-34	215	6	0.29	6	0.29
C11-52-C11-43	203	6	0.29	6	0.29
C11-55-C11-41	346	6	0.55	6	0.55
C11-60-C11-52	319	6	0.31	6	0.31
C11-65-C11-60	133	6	0.26	6	0.26
C11-67-C11-55	422	6	0.64	6	0.64

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
C11-6-B11-115	397	8	0.42	8	0.42
C11-72-C11-73	185	6	0.39	6	0.39
C11-73-C11-67	158	6	0.50	6	0.50
C11-75-C11-73	21	6	0.30	6	0.30
C11-77-C11-65	307	6	0.20	6	0.20
C11-82-C11-75	180	6	0.18	6	0.18
C11-86-C11-87	143	6	0.72	6	0.72
C11-87-C11-72	301	6	0.39	6	0.39
C11-89-C11-77	211	6	0.14	6	0.14
C11-90-C11-82	178	6	0.18	6	0.18
C11-96-C11-90	183	6	0.25	6	0.25
C11-97-C11-98	198	6	0.47	6	0.47
C11-98-C11-86	321	6	0.71	6	0.71
C12-23-C12-3	619	12	0.20	12	0.20
C12-39-C12-23	447	12	0.23	12	0.23
C12-3-B12-45	254	8	0.39	8	0.39
C12-52-C12-39	499	12	0.22	12	0.22
C12-60-C12-52	502	12	0.19	12	0.19
C12-63-C12-60	228	12	0.20	12	0.20
C13-18-C12-63	298	12	0.19	12	0.19
C13-30-C13-18	357	12	0.19	12	0.19
C13-34-C13-30	359	12	0.31	12	0.31
C13-35-C13-34	213	12	0.26	12	0.26
C13-36-C13-35	144	12	0.14	12	0.14
C13-37-C13-36	405	12	0.16	12	0.16
C13-38-C13-37	352	12	0.15	12	0.15
C14-10-C14-9	103	6	0.24	6	0.24
C14-11-C14-10	259	6	0.19	6	0.19
C14-12-C14-11	136	6	0.17	6	0.17
C14-2-C13-38	158	6	0.37	6	0.37
C14-3-C14-2	208	6	0.37	6	0.37
C14-4-C14-3	255	6	0.32	6	0.32
C14-5-C13-38	111	6	0.16	6	0.16
C14-6-C14-4	359	6	0.35	6	0.35
C14-7-C14-5	83	6	0.00	6	0.00
C14-8-C14-7	65	6	0.00	6	0.00
C14-9-C14-6	277	6	0.32	6	0.32
C7-20-C8-26	347	6	0.59	6	0.59
C8-101-C8-95	180	6	1.00	8	0.59
C8-105-C8-101	181	6	1.00	8	0.49
C8-108-C8-105	109	6	0.81	8	0.40
C8-110-C8-108	412	6	0.66	8	0.41
C8-19-C9-20	200	8	0.77	10	0.53
C8-24-C8-9	463	8	0.58	8	0.60
C8-25-C8-27	99	8	0.31	8	0.31
C8-26-C8-25	155	8	0.36	8	0.36
C8-27-C8-34	267	8	0.29	8	0.29

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
C8-33-C8-24	188	8	0.73	8	0.74
C8-34-C8-33	134	8	0.27	8	0.27
C8-39-C8-33	130	6	0.90	8	0.73
C8-3-B8-81	258	8	0.77	8	0.55
C8-46-C8-39	61	6	0.80	8	0.46
C8-60-C8-46	355	6	0.74	8	0.44
C8-76-C8-60	374	6	0.74	8	0.44
C8-88-C8-76	399	6	0.70	8	0.43
C8-95-C8-88	180	6	0.82	8	0.51
C8-9-C8-3	283	8	0.62	8	0.65
C9-100-C9-92	180	6	0.49	6	0.49
C9-108-C9-100	180	6	0.44	6	0.44
C9-12-C9-6	73	8	0.81	10	0.58
C9-15-C9-12	180	8	0.66	10	0.41
C9-16-C9-1	545	8	0.60	8	0.60
C9-1-B9-88	371	8	0.47	8	0.47
C9-20-C9-15	181	8	0.62	10	0.39
C9-24-C9-16	201	8	0.61	8	0.61
C9-28-C9-29	452	8	0.36	8	0.36
C9-29-C9-20	189	8	0.40	8	0.35
C9-32-C9-24	190	8	0.54	8	0.54
C9-35-C9-28	190	8	0.45	8	0.45
C9-39-C9-32	180	6	0.70	6	0.70
C9-45-C9-39	180	6	0.63	6	0.63
C9-4-B9-86	579	10	0.76	12	0.54
C9-51-C9-45	180	6	0.65	6	0.65
C9-58-C9-51	180	6	0.62	6	0.62
C9-66-C9-58	190	6	0.54	6	0.54
C9-6-C9-4	365	10	0.92	12	0.57
C9-74-C9-66	217	6	0.53	6	0.53
C9-83-C9-74	180	6	0.62	6	0.62
C9-92-C9-83	180	6	0.61	6	0.61
D11-10-C11-100	408	6	0.24	6	0.24
D11-12-D11-10	16	6	0.17	6	0.17
D11-17-D11-6	272	6	0.16	6	0.16
D11-1-C11-89	491	6	0.11	6	0.11
D11-20-D11-17	174	6	0.13	6	0.13
D11-21-D11-12	321	6	0.13	6	0.13
D11-24-D11-21	206	6	0.10	6	0.10
D11-4-C11-103	213	6	0.22	6	0.22
D11-6-D11-4	39	6	0.19	6	0.19
D14-1-C14-8	531	6	0.00	6	0.00
D7-1-C8-110	478	6	0.85	8	0.48
D7-2-D7-1	54	6	0.74	8	0.41
D7-3-D7-2	291	6	0.66	8	0.39
D7-4-D7-3	125	6	0.92	8	0.58
D7-5-D7-4	68	6	1.00	8	0.60

TABLE C-1 MODEL RESULTS FOR EXISTING CONDITIONS
WET WEATHER FLOW WITH EXISTING RECOMMENDED UPGRADES
NOTE: Recommended pipe diameter may increase for future conditions

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Existing Flow [in]	Maximum d/D with Upgrades
D7-9-MLS	75	6	0.58	6	0.58
D8-10-D8-6	33	6	0.19	6	0.19
D8-20-D8-10	266	6	0.14	6	0.14
D8-2-C8-108	71	6	0.43	6	0.37
D8-30-D8-20	261	6	0.11	6	0.11
D8-41-D8-30	260	6	0.08	6	0.08
D8-6-D8-2	156	6	0.23	6	0.23
D9-17-D9-6	163	6	0.30	6	0.30
D9-28-D9-17	275	6	0.29	6	0.29
D9-2-C9-108	150	6	0.42	6	0.42
D9-34-D9-28	83	6	0.31	6	0.31
D9-40-D9-34	125	6	0.35	6	0.35
D9-42-D9-40	125	6	0.40	6	0.40
D9-43-D9-42	75	6	0.36	6	0.36
D9-45-D9-43	241	6	0.27	6	0.27
D9-48-D9-45	173	6	0.22	6	0.22
D9-56-D9-48	148	6	0.19	6	0.19
D9-68-D9-56	126	6	0.17	6	0.17
D9-6-D9-2	41	6	0.31	6	0.31
D9-74-D9-68	114	6	0.15	6	0.15
DMLS-A9-23	820	12	0.80	12	0.81
MLS-D7-5	528	4	1.00	4	1.00
RLS-B12-2	660	6	0.81	6	0.81
TLS-B8-53	605	4	0.84	4	0.86

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
A10-10-A10-9	122	12	0.54	12	0.54
A10-14-A10-10	401	12	0.44	12	0.52
A10-27-A10-28	255	12	0.60	12	0.64
A10-28-A10-29	266	12	0.60	12	0.64
A10-29-A9-43	266	12	0.62	12	0.66
A10-3-A9-8	100	18	0.29	18	0.31
A10-4-A10-5	264	18	0.48	18	0.54
A10-5-A10-3	176	18	0.44	18	0.49
A10-6-A10-4	354	12	0.72	15	0.54
A10-7-A10-6	428	12	0.78	15	0.53
A10-9-A10-18	285	12	0.72	15	0.51
A11-12-A11-7	284	8	0.92	12	0.44
A11-16-A11-12	275	8	1.00	12	0.46
A11-3-A10-14	314	8	0.65	12	0.45
A11-6-A11-3	326	8	0.77	12	0.39
A11-7-A11-6	325	8	0.92	12	0.44
A11-8-B10-38	283	12	0.43	12	0.46
A8-4-A8-1	58	27	0.42	27	0.45
A8-4-A8-5	6	27	0.49	27	0.53
A8-5-A8-6	161	27	0.63	27	0.68
A8-7-A8-6	294	27	0.75	27	0.82
A8-8-A8-7	235	27	0.80	27	0.89
A9-23-A9-36	257	18	0.40	18	0.41
A9-36-A9-46	438	18	0.42	18	0.44
A9-42-A8-8	144	27	0.77	27	0.88
A9-43-A9-44	257	12	0.57	12	0.60
A9-44-A9-45	143	12	0.52	12	0.55
A9-45-A9-46	368	12	0.60	12	0.63
A9-46-A9-47	194	18	0.45	18	0.46
A9-47-A9-48	73	18	0.52	18	0.54
A9-48-A9-49	205	18	0.54	18	0.56
A9-49-A9-50	199	18	0.49	18	0.51
A9-50-A9-51	224	18	0.74	18	0.75
A9-51-A9-53	200	27	0.74	27	0.85
A9-53-A9-42	134	27	0.72	27	0.84
A9-7-A9-6	14	18	0.36	18	0.40
A9-8-A9-7	26	18	0.47	18	0.33
B10-15-B10-1	450	12	0.74	12	0.81
B10-1-A10-27	450	12	0.69	12	0.74
B10-28-B10-31	377	12	0.46	12	0.51
B10-31-B10-35	318	12	0.48	12	0.52
B10-34-B10-15	496	12	0.71	12	0.77
B10-35-B10-39	154	12	0.46	12	0.50
B10-37-B10-28	299	12	0.46	12	0.51
B10-38-B10-34	68	12	0.57	12	0.61
B10-39-B10-32	110	12	0.43	12	0.46
B10-41-B10-37	92	12	0.43	12	0.48

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
B10-48-B10-41	159	12	0.39	12	0.43
B10-52-B10-48	252	12	0.38	12	0.42
B10-63-B10-52	516	8	0.56	10	0.46
B10-64-B10-63	15	8	0.53	10	0.64
B10-70-B10-64	236	8	0.54	10	0.51
B10-79-B10-70	163	8	0.54	10	0.41
B10-87-B10-79	549	6	0.61	10	0.34
B11-105-B11-93	195	8	0.29	8	0.29
B11-106-B11-105	33	8	0.28	8	0.28
B11-115-B11-106	203	8	0.34	8	0.34
B11-14-B11-5	348	8	0.86	12	0.42
B11-21-B11-14	446	8	0.63	12	0.35
B11-42-B11-43	461	8	0.35	8	0.35
B11-43-B11-44	59	8	0.41	8	0.41
B11-44-B10-52	530	8	0.49	8	0.52
B11-5-A11-16	345	8	1.00	12	0.46
B11-74-B11-42	576	8	0.28	8	0.28
B11-85-B11-74	184	8	0.29	8	0.29
B11-93-B11-85	139	8	0.31	8	0.31
B12-15-B12-8	224	8	1.00	12	0.38
B12-21-B12-15	244	8	1.00	12	0.39
B12-2-B11-21	608	8	0.53	12	0.31
B12-30-B12-21	239	8	0.82	12	0.32
B12-37-B12-30	219	8	0.69	12	0.33
B12-45-B12-37	240	8	0.88	12	0.43
B12-51-B12-52	109	6	0.09	6	0.09
B12-52-B12-53	77	6	1.00	6	0.35
B12-53-B12-45	185	6	1.00	6	0.70
B12-7-RLS	41	8	1.00	12	0.53
B12-8-B12-7	22	6	1.00	12	0.42
B8-34-TLS	86	6	N/A	N/A	N/A
B8-53-B8-58	223	6	N/A	N/A	N/A
B8-60-B9-69	402	10	0.72	10	0.46
B8-64-B9-77	212	8	0.69	8	0.64
B8-66-B8-60	459	10	0.47	10	0.45
B8-67-B8-64	267	8	0.71	8	0.65
B8-68-B9-79	352	10	0.72	15	0.55
B8-69-B8-66	443	10	0.53	10	0.53
B8-70-B8-69	41	10	0.40	10	0.38
B8-71-B8-67	266	8	0.52	8	0.48
B8-74-B8-68	354	10	1.00	15	0.59
B8-75-B8-71	266	8	0.22	8	0.22
B8-77-B8-74	365	10	1.00	15	0.58
B8-79-B8-75	470	8	0.22	8	0.22
B9-18-B9-19	135	12	1.00	15	0.59
B9-19-B9-20	203	12	1.00	15	0.60
B9-20-B9-22	205	12	1.00	15	0.61

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
B9-21-B9-28	221	15	1.00	18	0.72
B9-22-B9-21	28	12	1.00	18	0.59
B9-23-B9-9	450	21	1.00	27	0.66
B9-25-B9-23	142	21	0.99	24	0.58
B9-26-B9-25	103	21	0.93	24	0.51
B9-27-B9-26	31	21	0.89	24	0.54
B9-28-B9-27	41	21	0.88	24	0.59
B9-30-B9-28	88	10	0.92	15	0.66
B9-36-B9-18	451	12	1.00	15	0.50
B9-38-B9-30	288	10	0.73	15	0.43
B9-45-B9-38	385	10	0.62	15	0.45
B9-52-B9-36	450	12	1.00	15	0.51
B9-55-B9-58	300	8	1.00	8	0.55
B9-57-B9-52	130	12	1.00	15	0.67
B9-58-B9-60	158	10	1.00	12	0.70
B9-59-B9-45	418	10	0.78	15	0.54
B9-60-B9-57	82	12	1.00	15	0.78
B9-64-B9-60	223	12	1.00	15	0.44
B9-67-B9-64	288	12	1.00	15	0.48
B9-69-B9-59	486	10	1.00	15	0.63
B9-72-B9-58	368	8	1.00	10	0.50
B9-73-B9-69	81	10	0.73	15	0.40
B9-75-B9-67	589	12	1.00	15	0.51
B9-77-B9-73	181	10	0.57	15	0.41
B9-79-B9-77	97	10	0.56	15	0.49
B9-82-B9-72	409	8	1.00	10	0.52
B9-86-B9-75	489	12	1.00	12	0.60
B9-88-B9-82	373	8	0.79	10	0.47
B9-9-A9-51	429	21	1.00	27	0.83
C10-10-B10-87	177	6	0.52	10	0.27
C10-15-C10-10	221	6	0.50	10	0.26
C11-100-C11-96	149	6	1.00	10	0.46
C11-103-C11-97	148	6	1.00	6	0.34
C11-16-C11-6	500	8	0.32	8	0.32
C11-21-C10-15	351	6	0.53	10	0.28
C11-23-C11-21	190	6	0.76	10	0.35
C11-25-C11-16	322	8	0.24	8	0.24
C11-28-C11-25	26	6	0.33	6	0.33
C11-30-C11-23	179	6	0.71	10	0.33
C11-34-C11-28	118	6	0.34	6	0.34
C11-41-C11-30	180	6	0.53	10	0.27
C11-43-C11-34	215	6	0.27	6	0.27
C11-52-C11-43	203	6	0.26	6	0.26
C11-55-C11-41	346	6	0.78	10	0.42
C11-60-C11-52	319	6	0.28	6	0.28
C11-65-C11-60	133	6	0.24	6	0.24
C11-67-C11-55	422	6	1.00	10	0.51

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
C11-6-B11-115	397	8	0.38	8	0.38
C11-72-C11-73	185	6	1.00	6	0.48
C11-73-C11-67	158	6	1.00	10	0.42
C11-75-C11-73	21	6	1.00	6	0.52
C11-77-C11-65	307	6	0.18	6	0.18
C11-82-C11-75	180	6	0.77	10	0.24
C11-86-C11-87	143	6	1.00	6	0.70
C11-87-C11-72	301	6	1.00	6	0.36
C11-89-C11-77	211	6	0.13	6	0.13
C11-90-C11-82	178	6	0.51	10	0.23
C11-96-C11-90	183	6	0.74	10	0.36
C11-97-C11-98	198	6	1.00	6	0.42
C11-98-C11-86	321	6	1.00	6	0.69
C12-23-C12-3	619	12	0.84	12	0.46
C12-39-C12-23	447	12	0.65	12	0.59
C12-3-B12-45	254	8	1.00	12	0.45
C12-52-C12-39	499	12	0.57	12	0.56
C12-60-C12-52	502	12	0.50	12	0.50
C12-63-C12-60	228	12	0.52	12	0.52
C13-18-C12-63	298	12	0.48	12	0.48
C13-30-C13-18	357	12	0.49	12	0.49
C13-34-C13-30	359	12	0.77	12	0.77
C13-35-C13-34	213	12	0.65	12	0.65
C13-36-C13-35	144	12	0.41	12	0.41
C13-37-C13-36	405	12	0.46	12	0.46
C13-38-C13-37	352	12	0.44	12	0.44
C14-10-C14-9	103	6	0.21	6	0.21
C14-11-C14-10	259	6	0.17	6	0.17
C14-12-C14-11	136	6	0.15	6	0.15
C14-2-C13-38	158	6	0.65	6	0.65
C14-3-C14-2	208	6	0.31	6	0.31
C14-4-C14-3	255	6	0.28	6	0.28
C14-5-C13-38	111	6	0.48	6	0.48
C14-6-C14-4	359	6	0.30	6	0.30
C14-7-C14-5	83	6	0.00	6	0.00
C14-8-C14-7	65	6	0.00	6	0.00
C14-9-C14-6	277	6	0.28	6	0.28
C7-20-C8-26	347	6	0.50	6	0.50
C8-101-C8-95	180	6	1.00	10	0.67
C8-105-C8-101	181	6	1.00	10	0.72
C8-108-C8-105	109	6	1.00	10	0.43
C8-110-C8-108	412	6	1.00	8	0.45
C8-19-C9-20	200	8	0.76	10	0.52
C8-24-C8-9	463	8	0.56	10	0.54
C8-25-C8-27	99	8	0.27	8	0.27
C8-26-C8-25	155	8	0.31	8	0.31
C8-27-C8-34	267	8	0.25	8	0.25

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
C8-33-C8-24	188	8	0.67	10	0.68
C8-34-C8-33	134	8	0.23	8	0.23
C8-39-C8-33	130	6	0.89	10	0.71
C8-3-B8-81	258	8	0.76	10	0.72
C8-46-C8-39	61	6	0.77	10	0.49
C8-60-C8-46	355	6	0.73	10	0.47
C8-76-C8-60	374	6	0.73	10	0.48
C8-88-C8-76	399	6	0.69	10	0.47
C8-95-C8-88	180	6	0.82	10	0.58
C8-9-C8-3	283	8	0.60	10	0.58
C9-100-C9-92	180	6	1.00	10	0.33
C9-108-C9-100	180	6	1.00	10	0.31
C9-12-C9-6	73	8	0.80	10	0.56
C9-15-C9-12	180	8	0.63	10	0.40
C9-16-C9-1	545	8	0.78	10	0.48
C9-1-B9-88	371	8	0.57	10	0.39
C9-20-C9-15	181	8	0.59	10	0.38
C9-24-C9-16	201	8	0.83	10	0.49
C9-28-C9-29	452	8	0.34	8	0.34
C9-29-C9-20	189	8	0.39	8	0.34
C9-32-C9-24	190	8	0.69	10	0.44
C9-35-C9-28	190	8	0.43	8	0.43
C9-39-C9-32	180	6	0.89	10	0.40
C9-45-C9-39	180	6	0.90	10	0.34
C9-4-B9-86	579	10	0.89	12	0.52
C9-51-C9-45	180	6	1.00	10	0.36
C9-58-C9-51	180	6	1.00	10	0.35
C9-66-C9-58	190	6	1.00	10	0.32
C9-6-C9-4	365	10	0.89	12	0.55
C9-74-C9-66	217	6	1.00	10	0.32
C9-83-C9-74	180	6	1.00	10	0.37
C9-92-C9-83	180	6	1.00	10	0.38
D11-10-C11-100	408	6	1.00	10	0.38
D11-12-D11-10	16	6	1.00	10	0.31
D11-17-D11-6	272	6	0.15	6	0.15
D11-1-C11-89	491	6	0.11	6	0.11
D11-20-D11-17	174	6	0.11	6	0.11
D11-21-D11-12	321	6	1.00	10	0.27
D11-24-D11-21	206	6	0.81	10	0.26
D11-4-C11-103	213	6	0.59	6	0.20
D11-6-D11-4	39	6	0.18	6	0.18
D14-1-C14-8	531	6	0.00	6	0.00
D7-1-C8-110	478	6	0.87	8	0.42
D7-2-D7-1	54	6	0.60	8	0.38
D7-3-D7-2	291	6	0.59	8	0.36
D7-4-D7-3	125	6	0.87	8	0.54
D7-5-D7-4	68	6	1.00	8	0.56

TABLE C-2: MODEL RESULTS FOR FUTURE CONDITIONS
FUTURE MAXIMUM DAY FLOW WITH RECOMMENDED UPGRADES

Pipe ID [Upstream MH to Downstream MH]	Length [ft]	Existing Diameter [in]	Maximum d/D	Recommended Diameter for Future Flow [in]	Maximum d/D with Upgrades
D7-9-MLS	75	6	0.57	6	0.57
D8-10-D8-6	33	6	1.00	8	0.42
D8-20-D8-10	266	6	0.84	8	0.40
D8-2-C8-108	71	6	1.00	8	0.48
D8-30-D8-20	261	6	0.68	8	0.39
D8-41-D8-30	260	6	0.68	8	0.39
D8-6-D8-2	156	6	1.00	8	0.43
D9-17-D9-6	163	6	0.57	10	0.25
D9-28-D9-17	275	6	0.57	10	0.25
D9-2-C9-108	150	6	1.00	10	0.30
D9-34-D9-28	83	6	0.61	10	0.26
D9-40-D9-34	125	6	0.78	10	0.30
D9-42-D9-40	125	6	0.95	10	0.35
D9-43-D9-42	75	6	1.00	10	0.35
D9-45-D9-43	241	6	0.95	10	0.32
D9-48-D9-45	173	6	0.77	10	0.29
D9-56-D9-48	148	6	0.58	10	0.25
D9-68-D9-56	126	6	0.51	10	0.23
D9-6-D9-2	41	6	0.60	10	0.26
D9-74-D9-68	114	6	0.46	10	0.21
DMLS-A9-23	820	12	0.80	12	0.81
MLS-D7-5	528	4	1.00	4	0.98
RLS-B12-2	660	6	0.85	10	0.73
TLS-B8-53	605	4	N/A	N/A	N/A

TABLE C-3: LOW PIPE VELOCITY
MAXIMUM VELOCITY LESS THAN 2.0 FPS WITH EXISTING AVERAGE DAILY FLOW

Pipe ID [Upstream MH - Downstream MH]	Length [ft]	Existing Diameter [in]	Slope [ft/ft]	Maximum Velocity at ADF [fps]
1120-06-1120-10	267	8	0.001	0.25
1120-10-1120-17	212	8	0.001	0.31
1111-05-1120-06	266	8	0.002	0.35
11A41-05-11A41-04	143	6	0.002	0.42
1121-04-1122-02	466	6	0.011	0.51
1111-06-1111-05	266	8	0.001	0.61
1110-07-1111-06	470	8	0.003	0.65
11A41-06-11A41-05	321	6	0.002	0.65
11A61-05-11A61-04	213	12	0.033	0.75
11A41-07-11A41-06	198	6	0.001	0.76
11A61-04-11A61-03	359	12	0.000	0.79
11A60-03-11A60-04	259	6	0.012	0.93
WG4-WG2	413	10	0.006	0.97
11A31-01-11A68-12	408	6	0.011	1.04
11A54-04-11A57-04	185	6	0.003	1.09
11A60-02-11A60-03	136	6	0.006	1.11
11A60-05-11A60-06	277	6	0.011	1.18
11A41-04-11A40-14	301	6	0.003	1.18
11A40-14-11A32-07	185	6	0.005	1.21
11A68-21-11A31-05	206	6	0.033	1.21
1111-09-1111-03	41	10	0.007	1.28
11A41-09-11A41-20	174	6	0.025	1.31
11A41-13-11A41-07	148	6	0.014	1.32
11A68-12-11A68-11	149	6	0.006	1.32
11A60-06-11A60-07	359	6	0.004	1.33
11A59-01-11A58-01	499	12	0.006	1.34
11A58-01-11A57-07	447	12	0.003	1.37
11A41-20-11A41-08	272	6	0.021	1.40
1107-15-1107-14	260	6	0.082	1.44
1140-09-1140-08	264	18	0.002	1.44
11A60-08-11A60-09	208	6	0.007	1.47
11A60-07-11A60-08	255	6	0.007	1.49
11A31-05-11A31-02	321	6	0.027	1.50
11A54-05-11A54-04	77	6	0.008	1.51
1104-05-MALS	75	6	0.020	1.54
11A59-03-11A59-02	228	12	0.005	1.55
11A57-06-11A57-04	254	8	0.009	1.57
11A42-03-11A42-02	211	6	0.041	1.62
11A59-02-11A59-01	502	12	0.005	1.63
11A60-16-11A60-17	405	12	0.012	1.63
11A61-03-11A61-06	357	12	0.005	1.63
1140-08-1140-07	176	18	0.000	1.63
1110-03-1111-03	240	10	0.008	1.64
11A57-07-11A57-06	619	12	0.005	1.65
11A18-06-11A18-04	300	8	0.004	1.67
1111-03-1111-08	443	10	0.002	1.68
1103-18-1109-28	347	6	0.004	1.68
11A60-13-11A60-16	352	12	0.006	1.69

TABLE C-3: LOW PIPE VELOCITY
MAXIMUM VELOCITY LESS THAN 2.0 FPS WITH EXISTING AVERAGE DAILY FLOW

Pipe ID [Upstream MH - Downstream MH]	Length [ft]	Existing Diameter [in]	Slope [ft/ft]	Maximum Velocity at ADF [fps]
11A61-06-11A59-03	298	12	0.008	1.70
11A31-02-11A31-01	16	6	0.026	1.70
1112-01-TLS	86	6	0.047	1.70
WG5-1120-14	208	10	0.005	1.73
11A33-24-11A33-23	422	6	0.006	1.76
11A60-04-11A60-05	103	6	0.014	1.77
1120-14-1120-19	279	10	0.002	1.78
11A68-11-11A32-10	183	6	0.005	1.82
11A41-10-11A41-13	213	6	0.019	1.85
1139-02-1134-11	285	12	0.002	1.86
11A22-03-11A22-02	75	6	0.014	1.86
11A22-04-11A22-03	241	6	0.018	1.88
11A60-17-11A61-05	144	12	0.006	1.89
11A60-09-11A60-13	158	6	0.007	1.92
1134-11-1140-10	428	12	0.003	1.93
11A44-01-11A45-05	397	8	0.006	1.95
1109-28-1109-07	155	8	0.005	1.95
1120-15-1121-06	486	10	0.002	1.96

Appendix D

Surveyor’s Report for Seaside County Sanitation District Sanitary Sewer Manhole Survey

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Surveyor's Report for
Seaside County Sanitation District (SCSD)
Sanitary Sewer Manhole Survey

Date Prepared: February 26, 2009
Prepared For: Seaside County Sanitation District
Prepared by: Edward M. Reading, PLS 8081

WALLACE GROUP
612 CLARION COURT
SAN LUIS OBISPO, CA 93401

WALLACE GROUP®

PROJECT DESCRIPTION

Wallace Group surveyed 270 sanitary sewer manholes appurtenant to the SCSD sewer system for inclusion in a Geographic Information System (GIS). This data will be used in revised sewer atlases and in a sewer master plan.

PROJECT UNITS, DATUMS, PROJECTIONS, & REFERENCE SYSTEMS

All units are U.S. Survey Feet.

Horizontal:
The horizontal datum for this survey is the North American Datum of 1983, CORS Adjustment, 1996 [NAD83], epoch date of 1998 per Appendix A.

The projection used is the California Coordinate System of 1983 (CCS83), Zone 4 projection. All coordinates provided are grid coordinates.

This survey tied to 3 Sanborn Map Company, Inc. (Sanborn 1935 Jamboree Dr., Suite100 Colorado Springs, CO, 80920) control points for horizontal control as shown in the document entitled *"AMBAG, California June 2003 GPS Survey Final Report Volume 2*" attached as Appendix A. Those three points are as follows:

POINT	NORTHING	EASTING
215	2116216.69	5732720.33
224	2121433.91	5728062.47
226	2116928.44	5722130.70

The Basis of Bearings for this Survey is the California Coordinate System, Zone 4, NAD83 epoch date of 1998 as determined locally by a line between point ***215*** and ***224*** being ***N 41°45'29" W*** as derived from geodetic values published by Sanborn Map, Inc.

Vertical:
The vertical datum for this survey is the North American Vertical Datum of 1988 (NAVD88) per Appendix A.

This survey tied to and held the Sanborn control points 215, 224, 226 as the vertical control for this survey.

215 - Having a published NAVD88 elevation of 290.73 per Appendix A.
224 - Having a published NAVD88 elevation of 72.00 per Appendix A.
226 - Having a published NAVD88 elevation of 43.40 per Appendix A.

CONTROL SURVEY

Real Time Kinematic (RTK) Global Positioning System (GPS) techniques were used to establish the project control. Observations were made on February 9, 2009. 2 Trimble R8 GPS receivers were used. The observations were processed using Trimble's Geomatic Office (TGO) software version 1.62. The highest Root Mean Square (RMS) error was for point 224 (0.008'). The maximum 3D and horizontal error was at point 224 (0.035'). See Appendix B for Trimble's Geomatic Office GPS Calibration report.

SANITARY SEWER MANHOLE FIELD SURVEY

Real-Time Kinematic (RTK) GPS techniques were employed to locate the sewer line structures. Two Trimble R8 GPS receivers were used. The manufacturer's stated accuracy for these receivers in RTK mode is 1cm + 1 ppm horizontal, and 2 cm + 1 ppm vertical.

The center of each manhole was surveyed twice with two independent GPS initializations. The resulting positions agreed within 0.10' for each manhole. Digital photographs were taken of each structure. Each manhole was then opened and a vertical measurement was taken from the rim down to the invert of each manhole to calculate the invert elevation. This measurement was also photographed as a check.

This portion of the survey was performed on February 9th, 10th, 11th, 12th, 23rd, 24th, and 25th, 2009.

A coordinate listing of the surveyed structures is included as Appendix C.

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Edward M. Reading, P.L.S. 8081 Date: 2/26/2009
Expires 12/31/09

Appendix A – Sanborn AMBAG Survey Report

Not Included

Appendix B – GPS Calibration Report

GPS Calibration Report

Project : SEASIDE CSD

User name	EDR	**Date & Time**	12:49:49 PM 2/26/2009
Coordinate System	US State Plane 1983	**Zone**	California Zone 4 0404
Project Datum	NAD 1983 (Conus)		
Vertical Datum		**Geoid Model**	GEOID99 (Conus)
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

Contents

Datum Transformation Parameters

Datum Transformation computation not requested

Back to top

Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

Back to top

Horizontal Adjustment Parameters

Northing coordinate of rotation center	2118200.332sft

Easting coordinate of rotation center	5727624.879sft
Rotation about the center point	0°00'00"
Translation north	-7.319sft
Translation east	12.953sft
Scale factor	1.00001851

Back to top

Vertical Adjustment Parameters

Northing coordinate of origin point	2116216.709sft
Easting coordinate of origin point	5732720.309sft
Vertical separation at origin	2.784sft
Slope north	-5.015ppm
Slope east	-10.075ppm

Back to top

Geoid Model Definition

GEOID99 (Conus)

Back to top

Residual Differences Between GPS And Known Coordinates

Summary

	Maximum error	Root Mean Square error	Point
Horizontal	0.035sft	0.008	GPS_224
Vertical	0.000sft	0.000	GPS_215
Three-dimensional	0.035sft	0.008	GPS_224

Point Residuals

GPS point		Calculated point		Control point	
Point	GPS_215	**Northing**	2116216.709sft	**Point**	215
Latitude	36° 36'24.63663"N	**Easting**	5732720.309sft	**Northing**	2116216.690sft
		Elevation	290.734sft	**Easting**	5732720.325sft
	121°	**Horizontal**		**Elevation**	290.734sft

Longitude	49'28.87423"W	**error**	0.024sft	**Type**	Horz and Vert
Height	176.017sft	**Vertical error**	0.000sft	**Point quality**	Survey quality
		3D error	0.024sft		

Point	GPS_224	**Northing**	2121433.907sft	**Point**	224
Latitude	36° 37'14.84578"N	**Easting**	5728062.504sft	**Northing**	2121433.912sft
		Elevation	72.001sft	**Easting**	5728062.470sft
Longitude	121° 50'27.87019"W	**Horizontal error**	**0.035sft**	**Elevation**	72.001sft
Height	-42.990sft	**Vertical error**	**0.000sft**	**Type**	Horz and Vert
		3D error	**0.035sft**	**Point quality**	Survey quality

Point	GPS_226	**Northing**	2116928.423sft	**Point**	226
Latitude	36° 36'28.57201"N	**Easting**	5722130.681sft	**Northing**	2116928.436sft
		Elevation	43.399sft	**Easting**	5722130.700sft
Longitude	121° 51'38.95882"W	**Horizontal error**	0.023sft	**Elevation**	43.399sft
Height	-71.794sft	**Vertical error**	0.000sft	**Type**	Horz and Vert
		3D error	0.023sft	**Point quality**	Survey quality

Back to top

Appendix C – Coordinate Listing Of Surveyed Structures

POINT	NORTHING	EASTING	ELEV. (RIM)	DESC.
300	2121033.71	5731124.91	162.89	SSMH
301	2120742.60	5731112.21	158.14	SSMH
302	2120745.89	5731058.25	155.85	SSMH
303	2120268.69	5731036.94	148.26	SSMH
304	2119857.38	5731018.87	142.73	SSMH
305	2119861.95	5730909.91	136.30	SSMH
306	2119869.24	5730728.84	130.13	SSMH
307	2119876.48	5730549.45	128.42	SSMH
308	2119883.81	5730369.79	126.51	SSMH
309	2119900.45	5729970.88	112.67	SSMH
310	2119915.48	5729597.61	101.95	SSMH
311	2119929.60	5729242.51	89.15	SSMH
312	2119932.42	5729181.98	86.86	SSMH
313	2120909.66	5728927.34	93.92	SSMH
314	2120562.79	5728913.11	91.78	SSMH
315	2120317.67	5728948.90	87.55	SSMH
316	2119937.49	5729052.02	82.04	SSMH
317	2119945.41	5728864.47	77.15	SSMH
318	2119965.15	5728402.25	53.92	SSMH
319	2119977.14	5728119.17	47.27	SSMH
320	2118813.81	5724660.50	19.15	SSMH
321	2118669.70	5724652.31	18.25	SSMH
322	2118660.68	5724785.73	23.14	SSMH
323	2118461.58	5724771.01	21.04	SSMH
324	2118241.85	5724737.82	26.26	SSMH
325	2118042.95	5724726.83	23.88	SSMH
326	2117838.34	5724716.55	23.57	SSMH
327	2117765.56	5724711.99	24.77	SSMH
328	2118435.07	5725198.82	20.76	SSMH
329	2118403.66	5725648.10	19.05	SSMH
330	2117204.62	5724682.48	34.30	SSMH
331	2117062.22	5724674.69	34.44	SSMH
332	2116805.72	5724661.02	34.76	SSMH
333	2116540.55	5724646.31	36.26	SSMH
334	2116274.76	5724632.14	37.27	SSMH
335	2116020.25	5724618.63	37.74	SSMH
336	2115995.87	5725067.81	44.42	SSMH
337	2115971.91	5725517.37	47.48	SSMH
338	2115663.40	5726081.55	50.87	SSMH
339	2115522.25	5726020.38	52.54	SSMH
340	2115228.20	5725899.30	56.52	SSMH
341	2114790.26	5727485.37	81.58	SSMH
342	2114798.55	5727323.03	77.63	SSMH
343	2118184.14	5729152.30	81.25	SSMH
344	2118194.11	5728962.38	81.71	SSMH
345	2118645.98	5728985.72	80.04	SSMH
346	2118654.96	5728796.96	67.62	SSMH
347	2118855.16	5728806.58	63.88	SSMH

348	2118664.43	5728616.30	54.37	SSMH
349	2118673.60	5728436.91	46.98	SSMH
350	2118677.39	5728364.39	45.68	SSMH
351	2118341.88	5728221.32	43.93	SSMH
352	2118371.35	5727642.66	39.64	SSMH
353	2117403.04	5726496.81	32.23	SSMH
354	2117427.65	5726047.02	31.30	SSMH
355	2117452.28	5725597.16	26.18	SSMH
356	2117587.02	5725604.21	25.74	SSMH
357	2117789.85	5725615.13	23.67	SSMH
358	2117993.08	5725642.86	19.44	SSMH
359	2118054.52	5726351.90	26.59	SSMH
360	2118339.37	5726658.49	27.49	SSMH
361	2118724.60	5726944.38	34.57	SSMH
362	2118720.60	5727025.59	35.95	SSMH
363	2119086.79	5727119.81	36.27	SSMH
364	2119106.87	5727128.44	35.74	SSMH
365	2119378.41	5724365.40	21.07	SSMH
366	2119373.01	5724362.84	21.12	SSMH
367	2119406.00	5724315.31	20.53	SSMH
368	2119414.24	5724318.65	20.56	SSMH
369	2119433.65	5724335.27	20.86	SSMH
370	2114879.59	5725756.21	58.47	SSMH
371	2115669.75	5725972.14	49.91	SSMH
372	2115931.59	5726079.46	45.54	SSMH
373	2115944.99	5726013.00	45.37	SSMH
374	2116973.34	5726522.13	34.89	SSMH
375	2117247.25	5726643.73	34.28	SSMH
376	2117391.57	5726708.13	33.25	SSMH
377	2117595.37	5726798.70	33.23	SSMH
378	2117858.12	5726915.40	34.00	SSMH
379	2118396.31	5727154.50	35.84	SSMH
380	2118673.35	5727276.83	36.67	SSMH
381	2118995.22	5727420.24	36.05	SSMH
382	2119318.85	5727564.31	34.92	SSMH
383	2119652.41	5727712.48	36.59	SSMH
384	2119988.46	5727861.56	36.77	SSMH
385	2119991.28	5727787.98	36.97	SSMH
386	2119561.44	5727597.87	35.83	SSMH
387	2119318.37	5727489.55	35.30	SSMH
388	2119075.11	5727381.10	35.77	SSMH
389	2118830.78	5727273.78	36.53	SSMH
390	2117396.30	5726626.44	33.13	SSMH
391	2119092.67	5726839.55	40.34	SSMH
392	2118911.70	5726742.59	36.84	SSMH
393	2118751.05	5726609.71	33.19	SSMH
394	2118630.24	5726464.40	29.68	SSMH
395	2118388.82	5726145.73	22.89	SSMH
396	2118169.61	5725795.61	20.71	SSMH
397	2118016.69	5725628.23	19.89	SSMH
398	2118637.88	5727186.75	36.69	SSMH

399	2119506.11	5727306.11	37.23	SSMH
400	2119922.51	5727435.63	35.79	SSMH
401	2119960.56	5727451.11	35.42	SSMH
402	2120181.39	5727296.22	35.82	SSMH
403	2120015.63	5727214.50	38.41	SSMH
404	2117572.38	5724702.17	27.60	SSMH
405	2117311.97	5724349.86	30.41	SSMH
406	2117159.17	5724143.60	29.74	SSMH
407	2116725.47	5723596.29	18.13	SSMH
408	2116796.72	5723527.25	17.88	SSMH
409	2116807.51	5723503.61	17.66	SSMH
410	2112442.33	5726350.15	97.89	SSMH
411	2112761.75	5725834.89	76.32	SSMH
412	2113042.02	5725487.84	59.94	SSMH
413	2113284.87	5725238.97	53.04	SSMH
414	2113528.43	5724995.09	52.10	SSMH
415	2113753.95	5724837.41	50.89	SSMH
416	2113993.75	5724684.39	48.71	SSMH
417	2114267.78	5724509.65	44.45	SSMH
418	2114542.97	5724334.01	38.08	SSMH
419	2114812.36	5724173.01	26.05	SSMH
420	2115180.69	5724013.53	19.37	SSMH
421	2115298.04	5723980.33	18.89	SSMH
422	2115572.55	5723901.94	20.51	SSMH
425	2114461.80	5730234.50	184.57	SSMH
426	2114443.87	5730545.99	186.02	SSMH
430	2114301.08	5730538.22	180.69	SSMH
431	2114283.33	5730859.03	183.76	SSMH
432	2114085.81	5730849.25	182.59	SSMH
433	2115982.71	5723778.53	18.29	SSMH
434	2116297.05	5723692.25	19.50	SSMH
435	2116326.59	5723695.09	19.69	SSMH
436	2116590.49	5723710.21	21.98	SSMH
437	2111708.66	5728696.33	78.84	SSMH
440	2111813.02	5728030.50	72.04	SSMH
441	2111736.59	5728021.13	74.47	SSMH
442	2111595.42	5729114.73	93.98	SSMH
444	2111284.02	5729504.99	82.98	SSMH
445	2110942.59	5729872.52	84.38	SSMH
446	2110764.10	5730014.85	85.85	SSMH
447	2110510.60	5730172.42	89.11	SSMH
448	2110184.20	5730316.20	91.09	SSMH
449	2109627.94	5730443.41	99.62	SSMH
450	2109838.56	5730413.17	93.26	SSMH
451	2109485.70	5730465.98	101.32	SSMH
452	2109100.72	5730590.76	104.96	SSMH
453	2108668.99	5730758.53	112.49	SSMH
454	2106141.55	5732040.82	126.30	SSMH BOLTED
455	2106347.46	5731920.05	125.62	SSMH BOLTED
456	2108142.80	5731053.40	117.51	SSMH
457	2108638.49	5730862.59	113.41	SSMH

458	2108698.01	5730836.61	112.95	SSMH
459	2108773.16	5730719.18	112.56	SSMH
460	2108715.06	5730572.38	113.55	SSMH
461	2108521.58	5730647.51	114.04	SSMH
462	2108268.83	5730680.02	114.54	SSMH
463	2107934.58	5730810.08	115.64	SSMH
464	2116901.47	5732774.89	252.75	SSMH
465	2116907.80	5732660.85	241.52	SSMH
466	2116914.52	5732535.36	233.43	SSMH
467	2116921.87	5732387.05	226.93	SSMH
468	2116930.68	5732214.10	219.74	SSMH
469	2116943.10	5731973.05	216.88	SSMH
470	2116947.78	5731898.50	216.16	SSMH
471	2116953.61	5731774.10	214.87	SSMH
472	2116959.91	5731649.95	211.75	SSMH
473	2116963.89	5731566.56	207.07	SSMH
474	2116977.54	5731292.10	191.85	SSMH
475	2116986.40	5731129.09	182.51	SSMH
476	2116989.03	5731088.24	179.95	SSMH
477	2117024.97	5730942.16	172.14	SSMH
478	2117033.89	5730762.27	162.53	SSMH
479	2117043.70	5730582.08	156.49	SSMH
480	2117052.83	5730402.11	152.56	SSMH
481	2117062.33	5730222.50	149.47	SSMH
482	2117073.17	5730005.37	138.84	SSMH
484	2117083.06	5729815.74	127.13	SSMH
486	2117092.44	5729636.16	121.16	SSMH
488	2117101.89	5729456.19	116.44	SSMH
490	2117111.02	5729276.56	106.81	SSMH
492	2117120.65	5729097.15	100.43	SSMH
494	2117130.55	5728907.47	90.91	SSMH
496	2117137.13	5728706.99	82.55	SSMH
498	2117165.66	5728162.98	75.39	SSMH
500	2117188.79	5727792.41	62.30	SSMH
503	2117207.44	5727419.77	47.31	SSMH
505	2117228.54	5727011.09	40.75	SSMH
507	2113553.78	5731069.67	229.62	SSMH
508	2113578.65	5730578.64	204.21	SSMH
509	2113589.52	5730367.71	194.88	SSMH
510	2113605.66	5730061.44	181.63	SSMH
511	2113612.41	5729929.03	176.12	SSMH
512	2113628.87	5729610.19	174.49	SSMH
513	2113639.67	5729407.25	164.91	SSMH
514	2113650.51	5729193.12	149.84	SSMH
516	2113656.59	5729074.86	144.01	SSMH
518	2113658.10	5729049.59	143.11	SSMH
520	2113674.59	5728728.24	131.63	SSMH
522	2113700.74	5728228.88	128.27	SSMH
524	2113721.23	5727832.36	123.88	SSMH
526	2113731.71	5727630.04	119.16	SSMH
528	2113733.30	5727596.95	118.35	SSMH

530	2113742.87	5727401.60	114.28	SSMH
532	2113750.44	5727262.40	110.88	SSMH
534	2113760.09	5727078.99	104.18	SSMH
536	2113789.98	5726503.82	87.86	SSMH
538	2114249.99	5726527.52	72.32	SSMH
540	2114308.59	5726530.66	71.55	SSMH
542	2121156.89	5731198.16	163.69	SSMH
544	2121158.46	5731130.49	162.77	SSMH
548	2114560.20	5731916.55	229.72	SSMH
549	2114570.90	5731710.72	226.02	SSMH
550	2114587.37	5731390.33	217.35	SSMH
551	2114588.51	5731374.66	216.89	SSMH
552	2114609.81	5730967.44	213.73	SSMH
553	2114617.12	5730818.25	212.90	SSMH
554	2114626.74	5730635.12	210.01	SSMH
555	2114636.41	5730457.51	196.83	SSMH
556	2114645.86	5730277.67	184.78	SSMH
557	2114646.25	5730256.23	183.91	SSMH
558	2114655.20	5730097.98	181.23	SSMH
559	2114676.79	5729677.02	177.47	SSMH
560	2114694.68	5729331.60	173.00	SSMH
561	2114704.07	5729151.38	167.25	SSMH
562	2114713.29	5728972.27	157.92	SSMH
563	2114722.84	5728782.10	152.81	SSMH
564	2114761.75	5728034.06	111.18	SSMH
565	2114810.50	5727087.77	73.95	SSMH
566	2114811.47	5727072.47	73.79	SSMH
567	2114838.06	5726557.45	66.45	SSMH
568	2114851.47	5726305.26	62.72	SSMH
569	2114859.38	5726146.34	60.66	SSMH
570	2114864.44	5726054.32	60.01	SSMH
571	2119730.55	5734010.46	287.57	SSMH
572	2119739.65	5733824.94	289.36	SSMH
573	2119746.91	5733644.97	283.49	SSMH
574	2119813.26	5732063.82	230.25	SSMH
575	2119824.10	5731804.23	207.92	SSMH
576	2119836.44	5731543.99	185.19	SSMH
577	2119847.04	5731278.68	161.39	SSMH
578	2119848.04	5731245.31	159.15	SSMH
579	2119854.43	5731089.52	146.87	SSMH
580	2114043.81	5731695.96	200.24	SSMH
581	2114051.96	5731521.81	197.11	SSMH
582	2114066.08	5731249.92	191.39	SSMH
583	2114069.22	5731210.58	190.46	SSMH
584	2114079.84	5730997.39	186.29	SSMH
585	2119755.42	5726855.26	42.95	SSMH
586	2119664.91	5727059.06	41.62	SSMH
587	2119330.10	5726910.58	42.36	SSMH
588	2118967.95	5726741.14	37.54	SSMH
589	2118747.95	5726559.87	32.12	SSMH
590	2118444.89	5726172.43	23.60	SSMH

591	2118195.82	5725778.25	20.77	SSMH
592	2118134.30	5725815.82	20.66	SSMH
593	2118180.43	5725890.40	20.76	SSMH
594	2118333.42	5726134.97	22.19	SSMH
595	2107238.60	5731051.30	120.30	SSMH
596	2111629.29	5727999.93	105.36	SSMH
597	2111887.61	5726696.13	54.57	SSMH
598	2111887.32	5726718.50	53.99	SSMH
599	2111881.78	5726942.37	54.86	SSMH
600	2111897.40	5727185.55	60.71	SSMH
601	2111944.22	5727419.58	66.80	SSMH
602	2111950.12	5727638.99	70.72	SSMH
603	2111915.38	5727876.10	71.75	SSMH
604	2111883.70	5728126.72	73.28	SSMH
605	2107370.84	5731019.93	115.80	SSMH
607	2107672.22	5730931.27	114.83	SSMH
608	2107627.64	5730987.10	115.32	SSMH
609	2107670.52	5730893.98	115.39	SSMH

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Appendix E

Rate Analysis Memorandums and Presentations to Seaside County Sanitation District Board

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Public Finance and Urban Economics
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DRAFT

M E M O R A N D U M
January 17, 2011

TO: Rick Riedl
Tim O'Halloran

FROM: Andrea Roess, Managing Director
Steve Runk, Vice-President

SUBJECT: Rate Analysis for Seaside County Sanitation District

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David Taussig & Associates, Inc. ("DTA") has prepared this memorandum to summarize the Financial Analysis for the Seaside County Sanitation District (the "District"). All of the alternatives are designed to finance all or a portion of the District's capital replacement program as identified in the Sewer Master Plan dated May 2010 prepared by Wallace Group (the "Master Plan").

SECTION I: CAPITAL REPLACEMENT PROGRAM

DTA was asked to prepare a variety of rate scenarios in order to fund the following projects from the Master Plan: (i) all 18 Near Term Capital Projects from Table 9-2 of the Master Plan, (ii) all four Capital Outlay Projects from Table 9-6 of the Master Plan, and (iii) Long Term Capital Projects two through four from Table 9-7 of the Master Plan.

While certain costs have been allocated to new development (see Attachment A herein), the rate models assume that existing development will have to carry the cost of these projects until capacity fee revenues become available. This is because the facilities are also needed to serve existing development and the District cannot wait to accumulate sufficient funds from new development to construct the facilities. Capacity fee calculations and fair share allocations are not a part of this scope. However, as discussed below, DTA has estimated that capacity fee revenues will partially offset the costs of facilities needed to serve both existing and future development over the 15 year term covered by our model.

For purposes of the rate analysis, the Near Term Capital Projects have been divided into two groups based on funding priority. The first 11 Near Term Capital Projects have been identified as a higher priority because these 11 projects were identified due to capacity-related deficiencies. These projects

are recommended to be constructed within the first five years to avoid health and safety issues. Near Term Capital Projects 12 through 18 can be delayed beyond year five. These projects are operational and maintenance-based and do not impact the health and safety of the community. The table below summarizes the costs for the four categories:

TABLE 1

Master Plan Table	Projects	Costs allocated to Existing Development (unescalated)	Costs allocated to New Development (unescalated)	Total Costs (unescalated)
Table 9-2	Near Term Capital Projects (Projects 1 through 11)	$3,422,107	$1,038,453	$4,460,560
Table 9-2	Near Term Capital Projects (Projects 12 through 18)	$5,405,299	$30,650	$5,435,948
Table 9-6	Capital Outlay Projects (Projects 1 through 4)	$545,000	$0	$545,000
Table 9-7	Long Term Capital Projects (Projects 2 through 4)	$2,039,350	$1,203,450	$3,242,800
NA	Total	$11,411,756	$2,272,553	$13,684,308

A more detailed listing of the individual projects is included in Attachment A.

SECTION II: CURRENT USERS AND EDU ANALYSIS

Data on existing sewer system users and average flow by land use category was provided by Monterey Regional Water Pollution Control Agency ("MRWPCA"). The District currently charges approximately 67% of the MRWPCA sewer rate for the District's collection system service for all users, which results in a current rate of $8.04 per residential unit. MRWPCA's rates are based on an equivalent dwelling unit ("EDU") factor that considers flow measured in gallons per day, sewage strength measured in mg/l of biochemical oxygen demand and suspended solids. This makes sense for MRWPCA because they are a sewer treatment agency and their costs are related to these three factors. However, since the District is a sewer "collection" agency, it was determined that in order to meet the benefit requirements of Proposition 218, an EDU factor based solely on flow would be used to determine the EDU factors. Using the average flow data provided by MRWPCA, DTA calculated new EDU factors for each land use as shown in Attachment C. For purposes of this analysis, rate factors are based upon the flows from a typical residential unit, which is equal to 1 EDU. The EDUs for all other land use categories are based on the average flow as determined by MRWPCA for each land use as compared to the flow for a residential unit.

SECTION III: FINANCIAL ANALYSIS

The model used in this analysis combines rate revenues and estimated capacity fee revenues to

project total revenues. Capacity fee revenues are estimated at $136,327 per year starting in Year 6 and in no case will new development pay more than its fair share of the capital improvement program. Operating costs and contributions to rate stabilization reserves are subtracted from the total revenue. All residual revenue is then allocated to the capital replacement fund or to pay debt service. The model was used to explore many combinations of rate increases and debt financing to arrive at an optimum recommendation for current and future financial policy.

Operating revenue consists of rate revenues, ad valorem property tax revenues, interest earnings on reserve balances and capacity fee revenues.

Annual operating expenses were grouped into two categories: District employee labor and materials allocated to sewer operations and outside services. Sewer operations budget for year 1 is $750,000 as shown in Table 9-5 of the Master Plan. Outside services consist of video inspections, sewer system management plan, GIS mapping, LS maintenance and PG&E costs. First year budget amounts are also shown in Table 9-5 of the Master Plan. Also shown in Table 9-5 is the Fats, Oil and Grease program costs, which are not funded by all users and described in Section VI below, “FOG Program.”

Cash flow over a 15 year study period was projected in order to match the timing of capital projects with capital replacement fund balances. Table 3 below summarizes the eight scenarios under consideration and summarizes the timing and extent that capital projects can be funded, dependent of course on the assumptions for rate increase and debt financing for each alternative.

Table 2 below describes the assumptions which remain constant in all alternatives:

TABLE 2

1.	Operational expenses will increase due to inflation at an average annual rate of 3%. Operational expenses do not include FOG program costs as shown in Table 9-4 of the Master Plan.
2.	Capital costs increase by 3% each year to the year constructed.
3.	Contributions to the rate stabilization fund will be at 15% of operational expenses on an annual basis until the fund reaches a maximum of $200,000. Subsequent to reaching this maximum, all revenue in excess of expenses will be contributed to the capital replacement fund.
4.	Ad valorem property tax revenue will decrease 3% in year 1, hold constant in year 2 and increase at 2% per year for every year thereafter.
5.	The capital replacement fund will have a starting balance of $600,000 (before any contributions are made from rates).
6.	Capacity fee revenues are assumed to equal $136,327 annually starting in Year 6. This is based on the amount of escalated costs allocated to new development divided by 20 years assuming the facilities timing from Alternative 3.

SECTION IV: RATE MODEL RESULTS

Table 3 describes the eight sewer rate alternatives that are currently being considered by the District. The Year 1 rate per EDU per month as well as the unfunded facilities for each alternative are summarized in Table 3. We have defined the variables below for simplicity:

PayGo = Pay-as-you-go financing from rate revenues
RI = One time rate increase for a specific year
ARI = Annual rate increase
Debt = Bond financing
LOC = Line of credit financing

TABLE 3

Alt.	Alt. Variables	Rate in Year 1 (EDU/mo)	Unfunded Facilities	Cost of Unfunded
1	PayGo ARI of 2.15% to offset increasing O&M costs	$8.04	Near Term Unfunded: 12,14,16,17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 3	$10,664,536 (escalated)
1A	PayGo RI of 15% in Year 1 ARI of 2.15% to offset increasing O&M costs	$9.25	Near Term Unfunded: 17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 2,3	$6,533,181 (escalated)
2	PayGo and Debt ARI of 2.15% to offset increasing O&M costs	$8.04	Near Term Unfunded: 12,16,17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 2,3	$10,894,259 (escalated)
2A	PayGo and Debt RI of 15% in Year 1 ARI of 2.15% to offset increasing O&M costs	$9.25	Near Term Unfunded: 12,17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 3	$8,559,551 (escalated)
3	PayGo RI of 55% in Year 1 to fund all projects by Year 15 ARI of 1.35%	$12.50	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0
4	PayGo and Bonds RI of 56% in Year 6 to fund all projects by Year 15 ARI of 2.15% to offset increasing O&M costs	$8.04	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0
5	LOC (Any draws on the line-of-credit are paid back with rate revenues prior to drawing additional funds on the LOC) ARI of 2.15% to offset increasing O&M costs.	$8.04	Near Term Unfunded: 12,16,17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 2,3	$10,894,259 (escalated)
6	PayGo ARI of 5%	$8.04	Near Term Unfunded: 17 Capital Outlay Unfunded: All funded	$6,533,181 (escalated)

As shown in Attachment B and Table 2 above, only Alternatives 3 and 4 fully fund all of the projects shown in Attachment A. The last step in refining the model is to identify the timing of capital replacement expenditures which will allow us to produce a more realistic analysis.

SECTION V: MONTHLY SEWER RATES

The Year 1 sewer rate per month for each land use class is shown in Attachment D. Please note that Alternatives 1, 2, 4, 5, and 6 all start with the current sewer rate of $8.04 per EDU per month as shown in Table 3 above. Alternatives 1A and 2A start with $9.25 per EDU per month which is 15% higher than $8.04. Alternative 3 starts with $12.50 per EDU per month which generates sufficient funds to fund all of the projects as identified in Section I above.

SECTION VI: FATS, OILS AND GREASE PROGRAM

Nineteen of the land use categories have been designated as Food Service Establishments ("FSE") and were identified by the District as significant contributors of fats, oils and grease to the sewer system. The Fats, Oils and Grease ("FOG") program will generate a separate revenue stream to cover the costs of administering the FOG program. Attachment F lists these land uses, the number of existing units, the average flow for each land use, and the total flow from all of the nineteen land uses. The assumption made is that flow is a measure of activity for each business which should be proportional to the amount of fats, oils and grease generated. The estimated annual program cost of $27,000 was divided by the total flow of 141,330 gallons per day ("gpd") to get a cost per unit of flow of $0.19 per gpd. This unit cost was then multiplied by the average flow per unit for each land use to determine the FOG rates for the nineteen land uses.

ATTACHMENT A

CAPITAL PROJECT COSTS

Near Term Capital Projects (Table 9-2, Sewer Master Plan)

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
1	Del Monte Lift Station	Lift Station Upgrades including expanding wetwell capacity to meet current demand	$17,500	$17,500	100%	$17,500	$0	$17,500	$17,500
2	Rosita Lift Station	Lift station upgrades including pump control modifications and maintenance related repairs	$61,600	$61,600	100%	$61,600	$0	$79,100	$79,100
3	942 Angeles Way Sewer	Replace existing steel pipe with ductile iron pipe at creek crossing	$50,400	$50,400	100%	$50,400	$0	$129,500	$129,500
4	Del Rey Park Sewer Line	re-route existing main for maintenance purposes	$267,750	$267,750	100%	$267,750	$0	$397,250	$397,250
5	Del Monte Blvd. Sewer Line	replace and re-route existing sewer line. Consolidates capacity from older lines	$1,033,760	$1,033,760	44%	$454,854	$578,906	$852,104	$1,431,010
6	Military Lift Station Replacement	replace entire lift station	$553,000	$553,000	100%	$553,000	$0	$1,405,104	$1,984,010
7	Fremont Blvd. Sewer	replace existing pipeline. Additional capacity is needed to meet current demand	$1,158,150	$1,158,150	72%	$833,868	$324,282	$2,238,972	$3,142,160
8	Luzern Street Sewer Line	replace existing sewer line. Upgrade three existing manholes	$360,360	$360,360	100%	$360,360	$0	$2,599,332	$3,502,520

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
9	La Salle Avenue Sewer Line	replace existing pipeline. Additional capacity is needed to meet current demand	$496,440	$496,440	75%	$372,330	$124,110	$2,971,662	$3,998,960
10	Tioga Lift Station Feasibility Analysis	Investigate the possiblility of abandonment	$11,500	$11,500	3%	$345	$11,155	$2,972,007	$4,010,460
11	Birch Avenue Sewer Line	replace exisitng sewer main	$450,100	$450,100	100%	$450,100	$0	$3,422,107	$4,460,560
12	Root Intrusion Replacements	inspect and replace pipes damaged by root intrusion	$1,300,650	$1,300,650	100%	$1,300,650	$0	$4,722,757	$5,761,210
13	Brick Manhole Inspection	inspect all brick manholes for infiltration and deterioration	$84,813	$84,813	100%	$84,813	$0	$4,807,570	$5,846,023
14	Drop Manhole Inspection	Inspect all drop manholes for improper construction and needed upgrades to meet current standards	$415,350	$415,350	100%	$415,350	$0	$5,222,920	$6,261,373
15	Manhole Lid Replacements	install upgraded manhole liods to prevent sand and water infiltration	$74,480	$74,480	100%	$74,480	$0	$5,297,400	$6,335,853
16	Rod Hole Replacement	Replace rod holes (cleanouts) with standard manholes	$935,760	$935,760	100%	$935,760	$0	$6,233,160	$7,271,613

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
17	New Manhole Installation	Install new manholes where existing sewer line pipe runs exceed 400 feet	$2,318,400	$2,318,400	100%	$2,318,400	$0	$8,551,560	$9,590,013
18	Canyon Del Rey Sewer line	replace existing sewer lines that have little or no structural integrity	$306,495	$306,495	90%	$275,846	$30,650	$8,827,406	$9,896,508
			$9,896,508	$9,896,508		$8,827,406	$1,069,102		

SCSD Capital Outlay (Table 9-6, Sewer Master Plan)

Project Number	Project	Description	2010 Construction Cost	escalation	Allocation to existing development	Capital Outlay Costs Allocated to Existing Development	Capital Outlay Costs Allocated to Existing Development	Accumulated (portion allocated to Existing)	Accumulated Total
1	Video Inspection	GIS Software/hardware, video camera	$15,000	$15,000	100%	$15,000	$0	$15,000	$15,000
2	Vehicle	one jetter truck	$160,000	$160,000	100%	$160,000	$0	$175,000	$175,000
3	Vehicle	one pickup	$20,000	$20,000	100%	$20,000	$0	$195,000	$195,000
4	Vactor Truck	one truck	$350,000	$350,000	100%	$350,000	$0	$545,000	$545,000
			$545,000	$545,000		$545,000	$0		

Region A Long Term Capital Cost (Table 9-7, Sewer Master Plan)

Project Number	Project	Description	2010 Construction Cost	escalation	Allocation to existing development	Region A Long Term Capital Costs Allocated to Existing Development	Region A Long Term Capital Costs Allocated to Existing Development	Accumulated (portion allocated to Existing)	Accumulated Total
2	Ortiz		$562,800	$562,800	0%	$0	$562,800	$0	$562,800
3	Del Monte Lift Station VFD Upgrade		$1,875,000	$1,875,000	80%	$1,500,000	$375,000	$1,500,000	$2,437,800
4	Rosita Lift Station VFD Upgrade		$805,000	$805,000	67%	$539,350	$265,650	$2,039,350	$3,242,800
			$3,242,800	$3,242,800		$2,039,350	$1,203,450		
	Total Capital Replacement Costs		$13,684,308	$13,684,308		**$11,411,756**	**$2,272,552**		

ATTACHMENT B

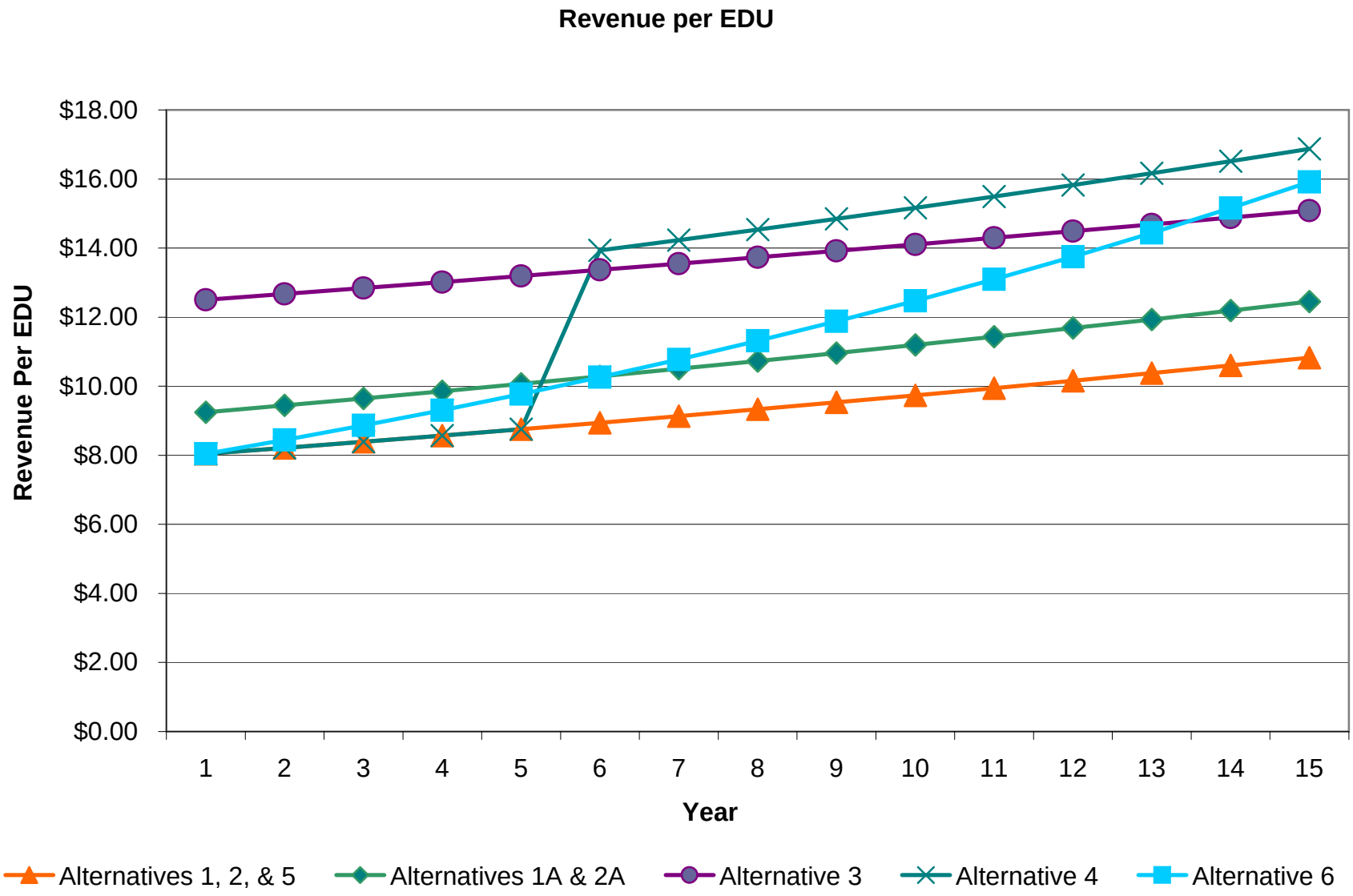
RATE ANALYSIS SUMMARY

RATE ANALYSIS SUMMARY

Alternative	Description		Total EDUs	$ per EDU (monthly) $ per EDU Years 1 to 5	One time Increase Year 6 [1]	$ per EDU After Year 5 [1]
1	Maintain existing residential rate	No Bonds, Pay-as-you-go only	10,748	$8.04	0.00%	$8.94
1A	Increase residential rate by 15% in Year 1	No Bonds, Pay-as-you-go only	10,748	$9.25	0.00%	$10.28
2	Maintain existing residential rate	Bond in Year 1	10,748	$8.04	0.00%	$8.94
2A	Increase residential rate by 15% in Year 1	Bond in Year 1	10,748	$9.25	0.00%	$10.28
3	Fund all facilities by Year 15	No Bonds, Pay-as-you-go only	10,748	$12.50	0.00%	$13.37
4	Maintain existing residential rate through Year 5	Bonds in Years 1 and 6	10,748	$8.04	55.80%	$13.93
5	Maintain existing residential rate	Draw on LOC in Years 3 and 10	10,748	$8.04	0.00%	$8.94
6	Start with existing residential rate; increases annually by 5%	No Bonds, Pay-as-you-go only	10,748	$8.04	0.00%	$10.26

[1] All scenarios except Scenarios 3 and 6 include a 2.15% annual cost escalation to offset increasing O&M costs. Scenarios 3 and 6 assume an annual cost escalation of 1.35% and 5.00%, respectively.

Alternative	Description		Near Term Unfunded Projects	Cap. Outlay Unfunded Projects	Long Term Cap. Unfunded Projects	Cost of Unfunded Projects (escalated)
1	Maintain existing residential rate	No Bonds, Pay-as-you-go only	12,14,16, 17	All Funded	3	$10,664,536
1A	Increase residential rate by 15% in Year 1	No Bonds, Pay-as-you-go only	17	All Funded	2,3	$6,533,181
2	Maintain existing residential rate	Bond in Year 1	12, 16, 17	All Funded	2,3	$10,894,259
2A	Increase residential rate by 15% in Year 1	Bond in Year 1	12,17	All Funded	3	$8,559,551
3	Fund all facilities by Year 15	No Bonds, Pay-as-you-go only	All Funded	All Funded	All funded	$0
4	Maintain existing residential rate through Year 5	Bonds in Years 1 and 6	All Funded	All Funded	All funded	$0
5	Maintain existing residential rate	Draw on LOC in Years 3 and 10	12, 16, 17	All Funded	2,3	$10,894,259
6	Start with existing residential rate; increases annually by 5%	No Bonds, Pay-as-you-go only	17	All Funded	3	$6,533,181


Revenue per EDU
Revenue Per EDU
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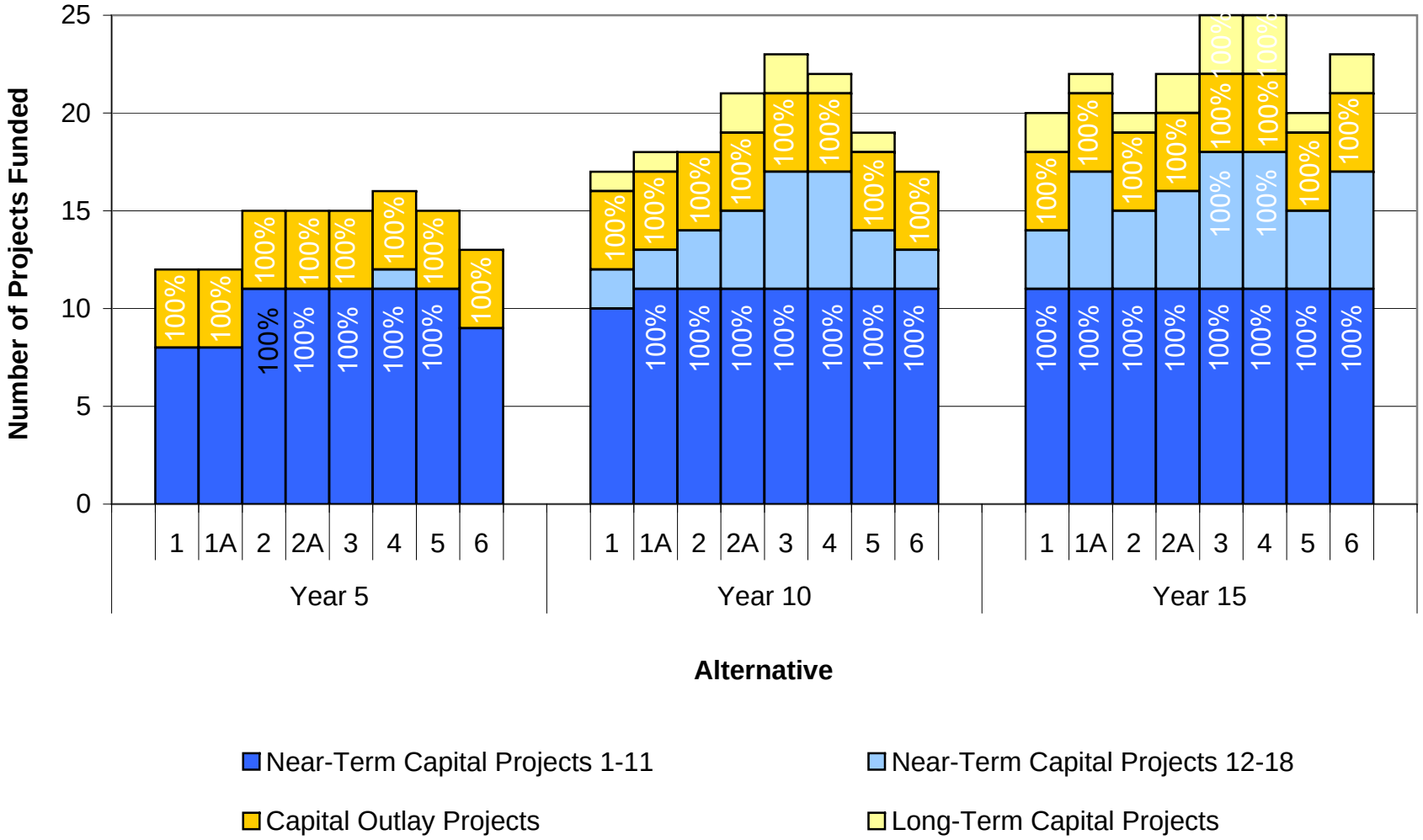
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Year
Alternatives 1, 2, & 5
Alternatives 1A & 2A
Alternative 3
Alternative 4
Alternative 6

Cumulative Number of Projects Funded



ATTACHMENT C

EDU ANALYSIS

EDU CALCULATION

Description	MRWPCA Monthly Rates	Units	EXISTING UNITS Del Rey Oaks	Seaside	Sand City	GPD AVG FLOW	EDU Factor	Total EDUs
Business/Gov't	$8.30	Location/Each Business	40	433	232	146	0.77	544
Residential-Vacant	$7.20	Each Living Unit	1	19	21		0.00	0
Residential/Apartments	$12.00	Each Living Unit	544	5,139	69	189	1.00	5752
Residential/Apartments	$12.00	Each Living Unit	17	2,759	51	189	1.00	2827
Residential-Vacant	$7.20	Each Living Unit	1	2			0.00	0
Condo/Retirement	$12.00	Each Living Unit	148	175		189	1.00	323
Condo/Retirement	$12.00	Each Living Unit				189	1.00	0
Minimum/Vacancy	$6.35	Location/Each Business	1	61	15		0.00	0
Motel/Hotel	$4.95	Each Room		478		82	0.43	207
Bed & Breakfast Inn	$3.30	Each Room				54	0.29	0
Supermarkets	$78.35	Location	1	5	1	797	4.22	30
Medical Office	$10.70	Each Licensed Physician	3	15	2	195	1.03	21
Dental Office	$14.45	Each Licensed Dentist	1	9	1	269	1.42	16
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity		111		54	0.29	32
General Hospital	$18.35	Each Bed of Licensed Capacity				320	1.69	0
Animal Hospital	$21.50	Location/Each Licensed Business				356	1.88	0
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	90	116		7	0.04	8
Restaurant 2 meals/day	$1.15	Each Restaurant Seat		1,379	61	11	0.06	84
Restaurant 3 meals/day	$2.15	Each Restaurant Seat		233	62	21	0.11	33
Restaurant with Bar	$2.15	Each Restaurant Seat	174	370		21	0.11	60
Bar	$18.75	Location/Each Business	1	6		317	1.68	12
Nightclub	$54.65	Location/Each Business				950	5.03	0
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	6	17	6	354	1.87	54
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	1	9	2	871	4.61	55
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	1	3	2	1,588	8.40	50
Bakery	$30.10	Location/Each Business	1	6	4	287	1.52	17
Theater	$25.35	Per Screen @ Each Location				471	2.49	0
Bowling Center	$77.20	Location/Each Business				1,433	7.58	0
Gym	$8.30	Per 500 members		6	2	146	0.77	6
Mortuary	$38.40	Location/Each Business		2		387	2.05	4
School (Minimum)	$8.30			7			0.00	0
School (Grades 0-6)	$0.10	School Population		4,014		2	0.01	44
School (7-College)	$0.20	School Population		307		4	0.02	6
Boarding School	$2.40	School Population				40	0.21	0
Instructional Facility	$8.30	School Population		2	1	146	0.77	2
Church	$8.30	Per 100 members	1	33		146	0.77	26
Photo / Laboratory / Printer	$8.30	Per 10 employees	1	10	1	146	0.77	9
Service Station/Garage	$8.80		2	46	13	140	0.74	45
Paint and Body Shops	$8.30	Per 10 employees	2	14	6	146	0.77	17
Commercial Laundry	$0.00	Individual Determination					0.00	0
Dry Cleaner	$26.50	Location/Each Business		2		483	2.56	5
Laundromat	$6.70	Each Washing Machine		116		127	0.67	78
Major Hotel	$0.00	Individual Determination		1			0.00	0
Car Wash	$0.00	Individual Determination		2	1		0.00	0
Special User	$0.00	Individual Determination		7	1		0.00	0
Rec Sports Facility	$0.00	Individual Determination		3			0.00	0
Ground Water	$0.00	Individual Determination		1			0.00	0
Special User (From Tom Buell email 2/22/10)						71,918	380.52	381
								10,748

ATTACHMENT D

RATES

MONTHLY SEWER RATES - ALTERNATIVES 1, 2, 4, 5, AND 6

Description	MRWPCA Monthly Rates	Units	Monthly Seaside Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 6.21	$ -	$ 6.21
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 8.04	$ -	$ 8.04
Residential/Apartments	$12.00	Each Living Unit	$ 8.04	$ -	$ 8.04
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 8.04	$ -	$ 8.04
Condo/Retirement	$12.00	Each Living Unit	$ 8.04	$ -	$ 8.04
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 3.49	$ -	$ 3.49
Bed & Breakfast Inn	$3.30	Each Room	$ 2.30	$ 0.86	$ 3.16
Supermarkets	$78.35	Location	$ 33.90	$ 12.69	$ 46.59
Medical Office	$10.70	Each Licensed Physician	$ 8.30	$ -	$ 8.30
Dental Office	$14.45	Each Licensed Dentist	$ 11.44	$ -	$ 11.44
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 2.30	$ 0.86	$ 3.16
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 13.61	$ 5.09	$ 18.71
Animal Hospital	$21.50	Location/Each Licensed Business	$ 15.15	$ -	$ 15.15
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.30	$ 0.11	$ 0.41
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.47	$ 0.18	$ 0.64
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 0.89	$ 0.33	$ 1.23
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 0.89	$ 0.33	$ 1.23
Bar	$18.75	Location/Each Business	$ 13.48	$ -	$ 13.48
Nightclub	$54.65	Location/Each Business	$ 40.41	$ 15.12	$ 55.53
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 15.06	$ 5.64	$ 20.69
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 37.05	$ 13.87	$ 50.91
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 67.55	$ 25.28	$ 92.83
Bakery	$30.10	Location/Each Business	$ 12.21	$ 4.57	$ 16.78
Theater	$25.35	Per Screen @ Each Location	$ 20.03	$ -	$ 20.03
Bowling Center	$77.20	Location/Each Business	$ 60.96	$ 22.81	$ 83.77
Gym	$8.30	Per 500 members	$ 6.21	$ -	$ 6.21
Mortuary	$38.40	Location/Each Business	$ 16.47	$ -	$ 16.47
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.09	$ 0.03	$ 0.12
School (7-College)	$0.20	School Population	$ 0.17	$ 0.06	$ 0.23
Boarding School	$2.40	School Population	$ 1.70	$ 0.64	$ 2.34
Instructional Facility	$8.30	School Population	$ 6.21	$ -	$ 6.21
Church	$8.30	Per 100 members	$ 6.21	$ 2.32	$ 8.53
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 6.21	$ -	$ 6.21
Service Station/Garage	$8.80		$ 5.96	$ -	$ 5.96
Paint and Body Shops	$8.30	Per 10 employees	$ 6.21	$ -	$ 6.21
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 20.55	$ -	$ 20.55
Laundromat	$6.70	Each Washing Machine	$ 5.40	$ -	$ 5.40
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 3,059.23	$ 751.96 [2]	$ 3,811.19

% Increase from Current Rate 0%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

MONTHLY SEWER RATES - ALTERNATIVES 1A AND 2A

Description	MRWPCA Monthly Rates	Units	Monthly Seaside Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 7.14	$ -	$ 7.14
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 9.25	$ -	$ 9.25
Residential/Apartments	$12.00	Each Living Unit	$ 9.25	$ -	$ 9.25
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 9.25	$ -	$ 9.25
Condo/Retirement	$12.00	Each Living Unit	$ 9.25	$ -	$ 9.25
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 4.01	$ -	$ 4.01
Bed & Breakfast Inn	$3.30	Each Room	$ 2.64	$ 0.86	$ 3.50
Supermarkets	$78.35	Location	$ 38.99	$ 12.69	$ 51.68
Medical Office	$10.70	Each Licensed Physician	$ 9.54	$ -	$ 9.54
Dental Office	$14.45	Each Licensed Dentist	$ 13.16	$ -	$ 13.16
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 2.64	$ 0.86	$ 3.50
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 15.65	$ 5.09	$ 20.75
Animal Hospital	$21.50	Location/Each Licensed Business	$ 17.42	$ -	$ 17.42
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.34	$ 0.11	$ 0.45
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.54	$ 0.18	$ 0.71
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.03	$ 0.33	$ 1.36
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.03	$ 0.33	$ 1.36
Bar	$18.75	Location/Each Business	$ 15.50	$ -	$ 15.50
Nightclub	$54.65	Location/Each Business	$ 46.47	$ 15.12	$ 61.59
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 17.32	$ 5.64	$ 22.95
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 42.60	$ 13.87	$ 56.47
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 77.68	$ 25.28	$ 102.96
Bakery	$30.10	Location/Each Business	$ 14.04	$ 4.57	$ 18.61
Theater	$25.35	Per Screen @ Each Location	$ 23.04	$ -	$ 23.04
Bowling Center	$77.20	Location/Each Business	$ 70.10	$ 22.81	$ 92.91
Gym	$8.30	Per 500 members	$ 7.14	$ -	$ 7.14
Mortuary	$38.40	Location/Each Business	$ 18.93	$ -	$ 18.93
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.10	$ 0.03	$ 0.13
School (7-College)	$0.20	School Population	$ 0.19	$ 0.06	$ 0.26
Boarding School	$2.40	School Population	$ 1.96	$ 0.64	$ 2.60
Instructional Facility	$8.30	School Population	$ 7.14	$ -	$ 7.14
Church	$8.30	Per 100 members	$ 7.14	$ 2.32	$ 9.46
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 7.14	$ -	$ 7.14
Service Station/Garage	$8.80		$ 6.85	$ -	$ 6.85
Paint and Body Shops	$8.30	Per 10 employees	$ 7.14	$ -	$ 7.14
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 23.63	$ -	$ 23.63
Laundromat	$6.70	Each Washing Machine	$ 6.21	$ -	$ 6.21
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 3,518.11	$ 751.96 [2]	$ 4,270.07

% Increase from Current Rate 15%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

MONTHLY SEWER RATES - ALTERNATIVE 3

Description	MRWPCA Monthly Rates	Units	Monthly Seaside Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 9.65	$ -	$ 9.65
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 12.50	$ -	$ 12.50
Residential/Apartments	$12.00	Each Living Unit	$ 12.50	$ -	$ 12.50
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 12.50	$ -	$ 12.50
Condo/Retirement	$12.00	Each Living Unit	$ 12.50	$ -	$ 12.50
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 5.43	$ -	$ 5.43
Bed & Breakfast Inn	$3.30	Each Room	$ 3.58	$ 0.86	$ 4.44
Supermarkets	$78.35	Location	$ 52.72	$ 12.69	$ 65.41
Medical Office	$10.70	Each Licensed Physician	$ 12.90	$ -	$ 12.90
Dental Office	$14.45	Each Licensed Dentist	$ 17.79	$ -	$ 17.79
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 3.58	$ 0.86	$ 4.44
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 21.16	$ 5.09	$ 26.26
Animal Hospital	$21.50	Location/Each Licensed Business	$ 23.55	$ -	$ 23.55
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.46	$ 0.11	$ 0.57
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.73	$ 0.18	$ 0.90
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.39	$ 0.33	$ 1.72
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.39	$ 0.33	$ 1.72
Bar	$18.75	Location/Each Business	$ 20.96	$ -	$ 20.96
Nightclub	$54.65	Location/Each Business	$ 62.83	$ 15.12	$ 77.95
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 23.41	$ 5.64	$ 29.05
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 57.60	$ 13.87	$ 71.47
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 105.03	$ 25.28	$ 130.31
Bakery	$30.10	Location/Each Business	$ 18.99	$ 4.57	$ 23.56
Theater	$25.35	Per Screen @ Each Location	$ 31.15	$ -	$ 31.15
Bowling Center	$77.20	Location/Each Business	$ 94.78	$ 22.81	$ 117.60
Gym	$8.30	Per 500 members	$ 9.65	$ -	$ 9.65
Mortuary	$38.40	Location/Each Business	$ 25.60	$ -	$ 25.60
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.14	$ 0.03	$ 0.17
School (7-College)	$0.20	School Population	$ 0.26	$ 0.06	$ 0.33
Boarding School	$2.40	School Population	$ 2.65	$ 0.64	$ 3.29
Instructional Facility	$8.30	School Population	$ 9.65	$ -	$ 9.65
Church	$8.30	Per 100 members	$ 9.65	$ 2.32	$ 11.97
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 9.65	$ -	$ 9.65
Service Station/Garage	$8.80		$ 9.26	$ -	$ 9.26
Paint and Body Shops	$8.30	Per 10 employees	$ 9.65	$ -	$ 9.65
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 31.95	$ -	$ 31.95
Laundromat	$6.70	Each Washing Machine	$ 8.40	$ -	$ 8.40
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 4,756.85	$ 751.96 [2]	$ 5,508.81

% Increase from Current Rate 55%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.

[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

ATTACHMENT E

RATE ALTERNATIVES

RATE ANALYSIS - Alternative 1
Seaside County Sanitation District
Maintain current residential rate (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.04	$8.21	$8.39	$8.57	$8.75	$8.94	$9.13	$9.33	$9.53	$9.74	$9.95	$10.16	$10.38	$10.60	$10.83
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,036,967	$ 1,059,262	$ 1,082,036	$ 1,105,300	$ 1,129,064	$ 1,153,339	$ 1,178,135	$ 1,203,465	$ 1,229,340	$ 1,255,770	$ 1,282,770	$ 1,310,349	$ 1,338,522	$ 1,367,300	$ 1,396,697
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,336,229	$ 1,358,523	$ 1,386,260	$ 1,414,585	$ 1,443,511	$ 1,609,379	$ 1,639,547	$ 1,670,355	$ 1,701,818	$ 1,733,949	$ 1,766,762	$ 1,800,271	$ 1,834,493	$ 1,869,441	$ 1,905,131
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 507,229	$ 437,703	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 382,879	$ 362,053	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Budget Surplus (deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 6,129	$ 182,813	$ 110,782	$ 155,248	$ 216,285	$ 268,565	$ 859,883	$ 163,636	$ 550,994	$ 70,888	$ 656,701	$ 1,243,514	$ 179,736	$ 759,234
Contribution to capital replacement reserves	$ 382,879	$ 362,053	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Interest Earnings on Fund Balance	$ -	$ 31	$ 914	$ 554	$ 776	$ 1,081	$ 1,343	$ 4,299	$ 818	$ 2,755	$ 354	$ 3,284	$ 6,218	$ 899	$ 3,796
Less use of funds (based on 100% of costs)	$ (976,750)	$ (185,400)	$ (526,673)	$ (393,775)	$ (393,928)	$ (521,789)	$ -	$ (1,271,394)	$ (201,788)	$ (1,050,342)	$ -	$ -	$ (1,651,245)	$ -	$ (1,314,887)
Ending Fund Balance	$ 6,129	$ 182,813	$ 110,782	$ 155,248	$ 216,285	$ 268,565	$ 859,883	$ 163,636	$ 550,994	$ 70,888	$ 656,701	$ 1,243,514	$ 179,736	$ 759,234	$ 23,708
Near Term Capital Projects Funded	1,2,3,4,6, 10	NA	9	8	NA	11	NA	5	13,15	NA	NA	NA	7	NA	18
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	2
Remaining Project Costs	$ 12,509,101	$ 12,693,412	$ 12,531,741	$ 12,502,105	$ 12,471,422	$ 12,308,122	$ 12,677,365	$ 11,748,150	$ 11,892,753	$ 11,167,683	$ 11,502,714	$ 11,847,795	$ 10,502,446	$ 10,817,520	$ 10,664,536

Assumptions:

O&M Inflation=	3.00%	Total EDU's =	10,748
rate stabilization threshold=	$200,000	Year 1 $ per EDU (monthly) =	$8.04
Base Annual rate increase (%) (thru Year 15) =	2.15%	-Time Add'l Increase in Year 6=	0.00%
Property Tax Increase starting in Year 3=	2.00%		
Annual Capital Costs increase (%)=	3.00%		
Annual Interest Earnings on Fund Balance (%)=	0.50%		

Projects Not Funded by Year 15
Near Term Capital: 12, 14, 16, 17
SCSD Capital Outlay: NA
Region A Long Term Capital Projects: 3

RATE ANALYSIS - Alternative 1A
Seaside County Sanitation District
Increase residential rate by 15% in Year 1 (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$9.25	$9.44	$9.65	$9.85	$10.07	$10.28	$10.50	$10.73	$10.96	$11.20	$11.44	$11.68	$11.93	$12.19	$12.45
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,192,512	$ 1,218,151	$ 1,244,341	$ 1,271,095	$ 1,298,423	$ 1,326,339	$ 1,354,856	$ 1,383,985	$ 1,413,741	$ 1,444,136	$ 1,475,185	$ 1,506,901	$ 1,539,300	$ 1,572,395	$ 1,606,201
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,491,774	$ 1,517,413	$ 1,548,565	$ 1,580,380	$ 1,612,871	$ 1,782,380	$ 1,816,267	$ 1,850,875	$ 1,886,219	$ 1,922,314	$ 1,959,177	$ 1,996,824	$ 2,035,271	$ 2,074,535	$ 2,114,635
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 662,774	$ 596,593	$ 616,034	$ 603,482	$ 623,549	$ 745,989	$ 766,695	$ 751,368	$ 772,728	$ 755,847	$ 777,875	$ 780,082	$ 782,027	$ 783,694	$ 785,069
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 538,424	$ 520,943	$ 616,034	$ 603,482	$ 623,549	$ 745,989	$ 766,695	$ 751,368	$ 772,728	$ 755,847	$ 777,875	$ 780,082	$ 782,027	$ 783,694	$ 785,069
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 161,674	$ 498,025	$ 589,876	$ 802,532	$ 1,036,165	$ 444,721	$ 676,197	$ 159,552	$ 731,290	$ 440,451	$ 1,220,527	$ 711,402	$ 1,496,986	$ 378,116
Contribution to capital replacement reserves	$ 538,424	$ 520,943	$ 616,034	$ 603,482	$ 623,549	$ 745,989	$ 766,695	$ 751,368	$ 772,728	$ 755,847	$ 777,875	$ 780,082	$ 782,027	$ 783,694	$ 785,069
Interest Earnings on Fund Balance	$ -	$ 808	$ 2,490	$ 2,949	$ 4,013	$ 5,181	$ 2,224	$ 3,381	$ 798	$ 3,656	$ 2,202	$ 6,103	$ 3,557	$ 7,485	$ 1,891
Less use of funds (based on 100% of costs)	$ (976,750)	$ (185,400)	$ (526,673)	$ (393,775)	$ (393,928)	$ (1,342,613)	$ (537,443)	$ (1,271,394)	$ (201,788)	$ (1,050,342)	$ -	$ (1,295,311)	$ -	$ (1,910,048)	$ (1,091,855)
Ending Fund Balance	$ 161,674	$ 498,025	$ 589,876	$ 802,532	$ 1,036,165	$ 444,721	$ 676,197	$ 159,552	$ 731,290	$ 440,451	$ 1,220,527	$ 711,402	$ 1,496,986	$ 378,116	$ 73,220
Near Term Capital Projects Funded	1,2,3,4,6, 10	NA	9	8	NA	7	11	5	13,15	NA	NA	16	NA	12	14,18
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
Remaining Project Costs	$ 13,088,785	$ 13,290,486	$ 13,146,727	$ 13,135,541	$ 13,123,861	$ 12,134,685	$ 11,945,160	$ 10,993,978	$ 11,115,956	$ 10,367,582	$ 10,678,610	$ 9,664,798	$ 9,954,742	$ 8,286,035	$ 7,410,005

Assumptions:

O&M Inflation=	3.00%
rate stabilization threshold=	$200,000
Base Annual rate increase (%) (thru Year 15) =	2.15%
Property Tax Increase starting in Year 3=	2.00%
Annual Capital Costs increase (%)=	3.00%
Annual Interest Earnings on Fund Balance (%)=	0.50%

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$9.25
one time additional increase in year 6=	0.00%

Projects Not Funded by Year 15

Near Term Capital Projects	17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	2,3

RATE ANALYSIS - Alternative 2
Seaside County Sanitation District
Maintain current residential rate, bond in Year 1 (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.04	$8.21	$8.39	$8.57	$8.75	$8.94	$9.13	$9.33	$9.53	$9.74	$9.95	$10.16	$10.38	$10.60	$10.83
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,036,967	$ 1,059,262	$ 1,082,036	$ 1,105,300	$ 1,129,064	$ 1,153,339	$ 1,178,135	$ 1,203,465	$ 1,229,340	$ 1,255,770	$ 1,282,770	$ 1,310,349	$ 1,338,522	$ 1,367,300	$ 1,396,697
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,336,229	$ 1,358,523	$ 1,386,260	$ 1,414,585	$ 1,443,511	$ 1,609,379	$ 1,639,547	$ 1,670,355	$ 1,701,818	$ 1,733,949	$ 1,766,762	$ 1,800,271	$ 1,834,493	$ 1,869,441	$ 1,905,131
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 507,229	$ 437,703	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Estimated Annual Debt Service [1]	$ -	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791	$ 344,791
Contribution to near term capital replacement reserves	$ 382,879	$ 17,262	$ 108,938	$ 92,896	$ 109,398	$ 228,197	$ 245,184	$ 226,057	$ 243,536	$ 222,690	$ 240,668	$ 238,739	$ 236,458	$ 233,808	$ 230,773
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 2,779,229	$ 2,113,654	$ 1,136,444	$ 841,247	$ 54,332	$ 282,800	$ 74,494	$ 196,614	$ 441,133	$ 666,029	$ 910,028	$ 39,008	$ 275,661	$ 510,848
Contribution to capital replacement reserves	$ 382,879	$ 17,262	$ 108,938	$ 92,896	$ 109,398	$ 228,197	$ 245,184	$ 226,057	$ 243,536	$ 222,690	$ 240,668	$ 238,739	$ 236,458	$ 233,808	$ 230,773
Bond Proceeds	$ 3,931,250	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Earnings on Fund Balance	$ -	$ 13,896	$ 10,568	$ 5,682	$ 4,206	$ 272	$ 1,414	$ 372	$ 983	$ 2,206	$ 3,330	$ 4,550	$ 195	$ 1,378	$ 2,554
Less use of funds (based on 100% of costs)	$ (2,134,900)	$ (696,733)	$ (1,096,716)	$ (393,775)	$ (900,520)	$ -	$ (454,904)	$ (104,309)	$ -	$ -	$ -	$ (1,114,308)	$ -	$ -	$ (628,254)
Ending Fund Balance	$ 2,779,229	$ 2,113,654	$ 1,136,444	$ 841,247	$ 54,332	$ 282,800	$ 74,494	$ 196,614	$ 441,133	$ 666,029	$ 910,028	$ 39,008	$ 275,661	$ 510,848	$ 115,921
Near Term Capital Projects Funded	1,2,3,4,6,7,10	9	5	8	11	NA	15,18	13	NA	NA	NA	NA	NA	NA	14
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA
Remaining Project Costs	$ 11,895,890	$ 11,535,132	$ 10,751,568	$ 10,668,527	$ 10,061,048	$ 10,362,879	$ 10,205,214	$ 10,403,932	$ 10,716,050	$ 11,037,531	$ 11,368,657	$ 10,561,980	$ 10,878,839	$ 11,205,204	$ 10,894,259
Bond Analysis															
Gross Coverage [2]	NA	126.95%	131.60%	126.94%	131.73%	166.18%	171.11%	165.56%	170.63%	164.59%	169.80%	169.24%	168.58%	167.81%	166.93%

Assumptions:

O&M Inflation=	3.00%
rate stabilization threshold=	$200,000
Base Annual rate increase (%) (thru Year 15) =	2.15%
Property Tax Increase starting in Year 3=	2.00%
Annual Capital Costs increase (%)=	3.00%
Annual Interest Earnings on Fund Balance (%)=	0.50%

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$8.04
one time additional increase in year 6=	0.00%

Bond Analysis:

Year 1 Bond Proceeds + $600,000 beginning balance	$4,531,250
Pay-as-you-go through Year 5=	$1,721,220
Pay-as-you-go from Year 6 through Year 10=	$1,176,534
Total =	$7,429,004

Projects Not Funded by Year 15

Near Term Capital Projects	12,16,17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	2,3

[1] Based on 25 year bond terms and 5.50% interest rate.
[2] Coverage based on total revenues less operational expenses divided by gross debt service.

RATE ANALYSIS - Alternative 2A
Seaside County Sanitation District
Increase residential rate by 15% in Year 1, bond in Year 1 (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$9.25	$9.44	$9.65	$9.85	$10.07	$10.28	$10.50	$10.73	$10.96	$11.20	$11.44	$11.68	$11.93	$12.19	$12.45
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,192,512	$ 1,218,151	$ 1,244,341	$ 1,271,095	$ 1,298,423	$ 1,326,339	$ 1,354,856	$ 1,383,985	$ 1,413,741	$ 1,444,136	$ 1,475,185	$ 1,506,901	$ 1,539,300	$ 1,572,395	$ 1,606,201
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,491,774	$ 1,517,413	$ 1,548,565	$ 1,580,380	$ 1,612,871	$ 1,782,380	$ 1,816,267	$ 1,850,875	$ 1,886,219	$ 1,922,314	$ 1,959,177	$ 1,996,824	$ 2,035,271	$ 2,074,535	$ 2,114,635
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 662,774	$ 596,593	$ 616,034	$ 603,482	$ 623,549	$ 745,989	$ 766,695	$ 751,368	$ 772,728	$ 755,847	$ 777,875	$ 780,082	$ 782,027	$ 783,694	$ 785,069
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Estimated Annual Debt Service [1]	$ -	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116	$ 477,116
Contribution to near term capital replacement reserves	$ 538,424	$ 43,827	$ 138,918	$ 126,366	$ 146,433	$ 268,873	$ 289,579	$ 274,252	$ 295,612	$ 278,731	$ 300,759	$ 302,966	$ 304,911	$ 306,578	$ 307,953
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 4,443,524	$ 3,812,835	$ 2,491,795	$ 2,138,783	$ 1,901,982	$ 506,445	$ 798,556	$ 86,752	$ 382,798	$ 663,443	$ 967,519	$ 1,275,322	$ 252,440	$ 560,281
Contribution to capital replacement reserves	$ 538,424	$ 43,827	$ 138,918	$ 126,366	$ 146,433	$ 268,873	$ 289,579	$ 274,252	$ 295,612	$ 278,731	$ 300,759	$ 302,966	$ 304,911	$ 306,578	$ 307,953
Bond Proceeds	$ 5,440,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Earnings on Fund Balance	$ -	$ 22,218	$ 19,064	$ 12,459	$ 10,694	$ 9,510	$ 2,532	$ 3,993	$ 434	$ 1,914	$ 3,317	$ 4,838	$ 6,377	$ 1,262	$ 2,801
Less use of funds (based on 100% of costs)	$ (2,134,900)	$ (696,733)	$ (1,479,022)	$ (491,836)	$ (393,928)	$ (1,673,920)	$ -	$ (990,048)	$ -	$ -	$ -	$ -	$ (1,334,170)	$ -	$ -
Ending Fund Balance	$ 4,443,524	$ 3,812,835	$ 2,491,795	$ 2,138,783	$ 1,901,982	$ 506,445	$ 798,556	$ 86,752	$ 382,798	$ 663,443	$ 967,519	$ 1,275,322	$ 252,440	$ 560,281	$ 871,035
Near Term Capital Projects Funded	1,2,3,4,6,7,10	9	5,8	11	NA	13,14,15,18	NA	NA	NA	NA	NA	NA	16	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	2	NA	4	NA	NA	NA	NA	NA	NA	NA
Remaining Project Costs	$ 11,895,890	$ 11,535,132	$ 10,357,793	$ 10,161,935	$ 10,061,048	$ 8,638,741	$ 8,897,904	$ 8,145,091	$ 8,389,444	$ 8,641,127	$ 8,900,361	$ 9,167,372	$ 8,068,198	$ 8,310,244	$ 8,559,551
Bond Analysis															
Gross Coverage [2]	NA	125.04%	129.12%	126.49%	130.69%	156.35%	160.69%	157.48%	161.96%	158.42%	163.04%	163.50%	163.91%	164.26%	164.54%

Assumptions:

O&M Inflation=	3.00%
rate stabilization threshold=	$200,000
Base Annual rate increase (%) (thru Year 15) =	2.15%
Property Tax Increase starting in Year 3=	2.00%
Annual Capital Costs increase (%)=	3.00%
Annual Interest Earnings on Fund Balance (%)=	0.50%

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$9.25
one time additional increase in year 6=	0.00%

Bond Analysis:

Year 1 Bond Proceeds + $600,000 beginning balance	$4,531,250
Pay-as-you-go through Year 5=	$1,721,220
Pay-as-you-go from Year 6 through Year 10=	$1,176,534
Total =	$7,429,004

Projects Not Funded by Year 15

Near Term Capital Projects	12,17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	3

[1] Based on 25 year bond terms and 5.50% interest rate.
[2] Coverage based on total revenues less operational expenses divided by gross debt service.

RATE ANALYSIS - Alternative 3
Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; fund first 11 projects in first 5 years and capital outlay projects by 2015-16; fund remaining projects in next 10 years (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
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Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$12.50	$12.67	$12.84	$13.01	$13.19	$13.37	$13.55	$13.73	$13.92	$14.10	$14.29	$14.49	$14.68	$14.88	$15.08
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,612,400	$ 1,634,167	$ 1,656,229	$ 1,678,588	$ 1,701,249	$ 1,724,216	$ 1,747,492	$ 1,771,084	$ 1,794,993	$ 1,819,226	$ 1,843,785	$ 1,868,676	$ 1,893,903	$ 1,919,471	$ 1,945,384
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,911,662	$ 1,933,429	$ 1,960,452	$ 1,987,873	$ 2,015,696	$ 2,180,256	$ 2,208,904	$ 2,237,973	$ 2,267,471	$ 2,297,403	$ 2,327,777	$ 2,358,598	$ 2,389,874	$ 2,421,611	$ 2,453,817
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 1,082,662	$ 1,012,609	$ 1,027,921	$ 1,010,975	$ 1,026,374	$ 1,143,865	$ 1,159,332	$ 1,138,466	$ 1,153,980	$ 1,130,936	$ 1,146,474	$ 1,141,857	$ 1,136,630	$ 1,130,770	$ 1,124,251
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 958,312	$ 936,959	$ 1,027,921	$ 1,010,975	$ 1,026,374	$ 1,143,865	$ 1,159,332	$ 1,138,466	$ 1,153,980	$ 1,130,936	$ 1,146,474	$ 1,141,857	$ 1,136,630	$ 1,130,770	$ 1,124,251
Budget Surplus (deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 638,122	$ 823,281	$ 376,297	$ 897,317	$ 230,742	$ 354,280	$ 554,171	$ 1,003,235	$ 514,607	$ 427,161	$ 1,575,772	$ 2,725,507	$ 570,281	$ 1,703,902
Contribution to capital replacement reserves	$ 958,312	$ 936,959	$ 1,027,921	$ 1,010,975	$ 1,026,374	$ 1,143,865	$ 1,159,332	$ 1,138,466	$ 1,153,980	$ 1,130,936	$ 1,146,474	$ 1,141,857	$ 1,136,630	$ 1,130,770	$ 1,124,251
Interest Earnings on Fund Balance	$ -	$ 3,191	$ 4,116	$ 1,881	$ 4,487	$ 1,154	$ 1,771	$ 2,771	$ 5,016	$ 2,573	$ 2,136	$ 7,879	$ 13,628	$ 2,851	$ 8,520
Less use of funds (based on 100% of costs)	$ (920,190)	$ (754,990)	$ (1,479,022)	$ (491,836)	$ (1,697,436)	$ (1,021,480)	$ (961,212)	$ (692,173)	$ (1,647,625)	$ (1,220,955)	$ -	$ -	$ (3,305,484)	$ -	$ (2,836,106)
Ending Fund Balance	$ 638,122	$ 823,281	$ 376,297	$ 897,317	$ 230,742	$ 354,280	$ 554,171	$ 1,003,235	$ 514,607	$ 427,161	$ 1,575,772	$ 2,725,507	$ 570,281	$ 1,703,902	$ 567
Near Term Capital Projects Funded	1,2,3,4,9,10	6	5,8	11	7	13,14,15,18	NA	NA	12	16	NA	NA	17	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	4	2	NA	NA	NA	NA	NA	NA	3
Remaining Project Costs	$ 13,147,042	$ 12,763,813	$ 11,623,335	$ 11,465,443	$ 10,061,048	$ 9,310,754	$ 8,600,028	$ 8,145,091	$ 6,692,390	$ 5,635,579	$ 5,804,646	$ 5,978,786	$ 2,753,501	$ 2,836,106	$ -

Assumptions:

O&M Inflation=	3.00%	Total EDU's =	10,748
rate stabilization threshold=	$200,000	Year 1 $ per EDU (monthly) =	$12.50
Base Annual rate increase (%) (thru Year 15) =	1.35%	one time additional increase in year 6=	0.00%
Property Tax Increase starting in Year 3=	2.00%		
Annual Capital Costs increase (%)=	3.00%		
Annual Interest Earnings on Fund Balance (%)=	0.50%		

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

RATE ANALYSIS - Alternative 4
Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; Bond in Year 1 to fund first 11 projects by Year 5 and capital outlay projects by 2015-16; Fund remaining projects with Bond in Year 6 (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.04	$8.21	$8.39	$8.57	$8.75	$13.93	$14.23	$14.54	$14.85	$15.17	$15.49	$15.83	$16.17	$16.52	$16.87
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,036,967	$ 1,059,262	$ 1,082,036	$ 1,105,300	$ 1,129,064	$ 1,796,901	$ 1,835,535	$ 1,874,999	$ 1,915,311	$ 1,956,490	$ 1,998,555	$ 2,041,524	$ 2,085,417	$ 2,130,253	$ 2,176,054
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,336,229	$ 1,358,523	$ 1,386,260	$ 1,414,585	$ 1,443,511	$ 2,252,942	$ 2,296,946	$ 2,341,889	$ 2,387,790	$ 2,434,669	$ 2,482,547	$ 2,531,446	$ 2,581,388	$ 2,632,394	$ 2,684,487
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 507,229	$ 437,703	$ 453,729	$ 437,687	$ 454,189	$ 1,216,551	$ 1,247,374	$ 1,242,382	$ 1,274,299	$ 1,268,201	$ 1,301,245	$ 1,314,705	$ 1,328,144	$ 1,341,553	$ 1,354,921
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Estimated Annual Debt Service [1]	$ -	$ 350,009	$ 350,009	$ 350,009	$ 350,009	$ 350,009	$ 993,743	$ 993,743	$ 993,743	$ 993,743	$ 993,743	$ 993,743	$ 993,743	$ 993,743	$ 993,743
Contribution to near term capital replacement reserves	$ 382,879	$ 12,044	$ 103,720	$ 87,678	$ 104,180	$ 866,542	$ 253,631	$ 248,639	$ 280,556	$ 274,458	$ 307,502	$ 320,962	$ 334,401	$ 347,810	$ 361,178
Budget Surplus (deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 2,838,729	$ 2,168,234	$ 1,186,078	$ 885,911	$ 10,174	$ 4,521,104	$ 3,244,297	$ 2,894,020	$ 3,189,045	$ 3,479,449	$ 2,722,495	$ 1,761,758	$ 2,104,968	$ 2,463,302
Contribution to capital replacement reserves	$ 382,879	$ 12,044	$ 103,720	$ 87,678	$ 104,180	$ 866,542	$ 253,631	$ 248,639	$ 280,556	$ 274,458	$ 307,502	$ 320,962	$ 334,401	$ 347,810	$ 361,178
Bond Proceeds	$ 3,990,750	$ -	$ -	$ -	$ -	$ 7,339,750	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Earnings on Fund Balance	$ -	$ 14,194	$ 10,841	$ 5,930	$ 4,430	$ 51	$ 22,606	$ 16,221	$ 14,470	$ 15,945	$ 17,397	$ 13,612	$ 8,809	$ 10,525	$ 12,317
Less use of funds (based on 100% of costs)	$ (2,134,900)	$ (696,733)	$ (1,096,716)	$ (393,775)	$ (984,347)	$ (3,695,412)	$ (1,553,044)	$ (615,137)	$ -	$ -	$ (1,081,853)	$ (1,295,311)	$ -	$ -	$ (2,836,106)
Ending Fund Balance	$ 2,838,729	$ 2,168,234	$ 1,186,078	$ 885,911	$ 10,174	$ 4,521,104	$ 3,244,297	$ 2,894,020	$ 3,189,045	$ 3,479,449	$ 2,722,495	$ 1,761,758	$ 2,104,968	$ 2,463,302	$ 691
Near Term Capital Projects Funded	1,2,3,4,6,7,10	9	5	8	11,15	17,18	12	13,14	NA	NA	NA	16	NA	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	4	NA	NA	NA	3
Remaining Project Costs	$ 11,895,890	$ 11,535,132	$ 10,751,568	$ 10,668,527	$ 9,974,705	$ 6,467,671	$ 5,062,066	$ 4,580,337	$ 4,717,747	$ 4,859,279	$ 3,890,749	$ 2,673,302	$ 2,753,501	$ 2,836,106	$ -
Bond Analysis															
Gross Coverage [2]	NA	125.05%	129.63%	125.05%	129.76%	347.58%	125.52%	125.02%	128.23%	127.62%	130.94%	132.30%	133.65%	135.00%	136.35%

Assumptions:

O&M Inflation=	3.00%
rate stabilization threshold=	$200,000
Base Annual rate increase (%) (thru Year 15) =	2.15%
Property Tax Increase starting in Year 3=	2.00%
Annual Capital Costs increase (%)=	3.00%
Annual Interest Earnings on Fund Balance (%)=	0.50%

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$8.04
one time additional increase in year 6=	55.80%

Bond Analysis:

Year 1 Bond Proceeds + $600,000 beginning balance	$4,590,750
Year 6 Bond Proceeds + Pay-as-you-go through Year 5=	$8,030,252
Pay-as-you-go from Year 6 through Year 10=	$2,056,912
Total =	$14,677,914

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

[1] Based on 25 year bond terms and 5.50% interest rate.
[2] Coverage based on total revenues less operational expenses divided by gross debt service.

RATE ANALYSIS - Alternative 5
Seaside County Sanitation District
$13.7 Million (unescalated) capital replacement program; Draw on LOC in Years 3 and 10
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.04	$8.21	$8.39	$8.57	$8.75	$8.94	$9.13	$9.33	$9.53	$9.74	$9.95	$10.16	$10.38	$10.60	$10.83
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,036,967	$ 1,059,262	$ 1,082,036	$ 1,105,300	$ 1,129,064	$ 1,153,339	$ 1,178,135	$ 1,203,465	$ 1,229,340	$ 1,255,770	$ 1,282,770	$ 1,310,349	$ 1,338,522	$ 1,367,300	$ 1,396,697
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,336,229	$ 1,358,523	$ 1,386,260	$ 1,414,585	$ 1,443,511	$ 1,609,379	$ 1,639,547	$ 1,670,355	$ 1,701,818	$ 1,733,949	$ 1,766,762	$ 1,800,271	$ 1,834,493	$ 1,869,441	$ 1,905,131
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 507,229	$ 437,703	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 382,879	$ 362,053	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 20,479	$ 197,235	$ 3,673	$ -	$ -	$ -	$ -	$ -	$ -	$ 111,339	$ -	$ -	$ -	$ 101,025
Contribution to capital replacement reserves	$ 382,879	$ 362,053	$ 453,729	$ 437,687	$ 454,189	$ 572,988	$ 589,975	$ 570,848	$ 588,327	$ 567,481	$ 585,459	$ 583,530	$ 581,249	$ 578,599	$ 575,564
Proceeds from Line of Credit	$ -	$ -	$ 3,485,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,135,000	$ -	$ -	$ -	$ -	$ -
Interest Earnings on Fund Balance	$ -	$ 102	$ 986	$ 18	$ -	$ -	$ -	$ -	$ -	$ -	$ 557	$ -	$ -	$ -	$ 505
Less use of funds (based on 100% of costs)	$ (962,400)	$ (185,400)	$ (4,098,426)	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,658,090)	$ -	$ -	$ -	$ -	$ (628,254)
Payment on Line of Credit [1]	$ -	$ -	$ (34,850)	$ (441,378)	$ (454,189)	$ (572,988)	$ (589,975)	$ (570,848)	$ (588,327)	$ (933,052)	$ (697,355)	$ (583,530)	$ (581,249)	$ (477,574)	$ -
Ending Fund Balance	$ 20,479	$ 197,235	$ 3,673	$ -	$ -	$ -	$ -	$ -	$ -	$ 111,339	$ -	$ -	$ -	$ 101,025	$ 48,841
Near Term Capital Projects Funded	1,2,8,9,10	NA	3,4,5,6,7,11	NA	NA	NA	NA	NA	NA	13,15,18	NA	NA	NA	NA	14
SCSD Capital Outlay Projects Funded	1	2,3	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
Remaining Project Costs	$ 13,103,565	$ 13,305,710	$ 9,483,502	$ 9,768,007	$ 10,061,048	$ 10,362,879	$ 10,673,765	$ 10,993,978	$ 11,323,798	$ 9,955,679	$ 10,254,349	$ 10,561,980	$ 10,878,839	$ 11,205,204	$ 10,894,259

Assumptions:

O&M Inflation=	3.00%
rate stabilization threshold=	$200,000
Base Annual rate increase (%) (thru Year 15) =	2.15%
Property Tax Increase starting in Year 3=	2.00%
Annual Capital Costs increase (%)=	3.00%
Annual Interest Earnings on Fund Balance (%)=	0.50%

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$8.04
one time additional increase in year 6=	0.00%

LOC Analysis:

$600,000 beginning balance =	$600,000
Year 3 LOC Proceeds + Pay-as-you-go through Year 5=	$5,575,539
Year 7 LOC Proceeds + Pay-as-you-go from Year 6 through Year 10=	$3,288,579
Total =	$9,464,118

Projects Not Funded by Year 15

Near Term Capital Projects	12,16,17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	2,3

[1] Based on an annual interest rate of 4.00% which is the sum of the current average LIBOR rate of approximately 1% plus 3%. Also includes costs of issuance for the LOC equal to 1% of the borrowed amount.

RATE ANALYSIS - Alternative 6
Seaside County Sanitation District
$13.7 Million (unescalated) capital replacement program; increase annual rate by no more than 5% (Full project costs, with connection fee revenue offsetting portion of share allocated to new development)
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.04	$8.44	$8.86	$9.31	$9.77	$10.26	$10.77	$11.31	$11.88	$12.47	$13.10	$13.75	$14.44	$15.16	$15.92
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,036,967	$ 1,088,815	$ 1,143,256	$ 1,200,419	$ 1,260,440	$ 1,323,462	$ 1,389,635	$ 1,459,117	$ 1,532,073	$ 1,608,676	$ 1,689,110	$ 1,773,565	$ 1,862,244	$ 1,955,356	$ 2,053,124
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$136,327	$136,327	$136,327	$136,327	$136,327	$136,327	$136,327	$136,327	$136,327	$136,327
Total Revenue	$ 1,336,229	$ 1,388,077	$ 1,447,480	$ 1,509,704	$ 1,574,888	$ 1,779,502	$ 1,851,047	$ 1,926,007	$ 2,004,551	$ 2,086,854	$ 2,173,102	$ 2,263,488	$ 2,358,215	$ 2,457,497	$ 2,561,558
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 507,229	$ 467,257	$ 514,949	$ 532,806	$ 585,565	$ 743,111	$ 801,475	$ 826,500	$ 891,060	$ 920,387	$ 991,800	$ 1,046,746	$ 1,104,971	$ 1,166,655	$ 1,231,991
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 382,879	$ 391,607	$ 514,949	$ 532,806	$ 585,565	$ 743,111	$ 801,475	$ 826,500	$ 891,060	$ 920,387	$ 991,800	$ 1,046,746	$ 1,104,971	$ 1,166,655	$ 1,231,991
Budget Surplus (deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 62,689	$ 269,209	$ 198,826	$ 240,790	$ 28,043	$ 771,294	$ 193,734	$ 406,065	$ 1,299,155	$ 877,215	$ 1,016,950	$ 773,470	$ 27,892	$ 744,589
Contribution to capital replacement reserves	$ 382,879	$ 391,607	$ 514,949	$ 532,806	$ 585,565	$ 743,111	$ 801,475	$ 826,500	$ 891,060	$ 920,387	$ 991,800	$ 1,046,746	$ 1,104,971	$ 1,166,655	$ 1,231,991
Interest Earnings on Fund Balance	$ -	$ 313	$ 1,346	$ 994	$ 1,204	$ 140	$ 3,856	$ 969	$ 2,030	$ 6,496	$ 4,386	$ 5,085	$ 3,867	$ 139	$ 3,723
Less use of funds	$ (920,190)	$ (185,400)	$ (586,678)	$ (491,836)	$ (799,516)	$ -	$ (1,382,892)	$ (615,137)	$ -	$ (1,348,822)	$ (856,451)	$ (1,295,311)	$ (1,854,416)	$ (450,098)	$ (1,217,635)
Ending Fund Balance	$ 62,689	$ 269,209	$ 198,826	$ 240,790	$ 28,043	$ 771,294	$ 193,734	$ 406,065	$ 1,299,155	$ 877,215	$ 1,016,950	$ 773,470	$ 27,892	$ 744,589	$ 762,669
Near Term Capital Projects Funded	1,2,3,4,9,10	NA	6	11	8	NA	7	13,14	NA	5	15	16	12	18	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	NA	NA	4
Remaining Project Costs	$ 13,147,042	$ 13,350,491	$ 13,146,727	$ 13,034,538	$ 12,602,072	$ 12,980,134	$ 11,945,160	$ 11,669,923	$ 12,020,021	$ 10,991,334	$ 10,438,930	$ 9,417,928	$ 7,790,417	$ 7,560,528	$ 6,533,181

Assumptions:

Base Annual rate increase (%) (thru Year 15) =	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Property Tax Increase starting in Year 3 =	2.00%	Total EDU's =	10,748												
O&M Inflation =	3.00%	Year 1 $ per EDU (monthly) =	$8.04												
rate stabilization threshold =	$200,000	one time additional increase in year 6	0.00%												
Annual Capital Costs increase (%) =	3.00%														
Annual Interest Earnings on Fund Balance (%) =	0.50%														

Projects Not Funded by Year 15

Near Term Capital Projects	17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	3

ATTACHMENT F

FOG PROGRAM

FOG Program Rate Calculation [1]

Description	Units	EXISTING UNITS			Average Flow (gpd) [2]	Total Flow (gpd)	Seaside Annual FOG Rate ($/unit)	Expected Annual Revenue
		Del Rey Oaks	Seaside	Sand City				
Bed & Breakfast Inn	Each Room				54	0	$ 10.32	$0
Supermarkets	Location	1	5	1	797	5,579	$ 152.26	$1,066
Rest Home/Convalescent	Each Bed of Licensed Capacity		111		54	5,994	$ 10.32	$1,145
General Hospital	Each Bed of Licensed Capacity				320	0	$ 61.13	$0
Restaurant 1 meal/day	Each Restaurant Seat	90	116		7	1,442	$ 1.34	$275
Restaurant 2 meals/day	Each Restaurant Seat		1379	61	11	15,840	$ 2.10	$3,026
Restaurant 3 meals/day	Each Restaurant Seat		233	62	21	6,195	$ 4.01	$1,184
Restaurant with Bar	Each Restaurant Seat	174	370		21	11,424	$ 4.01	$2,182
Nightclub	Location/Each Business				950	0	$ 181.49	$0
Takeout Food - Small	1 Cash Register or Checkout Line	6	17	6	354	10,266	$ 67.63	$1,961
Takeout Food - Medium	2 or 3 Cash Registers or Checkout Lines	1	9	2	871	10,452	$ 166.40	$1,997
Takeout Food - Large	4 or More Cash Registers or Checkout Lines	1	3	2	1,588	9,528	$ 303.38	$1,820
Bakery	Location/Each Business	1	6	4	287	3,157	$ 54.83	$603
Bowling Center	Location/Each Business				1,433	0	$ 273.76	$0
School (Grades 0-6)	School Population		4014		2	8,028	$ 0.38	$1,534
School (7-College)	School Population		307		4	1,228	$ 0.76	$235
Boarding School	School Population				40	0	$ 7.64	$0
Church	Per 100 members	1	33		146	4,964	$ 27.89	$948
Major Hotel	Individual Determination		1		47,233	47,233	$ 9,023.50	$9,023
Totals						**141,330**		**$27,000**

Annual Cost of FOG Program = $27,000
Cost per unit of flow (gpd) = $0.19

[1] Customer data based on information provided by MRWPCA on 12/15/09
[2] Based on data provided by MRWPCA on 7/27/10

K: clients2/seaside/FOG Program

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M E M O R A N D U M
March 23, 2011

TO: Rick Riedl
Tim O'Halloran

FROM: Andrea Roess, Managing Director
Steve Runk, Vice-President

SUBJECT: Updated Rate Analysis for Seaside County Sanitation District

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David Taussig & Associates, Inc. ("DTA") has prepared this update to the previous memorandum (dated January 17, 2011) to summarize the Financial Analysis for the Seaside County Sanitation District (the "District"). Based upon comments received at the March 8, 2011 board meeting, DTA has prepared several new rate alternatives. All of the alternatives are designed to finance all or a portion of the District's capital replacement program as identified in the Sewer Master Plan dated May 2010 prepared by Wallace Group (the "Master Plan").

SECTION I: CAPITAL REPLACEMENT PROGRAM

The Master Plan identifies projects needed to serve existing development. These projects are grouped as follows: (i) 18 Near Term Capital Projects as shown on Table 9-2 of the Master Plan, (ii) four Capital Outlay Projects as shown on Table 9-6 of the Master Plan, and (iii) Long Term Capital Projects two through four as shown on Table 9-7 of the Master Plan.

For purposes of the rate analysis, the Near Term Capital Projects have been divided into two groups based on funding priority. The first 11 Near Term Capital Projects (Health and Safety Projects) have been identified as a higher priority because these 11 projects were identified due to capacity-related deficiencies. These projects are recommended to be constructed within the first six years to avoid health and safety issues. Near Term Capital Projects 12 through 18 (Efficiency Projects) can be delayed beyond year six. These projects are operational and maintenance-based and do not impact the health and safety of the community.

While certain costs have been allocated to new development (see Attachment A herein), the rate models assume that existing development will have to carry the cost of these projects until capacity

fee revenues become available. This is because the facilities are also needed to serve existing development and the District cannot wait to accumulate sufficient funds from new development to construct the facilities. Capacity fee calculations and fair share allocations are not a part of this scope. However, as discussed below, DTA has estimated that capacity fee revenues will partially offset the costs of facilities needed to serve both existing and future development over the 15 year term covered by our model.

The table below summarizes the costs for the four categories:

TABLE 1

Master Plan Table	Projects	Costs allocated to Existing Development (unescalated)	Costs allocated to New Development (unescalated)	Total Costs (unescalated)
Table 9-2	Near Term Capital Projects (Projects 1 through 11 – Health and Safety Projects)	$3,422,107	$1,038,453	$4,460,560
Table 9-2	Near Term Capital Projects (Projects 12 through 18 – Efficiency Projects)	$5,405,299	$30,650	$5,435,948
Table 9-6	Capital Outlay Projects (Projects 1 through 4)	$545,000	$0	$545,000
Table 9-7	Long Term Capital Projects (Projects 2 through 4)	$2,039,350	$1,203,450	$3,242,800
NA	Total	$11,411,756	$2,272,553	$13,684,308

A more detailed listing of the individual projects is included in Attachment A.

SECTION II: CURRENT USERS AND EDU ANALYSIS

Data on existing sewer system users and average flow by land use category was provided by Monterey Regional Water Pollution Control Agency ("MRWPCA"). The District currently charges 66.4% of the MRWPCA sewer rate for the District's collection system service for all users, which results in a current monthly rate of $7.97 per residential unit. MRWPCA's rates are based on an equivalent dwelling unit ("EDU") factor that considers flow measured in gallons per day, sewage strength measured in mg/l of biochemical oxygen demand and suspended solids. This makes sense for MRWPCA because they are a sewer treatment agency and their costs are related to these three factors. However, since the District is a sewer "collection" agency, it was determined that in order to meet the benefit requirements of Proposition 218, an EDU factor based solely on flow would be used to determine the EDU factors. Using the average flow data provided by MRWPCA, DTA calculated new EDU factors for each land use as shown in Attachment B. For purposes of this analysis, rate factors are based upon the flows from a typical residential unit, which is equal to 1

EDU. The EDUs for all other land use categories are based on the average flow as determined by MRWPCA for each land use as compared to the flow for a residential unit.

SECTION III: FINANCIAL ANALYSIS

The model used in this analysis combines rate revenues and estimated capacity fee revenues to project total revenues. Capacity fee revenues are estimated at $136,327 per year starting in Year 6 and in no case will new development pay more than its fair share of the capital improvement program. Operating costs and contributions to rate stabilization reserves are subtracted from the total revenue. All residual revenue is then allocated to the capital replacement fund or to pay debt service. The model was used to explore many combinations of rate increases and debt financing to arrive at an optimum recommendation for current and future financial policy.

Operating revenue consists of rate revenues, ad valorem property tax revenues, interest earnings on reserve balances and capacity fee revenues.

Annual operating expenses were grouped into two categories: District employee labor and materials allocated to sewer operations and outside services. Sewer operations budget for year 1 is $750,000 as shown in Table 9-5 of the Master Plan. Outside services consist of video inspections, sewer system management plan, GIS mapping, LS maintenance and PG&E costs. First year budget amounts are also shown in Table 9-5 of the Master Plan. Also shown in Table 9-5 is the Fats, Oil and Grease program costs, which are not funded by all users and described in Section VI below, “FOG Program.”

Cash flow over a 15 year study period was projected in order to match the timing of capital projects with capital replacement fund balances. Table 2 below describes the assumptions which remain constant in all alternatives. Table 3 below summarizes the six scenarios currently under consideration and summarizes the timing and extent that capital projects can be funded, dependent of course on the assumptions for rate increase and debt financing for each alternative.

TABLE 2

1.	Operational expenses will increase due to inflation at an average annual rate of 3%. Operational expenses do not include FOG program costs as shown in Table 9-4 of the Master Plan.
2.	Capital costs increase by 3% each year to the year constructed.
3.	Contributions to the rate stabilization fund will be at 15% of operational expenses on an annual basis until the fund reaches a maximum of $200,000. Subsequent to reaching this maximum, all revenue in excess of expenses will be contributed to the capital replacement fund.
4.	Ad valorem property tax revenue will decrease 3% in year 1, hold constant in year 2 and increase at 2% per year for every year thereafter.
5.	The capital replacement fund will have a starting balance of $600,000 (before any contributions are made from rates).
6.	Capacity fee revenues are assumed to equal $136,327 annually starting in Year 6. This is based on the amount of escalated costs allocated to new development divided by 20 years assuming the facilities timing from Alternative 3.
7.	For alternatives utilizing a line of credit (5A and 5B), any draws on the LOC are paid back within 3 years with rate revenues prior to drawing additional funds on the LOC

SECTION IV: RATE MODEL RESULTS

Table 3 describes the six sewer rate alternatives that are currently being considered by the District based on direction provided at the March 8, 2011 board meeting. The Year 1 monthly rate per EDU as well as the unfunded facilities for each alternative are summarized in Table 3. We have defined the variables below for simplicity:

PayGo = Pay-as-you-go financing from rate revenues
LOC = Line of credit financing

TABLE 3

Alt.	Alt. Variables	Rate in Year 1 (EDU/mo)	% Increase in Year 1	Unfunded Facilities at Year 15	Cost of Unfunded
1D	PayGo, Rate increases annually by 2.15%	$7.97	0.00%	Near Term Unfunded: 12,16,17 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 3,4	$11,271,598 (escalated)
3A	PayGo, Rate increases annually as follows: Year 2 through 5 - 2.15% annual increase Year 6 - 1.49% increase Years 7 through 15 - 2.15% annual increase	$11.88	49.01%	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0
3B	PayGo, Rate increases annually as follows: Year 2 – 17.00% increase Year 3 – 14.00% increase Year 4 – 11.00% increase Year 5 – 8.00% increase Years 6 through 10 – No increase Years 11 – 1.81% increase Years 12 through 15 – 2.15% annual increase	$9.00	12.92%	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0
3C	PayGo, Rate increases annually as follows: Year 2 – 11.00% increase Year 3 – 8.00% increase Year 4 – 5.00% increase Year 5 – 3.35% increase Years 6 through 7 – No increase Year 8 – 0.07% increase Years 9 through 15 – 2.15% annual increase	$10.50	31.71%	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0
5A	LOC Rate increases annually by 2.15%	$8.97	12.50%	Near Term Unfunded: 14,15,16 Capital Outlay Unfunded: All funded Long Term Capital Unfunded: 3,4	$6,396,375 (escalated)
5B	LOC Rate increases annually by 2.15%	$10.92	37.06%	Near Term Unfunded: All funded Capital Outlay Unfunded: All funded Long Term Capital Unfunded: All funded	$0

As shown in Attachment C and Table 3 above, only Alternatives 1A and 5A do not fully fund all of the projects shown in Attachment A.

SECTION V: MONTHLY SEWER RATES

The Year 1 sewer rate per month for each land use class is shown in Attachment D. Please note that Alternative 1 starts with the current monthly sewer rate of $7.97 per EDU as shown in Table 3 above. All other Alternatives start with a higher monthly rate per EDU. The annual cash flow for each alternative is shown in Attachment E.

SECTION VI: FATS, OILS AND GREASE PROGRAM

Nineteen of the land use categories have been designated as Food Service Establishments ("FSE") and were identified by the District as significant contributors of fats, oils and grease to the sewer system. The Fats, Oils and Grease ("FOG") program will generate a separate revenue stream to cover the costs of administering the FOG program. Attachment F lists these land uses, the number of existing units, the average flow for each land use, and the total flow from all of the nineteen land uses. The assumption made is that flow is a measure of activity for each business which should be proportional to the amount of fats, oils and grease generated. The estimated annual program cost of $27,000 was divided by the total flow of 141,330 gallons per day ("gpd") to get a cost per unit of flow of $0.19 per gpd. This unit cost was then multiplied by the average flow per unit for each land use to determine the FOG rates for the nineteen land uses.

ATTACHMENT A

CAPITAL PROJECT COSTS

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Near Term Capital Projects (Table 9-2, Sewer Master Plan)

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
1	Del Monte Lift Station	Lift Station Upgrades including expanding wetwell capacity to meet current demand	$17,500	$17,500	100%	$17,500	$0	$17,500	$17,500
2	Rosita Lift Station	Lift station upgrades including pump control modifications and maintenance related repairs	$61,600	$61,600	100%	$61,600	$0	$79,100	$79,100
3	942 Angeles Way Sewer	Replace existing steel pipe with ductile iron pipe at creek crossing	$50,400	$50,400	100%	$50,400	$0	$129,500	$129,500
4	Del Rey Park Sewer Line	re-route existing main for maintenance purposes	$267,750	$267,750	100%	$267,750	$0	$397,250	$397,250
5	Del Monte Blvd. Sewer Line	replace and re-route existing sewer line. Consolidates capacity from older lines	$1,033,760	$1,033,760	44%	$454,854	$578,906	$852,104	$1,431,010
6	Military Lift Station Replacement	replace entire lift station	$553,000	$553,000	100%	$553,000	$0	$1,405,104	$1,984,010
7	Fremont Blvd. Sewer	replace existing pipeline. Additional capacity is needed to meet current demand	$1,158,150	$1,158,150	72%	$833,868	$324,282	$2,238,972	$3,142,160
8	Luzern Street Sewer Line	replace existing sewer line. Upgrade three existing manholes	$360,360	$360,360	100%	$360,360	$0	$2,599,332	$3,502,520

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
9	La Salle Avenue Sewer Line	replace existing pipeline. Additional capacity is needed to meet current demand	$496,440	$496,440	75%	$372,330	$124,110	$2,971,662	$3,998,960
10	Tioga Lift Station Feasibility Analysis	Investigate the possiblility of abandonment	$11,500	$11,500	3%	$345	$11,155	$2,972,007	$4,010,460
11	Birch Avenue Sewer Line	replace exisitng sewer main	$450,100	$450,100	100%	$450,100	$0	$3,422,107	$4,460,560
12	Root Intrusion Replacements	inspect and replace pipes damaged by root intrusion	$1,300,650	$1,300,650	100%	$1,300,650	$0	$4,722,757	$5,761,210
13	Brick Manhole Inspection	inspect all brick manholes for infiltration and deterioration	$84,813	$84,813	100%	$84,813	$0	$4,807,570	$5,846,023
14	Drop Manhole Inspection	Inspect all drop manholes for improper construction and needed upgrades to meet current standards	$415,350	$415,350	100%	$415,350	$0	$5,222,920	$6,261,373
15	Manhole Lid Replacements	install upgraded manhole liods to prevent sand and water infiltration	$74,480	$74,480	100%	$74,480	$0	$5,297,400	$6,335,853
16	Rod Hole Replacement	Replace rod holes (cleanouts) with standard manholes	$935,760	$935,760	100%	$935,760	$0	$6,233,160	$7,271,613

Wallace Project Number	Title	Description	2009 Construction Cost	2010 Construction Cost	Allocation to existing development	Near Term Costs Allocated to Existing Development	Near Term Costs Allocated to Future Development	Accumulated (portion allocated to Existing)	Accumulated Total
17	New Manhole Installation	Install new manholes where existing sewer line pipe runs exceed 400 feet	$2,318,400	$2,318,400	100%	$2,318,400	$0	$8,551,560	$9,590,013
18	Canyon Del Rey Sewer line	replace existing sewer lines that have little or no structural integrity	$306,495	$306,495	90%	$275,846	$30,650	$8,827,406	$9,896,508
			$9,896,508	$9,896,508		$8,827,406	$1,069,102		

SCSD Capital Outlay (Table 9-6, Sewer Master Plan)

Project Number	Project	Description	2010 Construction Cost	escalation	Allocation to existing development	Capital Outlay Costs Allocated to Existing Development	Capital Outlay Costs Allocated to Existing Development	Accumulated (portion allocated to Existing)	Accumulated Total
1	Video Inspection	GIS Software/hardware, video camera	$15,000	$15,000	100%	$15,000	$0	$15,000	$15,000
2	Vehicle	one jetter truck	$160,000	$160,000	100%	$160,000	$0	$175,000	$175,000
3	Vehicle	one pickup	$20,000	$20,000	100%	$20,000	$0	$195,000	$195,000
4	Vactor Truck	one truck	$350,000	$350,000	100%	$350,000	$0	$545,000	$545,000
			$545,000	$545,000		$545,000	$0		

Region A Long Term Capital Cost (Table 9-7, Sewer Master Plan)

Project Number	Project	Description	2010 Construction Cost	escalation	Allocation to existing development	Region A Long Term Capital Costs Allocated to Existing Development	Region A Long Term Capital Costs Allocated to Existing Development	Accumulated (portion allocated to Existing)	Accumulated Total
2	Ortiz		$562,800	$562,800	0%	$0	$562,800	$0	$562,800
3	Del Monte Lift Station VFD Upgrade		$1,875,000	$1,875,000	80%	$1,500,000	$375,000	$1,500,000	$2,437,800
4	Rosita Lift Station VFD Upgrade		$805,000	$805,000	67%	$539,350	$265,650	$2,039,350	$3,242,800
			$3,242,800	$3,242,800		$2,039,350	$1,203,450		
	Total Capital Replacement Costs		$13,684,308	$13,684,308		**$11,411,756**	**$2,272,552**		

ATTACHMENT B

EDU ANALYSIS

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EDU CALCULATION

Description	MRWPCA Monthly Rates	Units	EXISTING UNITS Del Rey Oaks	Seaside	Sand City	GPD AVG FLOW	EDU Factor	Total EDUs
Business/Gov't	$8.30	Location/Each Business	40	433	232	146	0.77	544
Residential-Vacant	$7.20	Each Living Unit	1	19	21		0.00	0
Residential/Apartments	$12.00	Each Living Unit	544	5,139	69	189	1.00	5752
Residential/Apartments	$12.00	Each Living Unit	17	2,759	51	189	1.00	2827
Residential-Vacant	$7.20	Each Living Unit	1	2			0.00	0
Condo/Retirement	$12.00	Each Living Unit	148	175		189	1.00	323
Condo/Retirement	$12.00	Each Living Unit				189	1.00	0
Minimum/Vacancy	$6.35	Location/Each Business	1	61	15		0.00	0
Motel/Hotel	$4.95	Each Room		478		82	0.43	207
Bed & Breakfast Inn	$3.30	Each Room				54	0.29	0
Supermarkets	$78.35	Location	1	5	1	797	4.22	30
Medical Office	$10.70	Each Licensed Physician	3	15	2	195	1.03	21
Dental Office	$14.45	Each Licensed Dentist	1	9	1	269	1.42	16
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity		111		54	0.29	32
General Hospital	$18.35	Each Bed of Licensed Capacity				320	1.69	0
Animal Hospital	$21.50	Location/Each Licensed Business				356	1.88	0
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	90	116		7	0.04	8
Restaurant 2 meals/day	$1.15	Each Restaurant Seat		1,379	61	11	0.06	84
Restaurant 3 meals/day	$2.15	Each Restaurant Seat		233	62	21	0.11	33
Restaurant with Bar	$2.15	Each Restaurant Seat	174	370		21	0.11	60
Bar	$18.75	Location/Each Business	1	6		317	1.68	12
Nightclub	$54.65	Location/Each Business				950	5.03	0
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	6	17	6	354	1.87	54
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	1	9	2	871	4.61	55
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	1	3	2	1,588	8.40	50
Bakery	$30.10	Location/Each Business	1	6	4	287	1.52	17
Theater	$25.35	Per Screen @ Each Location				471	2.49	0
Bowling Center	$77.20	Location/Each Business				1,433	7.58	0
Gym	$8.30	Per 500 members		6	2	146	0.77	6
Mortuary	$38.40	Location/Each Business		2		387	2.05	4
School (Minimum)	$8.30			7			0.00	0
School (Grades 0-6)	$0.10	School Population		4,014		2	0.01	44
School (7-College)	$0.20	School Population		307		4	0.02	6
Boarding School	$2.40	School Population				40	0.21	0
Instructional Facility	$8.30	School Population		2	1	146	0.77	2
Church	$8.30	Per 100 members	1	33		146	0.77	26
Photo / Laboratory / Printer	$8.30	Per 10 employees	1	10	1	146	0.77	9
Service Station/Garage	$8.80		2	46	13	140	0.74	45
Paint and Body Shops	$8.30	Per 10 employees	2	14	6	146	0.77	17
Commercial Laundry	$0.00	Individual Determination					0.00	0
Dry Cleaner	$26.50	Location/Each Business		2		483	2.56	5
Laundromat	$6.70	Each Washing Machine		116		127	0.67	78
Major Hotel	$0.00	Individual Determination		1			0.00	0
Car Wash	$0.00	Individual Determination		2	1		0.00	0
Special User	$0.00	Individual Determination		7	1		0.00	0
Rec Sports Facility	$0.00	Individual Determination		3			0.00	0
Ground Water	$0.00	Individual Determination		1			0.00	0
Special User (From Tom Buell email 2/22/10)						71,918	380.52	381
								10,748

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ATTACHMENT C

RATE ANALYSIS SUMMARY

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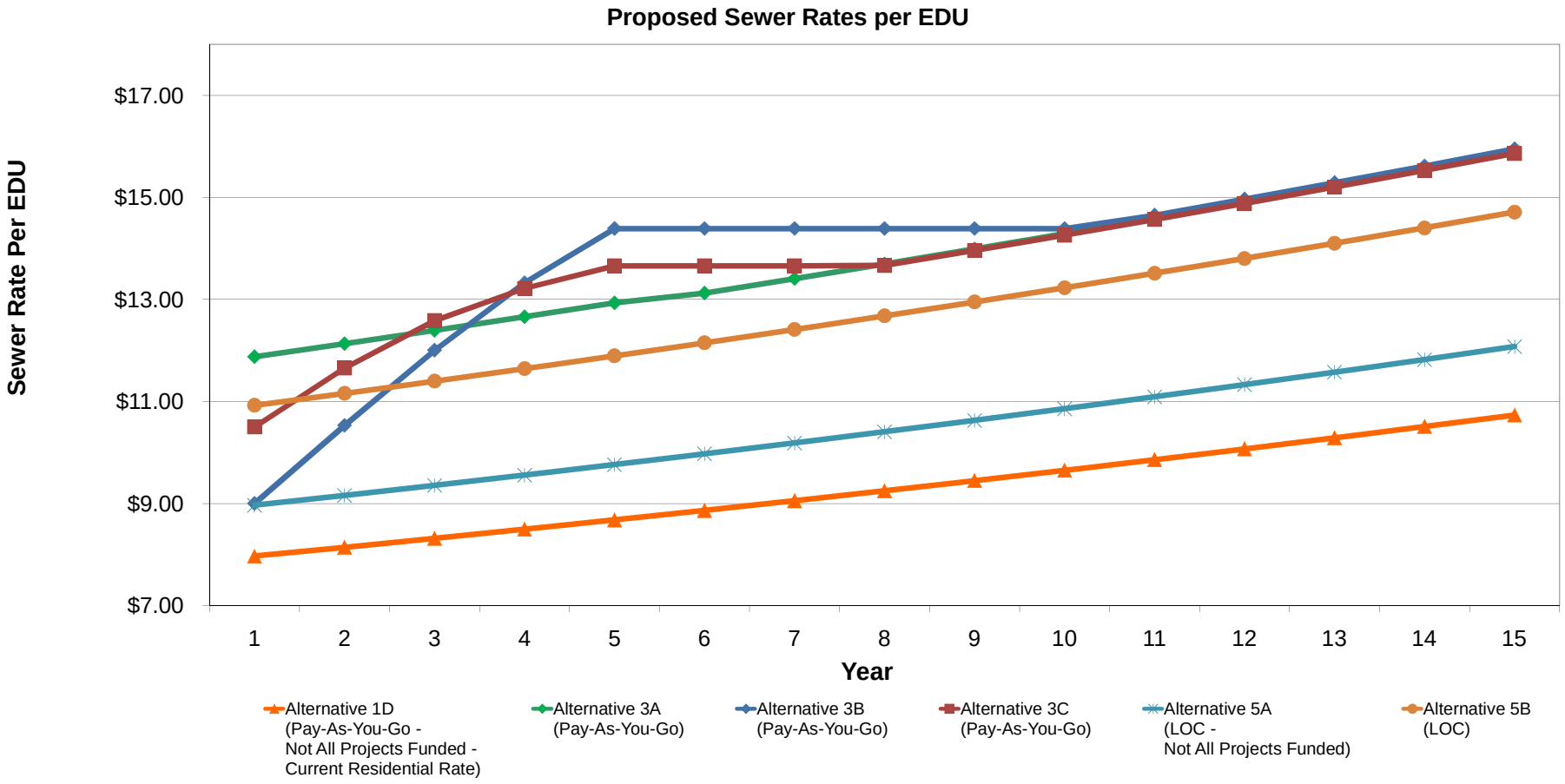
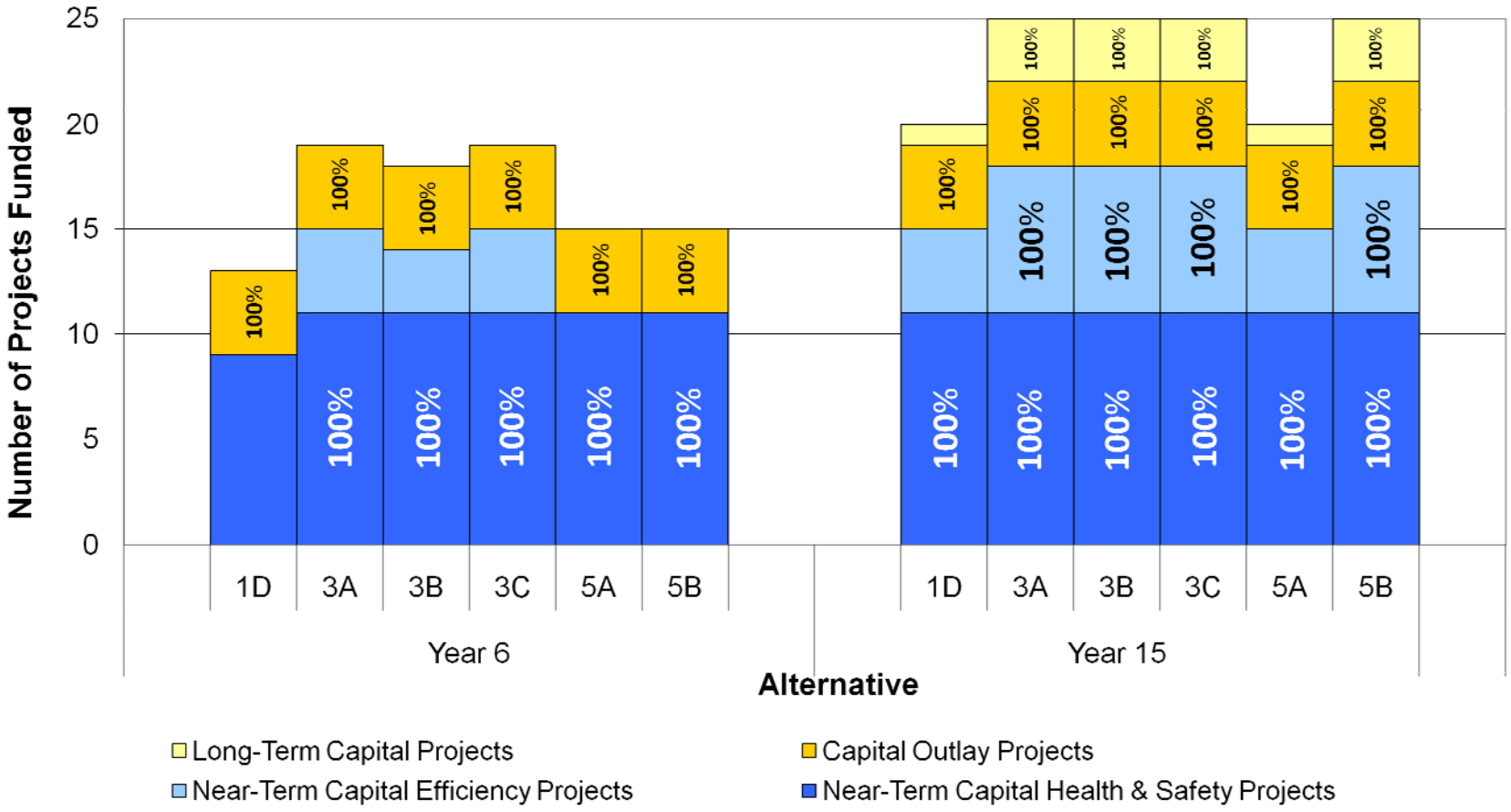
Alternative	Description		Total EDUs	$ per EDU (monthly) $ per EDU in Year 1	$ per EDU In Year 6 [1]	$ per EDU In Year 15 [1]
1D	Maintain existing residential rate	Pay-as-you-go only	10,748	$7.97	$8.86	$10.73
3A	Increase residential rate by 49% in Year 1	Pay-as-you-go only	10,748	$11.88	$13.12	$15.89
3B	Increase residential rate by 13% in Year 1	Pay-as-you-go only	10,748	$9.00	$14.39	$15.95
3C	Increase residential rate by 32% in Year 1	Pay-as-you-go only	10,748	$10.50	$13.66	$15.86
5A	Increase residential rate by 13% in Year 1	LOC	10,748	$8.97	$9.97	$12.08
5B	Increase residential rate by 37% in Year 1	LOC	10,748	$10.92	$12.15	$14.71

[1] All scenarios include an annual cost escalation to offset increasing O&M costs.

Alternative	Description		Near Term Unfunded Projects	Cap. Outlay Unfunded Projects	Long Term Cap. Unfunded Projects	Cost of Unfunded Projects (escalated)
1D	Maintain existing residential rate	Pay-as-you-go only	12,16, 17	All Funded	3,4	$11,271,598
3A	Increase residential rate by 49% in Year 1	Pay-as-you-go only	All Funded	All Funded	All Funded	$0
3B	Increase residential rate by 13% in Year 1	Pay-as-you-go only	All Funded	All Funded	All Funded	$0
3C	Increase residential rate by 32% in Year 1	Pay-as-you-go only	All Funded	All Funded	All Funded	$0
5A	Increase residential rate by 13% in Year 1	LOC	14,15,16	All Funded	3,4	$6,396,375
5B	Increase residential rate by 37% in Year 1	LOC	All Funded	All Funded	All Funded	$0


Proposed Sewer Rates per EDU
Sewer Rate Per EDU
$17.00
$15.00
$13.00
$11.00
$9.00
$7.00
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Year
Alternative 1D (Pay-As-You-Go - Not All Projects Funded - Current Residential Rate)
Alternative 3A (Pay-As-You-Go)
Alternative 3B (Pay-As-You-Go)
Alternative 3C (Pay-As-You-Go)
Alternative 5A (LOC - Not All Projects Funded)
Alternative 5B (LOC)

Cumulative Projects Funded



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ATTACHMENT D

RATES

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Year 1
Monthly Sewer Rates: Alternative 1D

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 6.15	$ -	$ 6.15
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 7.97	$ -	$ 7.97
Residential/Apartments	$12.00	Each Living Unit	$ 7.97	$ -	$ 7.97
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 7.97	$ -	$ 7.97
Condo/Retirement	$12.00	Each Living Unit	$ 7.97	$ -	$ 7.97
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 3.46	$ -	$ 3.46
Bed & Breakfast Inn	$3.30	Each Room	$ 2.28	$ 0.86	$ 3.14
Supermarkets	$78.35	Location	$ 33.60	$ 12.69	$ 46.29
Medical Office	$10.70	Each Licensed Physician	$ 8.22	$ -	$ 8.22
Dental Office	$14.45	Each Licensed Dentist	$ 11.34	$ -	$ 11.34
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 2.28	$ 0.86	$ 3.14
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 13.49	$ 5.09	$ 18.58
Animal Hospital	$21.50	Location/Each Licensed Business	$ 15.01	$ -	$ 15.01
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.29	$ 0.11	$ 0.41
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.46	$ 0.18	$ 0.64
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 0.88	$ 0.33	$ 1.22
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 0.88	$ 0.33	$ 1.22
Bar	$18.75	Location/Each Business	$ 13.36	$ -	$ 13.36
Nightclub	$54.65	Location/Each Business	$ 40.05	$ 15.12	$ 55.17
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 14.92	$ 5.64	$ 20.56
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 36.72	$ 13.87	$ 50.58
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 66.95	$ 25.28	$ 92.23
Bakery	$30.10	Location/Each Business	$ 12.10	$ 4.57	$ 16.67
Theater	$25.35	Per Screen @ Each Location	$ 19.86	$ -	$ 19.86
Bowling Center	$77.20	Location/Each Business	$ 60.41	$ 22.81	$ 83.23
Gym	$8.30	Per 500 members	$ 6.15	$ -	$ 6.15
Mortuary	$38.40	Location/Each Business	$ 16.32	$ -	$ 16.32
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.09	$ 0.03	$ 0.12
School (7-College)	$0.20	School Population	$ 0.17	$ 0.06	$ 0.23
Boarding School	$2.40	School Population	$ 1.69	$ 0.64	$ 2.33
Instructional Facility	$8.30	School Population	$ 6.15	$ -	$ 6.15
Church	$8.30	Per 100 members	$ 6.15	$ 2.32	$ 8.48
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 6.15	$ -	$ 6.15
Service Station/Garage	$8.80		$ 5.90	$ -	$ 5.90
Paint and Body Shops	$8.30	Per 10 employees	$ 6.15	$ -	$ 6.15
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 20.37	$ -	$ 20.37
Laundromat	$6.70	Each Washing Machine	$ 5.35	$ -	$ 5.35
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 3,031.97	$ 751.96 [2]	$ 3,783.93

% Increase from Current Rate for Residential 0%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

Year 1
Monthly Sewer Rates: Alternative 3A

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 9.17	$ -	$ 9.17
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 11.88	$ -	$ 11.88
Residential/Apartments	$12.00	Each Living Unit	$ 11.88	$ -	$ 11.88
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 11.88	$ -	$ 11.88
Condo/Retirement	$12.00	Each Living Unit	$ 11.88	$ -	$ 11.88
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 5.15	$ -	$ 5.15
Bed & Breakfast Inn	$3.30	Each Room	$ 3.40	$ 0.86	$ 4.26
Supermarkets	$78.35	Location	$ 50.08	$ 12.69	$ 62.77
Medical Office	$10.70	Each Licensed Physician	$ 12.26	$ -	$ 12.26
Dental Office	$14.45	Each Licensed Dentist	$ 16.90	$ -	$ 16.90
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 3.40	$ 0.86	$ 4.26
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 20.11	$ 5.09	$ 25.20
Animal Hospital	$21.50	Location/Each Licensed Business	$ 22.37	$ -	$ 22.37
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.44	$ 0.11	$ 0.55
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.69	$ 0.18	$ 0.86
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.32	$ 0.33	$ 1.65
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.32	$ 0.33	$ 1.65
Bar	$18.75	Location/Each Business	$ 19.92	$ -	$ 19.92
Nightclub	$54.65	Location/Each Business	$ 59.69	$ 15.12	$ 74.81
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 22.24	$ 5.64	$ 27.88
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 54.73	$ 13.87	$ 68.59
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 99.78	$ 25.28	$ 125.06
Bakery	$30.10	Location/Each Business	$ 18.04	$ 4.57	$ 22.61
Theater	$25.35	Per Screen @ Each Location	$ 29.60	$ -	$ 29.60
Bowling Center	$77.20	Location/Each Business	$ 90.04	$ 22.81	$ 112.86
Gym	$8.30	Per 500 members	$ 9.17	$ -	$ 9.17
Mortuary	$38.40	Location/Each Business	$ 24.32	$ -	$ 24.32
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.13	$ 0.03	$ 0.16
School (7-College)	$0.20	School Population	$ 0.25	$ 0.06	$ 0.31
Boarding School	$2.40	School Population	$ 2.52	$ 0.64	$ 3.15
Instructional Facility	$8.30	School Population	$ 9.17	$ -	$ 9.17
Church	$8.30	Per 100 members	$ 9.17	$ 2.32	$ 11.49
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 9.17	$ -	$ 9.17
Service Station/Garage	$8.80		$ 8.80	$ -	$ 8.80
Paint and Body Shops	$8.30	Per 10 employees	$ 9.17	$ -	$ 9.17
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 30.36	$ -	$ 30.36
Laundromat	$6.70	Each Washing Machine	$ 7.98	$ -	$ 7.98
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 4,519.07	$ 751.96 [2]	$ 5,271.03

% Increase from Current Rate for Residential 49%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

Year 1
Monthly Sewer Rates: Alternative 3B

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 6.95	$ -	$ 6.95
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 9.00	$ -	$ 9.00
Residential/Apartments	$12.00	Each Living Unit	$ 9.00	$ -	$ 9.00
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 9.00	$ -	$ 9.00
Condo/Retirement	$12.00	Each Living Unit	$ 9.00	$ -	$ 9.00
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 3.91	$ -	$ 3.91
Bed & Breakfast Inn	$3.30	Each Room	$ 2.57	$ 0.86	$ 3.43
Supermarkets	$78.35	Location	$ 37.95	$ 12.69	$ 50.64
Medical Office	$10.70	Each Licensed Physician	$ 9.29	$ -	$ 9.29
Dental Office	$14.45	Each Licensed Dentist	$ 12.81	$ -	$ 12.81
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 2.57	$ 0.86	$ 3.43
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 15.24	$ 5.09	$ 20.33
Animal Hospital	$21.50	Location/Each Licensed Business	$ 16.96	$ -	$ 16.96
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.33	$ 0.11	$ 0.44
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.52	$ 0.18	$ 0.70
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.00	$ 0.33	$ 1.33
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.00	$ 0.33	$ 1.33
Bar	$18.75	Location/Each Business	$ 15.09	$ -	$ 15.09
Nightclub	$54.65	Location/Each Business	$ 45.23	$ 15.12	$ 60.36
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 16.86	$ 5.64	$ 22.49
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 41.47	$ 13.87	$ 55.34
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 75.62	$ 25.28	$ 100.90
Bakery	$30.10	Location/Each Business	$ 13.67	$ 4.57	$ 18.24
Theater	$25.35	Per Screen @ Each Location	$ 22.43	$ -	$ 22.43
Bowling Center	$77.20	Location/Each Business	$ 68.24	$ 22.81	$ 91.05
Gym	$8.30	Per 500 members	$ 6.95	$ -	$ 6.95
Mortuary	$38.40	Location/Each Business	$ 18.43	$ -	$ 18.43
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.10	$ 0.03	$ 0.13
School (7-College)	$0.20	School Population	$ 0.19	$ 0.06	$ 0.25
Boarding School	$2.40	School Population	$ 1.91	$ 0.64	$ 2.54
Instructional Facility	$8.30	School Population	$ 6.95	$ -	$ 6.95
Church	$8.30	Per 100 members	$ 6.95	$ 2.32	$ 9.27
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 6.95	$ -	$ 6.95
Service Station/Garage	$8.80		$ 6.67	$ -	$ 6.67
Paint and Body Shops	$8.30	Per 10 employees	$ 6.95	$ -	$ 6.95
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 23.00	$ -	$ 23.00
Laundromat	$6.70	Each Washing Machine	$ 6.05	$ -	$ 6.05
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 3,424.66	$ 751.96 [2]	$ 4,176.62

% Increase from Current Rate 13%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

Year 1
Monthly Sewer Rates: Alternative 3C

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 8.10	$ -	$ 8.10
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 10.50	$ -	$ 10.50
Residential/Apartments	$12.00	Each Living Unit	$ 10.50	$ -	$ 10.50
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 10.50	$ -	$ 10.50
Condo/Retirement	$12.00	Each Living Unit	$ 10.50	$ -	$ 10.50
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 4.56	$ -	$ 4.56
Bed & Breakfast Inn	$3.30	Each Room	$ 3.00	$ 0.86	$ 3.86
Supermarkets	$78.35	Location	$ 44.27	$ 12.69	$ 56.96
Medical Office	$10.70	Each Licensed Physician	$ 10.83	$ -	$ 10.83
Dental Office	$14.45	Each Licensed Dentist	$ 14.94	$ -	$ 14.94
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 3.00	$ 0.86	$ 3.86
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 17.77	$ 5.09	$ 22.87
Animal Hospital	$21.50	Location/Each Licensed Business	$ 19.78	$ -	$ 19.78
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.39	$ 0.11	$ 0.50
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.61	$ 0.18	$ 0.78
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.17	$ 0.33	$ 1.50
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.17	$ 0.33	$ 1.50
Bar	$18.75	Location/Each Business	$ 17.60	$ -	$ 17.60
Nightclub	$54.65	Location/Each Business	$ 52.76	$ 15.12	$ 67.89
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 19.66	$ 5.64	$ 25.30
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 48.37	$ 13.87	$ 62.24
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 88.20	$ 25.28	$ 113.48
Bakery	$30.10	Location/Each Business	$ 15.95	$ 4.57	$ 20.52
Theater	$25.35	Per Screen @ Each Location	$ 26.16	$ -	$ 26.16
Bowling Center	$77.20	Location/Each Business	$ 79.59	$ 22.81	$ 102.41
Gym	$8.30	Per 500 members	$ 8.10	$ -	$ 8.10
Mortuary	$38.40	Location/Each Business	$ 21.50	$ -	$ 21.50
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.12	$ 0.03	$ 0.15
School (7-College)	$0.20	School Population	$ 0.22	$ 0.06	$ 0.28
Boarding School	$2.40	School Population	$ 2.23	$ 0.64	$ 2.86
Instructional Facility	$8.30	School Population	$ 8.10	$ -	$ 8.10
Church	$8.30	Per 100 members	$ 8.10	$ 2.32	$ 10.43
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 8.10	$ -	$ 8.10
Service Station/Garage	$8.80		$ 7.78	$ -	$ 7.78
Paint and Body Shops	$8.30	Per 10 employees	$ 8.10	$ -	$ 8.10
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 26.83	$ -	$ 26.83
Laundromat	$6.70	Each Washing Machine	$ 7.05	$ -	$ 7.05
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User (From Tom Buell email 2/22/10)		Average Rate Shown	$ 3,994.53	$ 751.96 [2]	$ 4,746.49

% Increase from Current Rate for Residential 32%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

Year 1
Monthly Sewer Rates: Alternative 5A

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 6.92	$ -	$ 6.92
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 8.97	$ -	$ 8.97
Residential/Apartments	$12.00	Each Living Unit	$ 8.97	$ -	$ 8.97
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 8.97	$ -	$ 8.97
Condo/Retirement	$12.00	Each Living Unit	$ 8.97	$ -	$ 8.97
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 3.89	$ -	$ 3.89
Bed & Breakfast Inn	$3.30	Each Room	$ 2.56	$ 0.86	$ 3.42
Supermarkets	$78.35	Location	$ 37.81	$ 12.69	$ 50.50
Medical Office	$10.70	Each Licensed Physician	$ 9.25	$ -	$ 9.25
Dental Office	$14.45	Each Licensed Dentist	$ 12.76	$ -	$ 12.76
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 2.56	$ 0.86	$ 3.42
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 15.18	$ 5.09	$ 20.27
Animal Hospital	$21.50	Location/Each Licensed Business	$ 16.89	$ -	$ 16.89
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.33	$ 0.11	$ 0.44
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.52	$ 0.18	$ 0.70
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.00	$ 0.33	$ 1.33
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.00	$ 0.33	$ 1.33
Bar	$18.75	Location/Each Business	$ 15.04	$ -	$ 15.04
Nightclub	$54.65	Location/Each Business	$ 45.07	$ 15.12	$ 60.19
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 16.79	$ 5.64	$ 22.43
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 41.32	$ 13.87	$ 55.18
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Line	$ 75.34	$ 25.28	$ 100.62
Bakery	$30.10	Location/Each Business	$ 13.62	$ 4.57	$ 18.19
Theater	$25.35	Per Screen @ Each Location	$ 22.34	$ -	$ 22.34
Bowling Center	$77.20	Location/Each Business	$ 67.98	$ 22.81	$ 90.80
Gym	$8.30	Per 500 members	$ 6.92	$ -	$ 6.92
Mortuary	$38.40	Location/Each Business	$ 18.36	$ -	$ 18.36
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.10	$ 0.03	$ 0.13
School (7-College)	$0.20	School Population	$ 0.19	$ 0.06	$ 0.25
Boarding School	$2.40	School Population	$ 1.90	$ 0.64	$ 2.54
Instructional Facility	$8.30	School Population	$ 6.92	$ -	$ 6.92
Church	$8.30	Per 100 members	$ 6.92	$ 2.32	$ 9.25
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 6.92	$ -	$ 6.92
Service Station/Garage	$8.80		$ 6.64	$ -	$ 6.64
Paint and Body Shops	$8.30	Per 10 employees	$ 6.92	$ -	$ 6.92
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 22.92	$ -	$ 22.92
Laundromat	$6.70	Each Washing Machine	$ 6.03	$ -	$ 6.03
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
			$ 3,411.87	$ 751.96 [2]	$ 4,163.83

% Increase from Current Rate for Residential 13%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

Year 1
Monthly Sewer Rates: Alternative 5B

Description	MRWPCA Monthly Rates	Units	Monthly Seaside CSD Rate	Monthly FOG Program Rate	Monthly Total Rate
Business/Gov't	$8.30	Location/Each Business	$ 8.43	$ -	$ 8.43
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Residential/Apartments	$12.00	Each Living Unit	$ 10.92	$ -	$ 10.92
Residential/Apartments	$12.00	Each Living Unit	$ 10.92	$ -	$ 10.92
Residential-Vacant	$7.20	Each Living Unit	$ -	$ -	$ -
Condo/Retirement	$12.00	Each Living Unit	$ 10.92	$ -	$ 10.92
Condo/Retirement	$12.00	Each Living Unit	$ 10.92	$ -	$ 10.92
Minimum/Vacancy	$6.35	Location/Each Business	$ -	$ -	$ -
Motel/Hotel	$4.95	Each Room	$ 4.74	$ -	$ 4.74
Bed & Breakfast Inn	$3.30	Each Room	$ 3.12	$ 0.86	$ 3.98
Supermarkets	$78.35	Location	$ 46.06	$ 12.69	$ 58.75
Medical Office	$10.70	Each Licensed Physician	$ 11.27	$ -	$ 11.27
Dental Office	$14.45	Each Licensed Dentist	$ 15.54	$ -	$ 15.54
Rest Home/Convalescent	$3.10	Each Bed of Licensed Capacity	$ 3.12	$ 0.86	$ 3.98
General Hospital	$18.35	Each Bed of Licensed Capacity	$ 18.49	$ 5.09	$ 23.59
Animal Hospital	$21.50	Location/Each Licensed Business	$ 20.58	$ -	$ 20.58
Restaurant 1 meal/day	$0.75	Each Restaurant Seat	$ 0.40	$ 0.11	$ 0.52
Restaurant 2 meals/day	$1.15	Each Restaurant Seat	$ 0.63	$ 0.18	$ 0.81
Restaurant 3 meals/day	$2.15	Each Restaurant Seat	$ 1.21	$ 0.33	$ 1.55
Restaurant with Bar	$2.15	Each Restaurant Seat	$ 1.21	$ 0.33	$ 1.55
Bar	$18.75	Location/Each Business	$ 18.32	$ -	$ 18.32
Nightclub	$54.65	Location/Each Business	$ 54.90	$ 15.12	$ 70.03
Takeout Food - Small	$26.50	1 Cash Register or Checkout Line	$ 20.46	$ 5.64	$ 26.10
Takeout Food - Medium	$64.10	2 or 3 Cash Registers or Checkout Lines	$ 50.34	$ 13.87	$ 64.20
Takeout Food - Large	$116.60	4 or More Cash Registers or Checkout Lines	$ 91.78	$ 25.28	$ 117.06
Bakery	$30.10	Location/Each Business	$ 16.59	$ 4.57	$ 21.16
Theater	$25.35	Per Screen @ Each Location	$ 27.22	$ -	$ 27.22
Bowling Center	$77.20	Location/Each Business	$ 82.82	$ 22.81	$ 105.64
Gym	$8.30	Per 500 members	$ 8.43	$ -	$ 8.43
Mortuary	$38.40	Location/Each Business	$ 22.37	$ -	$ 22.37
School (Minimum)	$8.30		$ -	$ -	$ -
School (Grades 0-6)	$0.10	School Population	$ 0.12	$ 0.03	$ 0.15
School (7-College)	$0.20	School Population	$ 0.23	$ 0.06	$ 0.29
Boarding School	$2.40	School Population	$ 2.32	$ 0.64	$ 2.95
Instructional Facility	$8.30	School Population	$ 8.43	$ -	$ 8.43
Church	$8.30	Per 100 members	$ 8.43	$ 2.32	$ 10.76
Photo / Laboratory / Printer	$8.30	Per 10 employees	$ 8.43	$ -	$ 8.43
Service Station/Garage	$8.80		$ 8.09	$ -	$ 8.09
Paint and Body Shops	$8.30	Per 10 employees	$ 8.43	$ -	$ 8.43
Commercial Laundry	$0.00	Individual Determination	$ -	$ -	$ -
Dry Cleaner	$26.50	Location/Each Business	$ 27.92	$ -	$ 27.92
Laundromat	$6.70	Each Washing Machine	$ 7.34	$ -	$ 7.34
Major Hotel	$0.00	Individual Determination	$ - [1]	$ -	$ -
Car Wash	$0.00	Individual Determination	$ - [1]	$ -	$ -
Special User	$0.00	Individual Determination	$ - [1]	$ -	$ -
Rec Sports Facility	$0.00	Individual Determination	$ - [1]	$ -	$ -
Ground Water	$0.00	Individual Determination	$ - [1]	$ -	$ -
			$ 4,156.64	$ 751.96 [2]	$ 4,908.60

% Increase from Current Rate for Residential 37%

[1] Average rate combined in "Special User (From Tom Buell email 2/22/10)" line item.
[2] Estimated FOG program rate for Major Hotel Land Use. Does not apply to all uses.

ATTACHMENT E

RATE ALTERNATIVES

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RATE ANALYSIS - Alternative 1D
Seaside County Sanitation District
Maintain current residential rate, escalated annually
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$7.97	$8.14	$8.31	$8.49	$8.68	$8.86	$9.05	$9.25	$9.45	$9.65	$9.86	$10.07	$10.29	$10.51	$10.73
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,027,727	$ 1,049,823	$ 1,072,394	$ 1,095,451	$ 1,119,003	$ 1,143,061	$ 1,167,637	$ 1,192,741	$ 1,218,385	$ 1,244,581	$ 1,271,339	$ 1,298,673	$ 1,326,594	$ 1,355,116	$ 1,384,251
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,326,989	$ 1,349,085	$ 1,376,618	$ 1,404,736	$ 1,433,450	$ 1,599,102	$ 1,629,049	$ 1,659,632	$ 1,690,864	$ 1,722,759	$ 1,755,331	$ 1,788,595	$ 1,822,565	$ 1,857,257	$ 1,892,685
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 497,989	$ 428,265	$ 444,087	$ 427,838	$ 444,128	$ 562,711	$ 579,477	$ 560,124	$ 577,373	$ 556,292	$ 574,029	$ 571,854	$ 569,322	$ 566,416	$ 563,119
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 373,639	$ 352,615	$ 444,087	$ 427,838	$ 444,128	$ 562,711	$ 579,477	$ 560,124	$ 577,373	$ 556,292	$ 574,029	$ 571,854	$ 569,322	$ 566,416	$ 563,119
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 47,289	$ 214,740	$ 133,227	$ 167,956	$ 218,996	$ 202,585	$ 783,075	$ 1,347,114	$ 621,686	$ 1,181,086	$ 204,564	$ 777,440	$ 1,350,649	$ 1,923,818
Contribution to capital replacement reserves	$ 373,639	$ 352,615	$ 444,087	$ 427,838	$ 444,128	$ 562,711	$ 579,477	$ 560,124	$ 577,373	$ 556,292	$ 574,029	$ 571,854	$ 569,322	$ 566,416	$ 563,119
Interest Earnings on Fund Balance	$ -	$ 236	$ 1,074	$ 666	$ 840	$ 1,095	$ 1,013	$ 3,915	$ 6,736	$ 3,108	$ 5,905	$ 1,023	$ 3,887	$ 6,753	$ 9,619
Less use of funds (based on 100% of costs)	$ (926,350)	$ (185,400)	$ (526,673)	$ (393,775)	$ (393,928)	$ (580,217)	$ -	$ -	$ (1,309,536)	$ -	$ (1,556,457)	$ -	$ -	$ -	$ (2,184,086)
Ending Fund Balance	$ 47,289	$ 214,740	$ 133,227	$ 167,956	$ 218,996	$ 202,585	$ 783,075	$ 1,347,114	$ 621,686	$ 1,181,086	$ 204,564	$ 777,440	$ 1,350,649	$ 1,923,818	$ 312,470
Near Term Capital Projects Funded	1,2,4,6,10	NA	9	8	NA	3,11	NA	NA	5	NA	7	NA	NA	NA	13,14,15,18
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2
Remaining Project Costs	$ 13,140,697	$ 13,343,956	$ 13,201,801	$ 13,192,267	$ 13,182,289	$ 12,980,134	$ 13,369,538	$ 13,770,624	$ 12,834,921	$ 13,219,968	$ 12,013,417	$ 12,373,819	$ 12,745,034	$ 13,127,385	$ 11,271,598

Assumptions:

Base Annual rate increase (%)=	0.00%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%
O&M Inflation=	3.00%			Total EDU's =	10,748										
rate stabilization threshold=	$200,000			Year 1 $ per EDU (monthly) =	$7.97										
Property Tax Increase starting in Year 3=	2.00%														
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Projects Not Funded by Year 15

Near Term Capital Projects	12,16,17
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	3,4

RATE ANALYSIS - Alternative 3A
Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; fund first 11 projects and capital outlay projects by Year 6; fund remaining projects by Year 15
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Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$11.88	$12.13	$12.39	$12.66	$12.93	$13.12	$13.41	$13.69	$13.99	$14.29	$14.60	$14.91	$15.23	$15.56	$15.89
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,531,800	$ 1,564,734	$ 1,598,375	$ 1,632,741	$ 1,667,844	$ 1,692,770	$ 1,729,165	$ 1,766,342	$ 1,804,318	$ 1,843,111	$ 1,882,738	$ 1,923,217	$ 1,964,566	$ 2,006,804	$ 2,049,950
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,831,062	$ 1,863,995	$ 1,902,599	$ 1,942,026	$ 1,982,292	$ 2,148,810	$ 2,190,576	$ 2,233,231	$ 2,276,796	$ 2,321,289	$ 2,366,729	$ 2,413,138	$ 2,460,536	$ 2,508,944	$ 2,558,384
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 1,002,062	$ 943,175	$ 970,068	$ 965,128	$ 992,970	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 877,712	$ 867,525	$ 970,068	$ 965,128	$ 992,970	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 557,522	$ 672,845	$ 549,561	$ 1,025,600	$ 326,262	$ 1,076	$ 180,873	$ 623,328	$ 142,126	$ 76,703	$ 1,262,513	$ 2,465,223	$ 379,357	$ 1,599,357
Contribution to capital replacement reserves	$ 877,712	$ 867,525	$ 970,068	$ 965,128	$ 992,970	$ 1,112,419	$ 1,141,004	$ 1,133,724	$ 1,163,305	$ 1,154,821	$ 1,185,427	$ 1,196,397	$ 1,207,292	$ 1,218,103	$ 1,228,817
Interest Earnings on Fund Balance	$ -	$ 2,788	$ 3,364	$ 2,748	$ 5,128	$ 1,631	$ 5	$ 904	$ 3,117	$ 711	$ 384	$ 6,313	$ 12,326	$ 1,897	$ 7,997
Less use of funds (based on 100% of costs)	$ (920,190)	$ (754,990)	$ (1,096,716)	$ (491,836)	$ (1,697,436)	$ (1,439,236)	$ (961,212)	$ (692,173)	$ (1,647,625)	$ (1,220,955)	$ -	$ -	$ (3,305,484)	$ -	$ (2,836,106)
Ending Fund Balance	$ 557,522	$ 672,845	$ 549,561	$ 1,025,600	$ 326,262	$ 1,076	$ 180,873	$ 623,328	$ 142,126	$ 76,703	$ 1,262,513	$ 2,465,223	$ 379,357	$ 1,599,357	$ 66
Near Term Capital Projects Funded	1,2,3,4,9,10	6	5	11	7	8,13,14,15,18	NA	NA	12	16	NA	NA	17	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	4	2	NA	NA	NA	NA	NA	NA	3
Remaining Project Costs	$ 13,147,042	$ 12,763,813	$ 12,017,110	$ 11,871,032	$ 10,478,804	$ 9,310,754	$ 8,600,028	$ 8,145,091	$ 6,692,390	$ 5,635,579	$ 5,804,646	$ 5,978,786	$ 2,753,501	$ 2,836,106	$ -

Assumptions:

Base Annual rate increase (%) (thru Year 5) =	49.01%	2.15%	2.15%	2.15%	2.15%	1.49%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	
O&M Inflation=	3.00%			Total EDU's =	10,748										
rate stabilization threshold=	$200,000			Year 1 $ per EDU (monthly) =	$11.88										
Property Tax Increase starting in Year 3=	2.00%			one time increase/(decrease) in year 6=	1.49%										
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

RATE ANALYSIS - Alternative 3B
Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; fund first 11 projects and capital outlay projects by Year 6; fund remaining projects by Year 15

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Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$9.00	$10.53	$12.00	$13.32	$14.39	$14.39	$14.39	$14.39	$14.39	$14.39	$14.65	$14.97	$15.29	$15.62	$15.95
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,160,836	$ 1,358,178	$ 1,548,323	$ 1,718,639	$ 1,856,130	$ 1,856,130	$ 1,856,130	$ 1,856,130	$ 1,856,130	$ 1,856,130	$ 1,889,726	$ 1,930,355	$ 1,971,857	$ 2,014,252	$ 2,057,559
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,460,098	$ 1,657,440	$ 1,852,547	$ 2,027,924	$ 2,170,577	$ 2,312,170	$ 2,317,541	$ 2,323,020	$ 2,328,608	$ 2,334,308	$ 2,373,718	$ 2,420,277	$ 2,467,828	$ 2,516,393	$ 2,565,993
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 631,098	$ 736,620	$ 920,016	$ 1,051,026	$ 1,181,255	$ 1,275,779	$ 1,267,969	$ 1,223,513	$ 1,215,117	$ 1,167,841	$ 1,192,415	$ 1,203,535	$ 1,214,584	$ 1,225,552	$ 1,236,426
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 506,748	$ 660,970	$ 920,016	$ 1,051,026	$ 1,181,255	$ 1,275,779	$ 1,267,969	$ 1,223,513	$ 1,215,117	$ 1,167,841	$ 1,192,415	$ 1,203,535	$ 1,214,584	$ 1,225,552	$ 1,236,426
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 186,558	$ 93,470	$ 536,442	$ 460,533	$ 1,250,162	$ 231,847	$ 539,764	$ 1,073,802	$ 646,663	$ 596,783	$ 1,233,986	$ 2,443,692	$ 365,010	$ 1,592,387
Contribution to capital replacement reserves	$ 506,748	$ 660,970	$ 920,016	$ 1,051,026	$ 1,181,255	$ 1,275,779	$ 1,267,969	$ 1,223,513	$ 1,215,117	$ 1,167,841	$ 1,192,415	$ 1,203,535	$ 1,214,584	$ 1,225,552	$ 1,236,426
Interest Earnings on Fund Balance	$ -	$ 933	$ 467	$ 2,682	$ 2,303	$ 6,251	$ 1,159	$ 2,699	$ 5,369	$ 3,233	$ 2,984	$ 6,170	$ 12,218	$ 1,825	$ 7,962
Less use of funds (based on 100% of costs)	$ (920,190)	$ (754,990)	$ (477,511)	$ (1,129,617)	$ (393,928)	$ (2,300,345)	$ (961,212)	$ (692,173)	$ (1,647,625)	$ (1,220,955)	$ (558,196)	$ -	$ (3,305,484)	$ -	$ (2,836,106)
Ending Fund Balance	$ 186,558	$ 93,470	$ 536,442	$ 460,533	$ 1,250,162	$ 231,847	$ 539,764	$ 1,073,802	$ 646,663	$ 596,783	$ 1,233,986	$ 2,443,692	$ 365,010	$ 1,592,387	$ 670
Near Term Capital Projects Funded	1,2,3,4,9,10	6	11	5	NA	7,8,13,15	NA	NA	12	NA	14	NA	17	NA	16,18
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	4	2	NA	NA	NA	NA	NA	NA	3
Remaining Project Costs	$ 13,147,042	$ 12,763,813	$ 12,654,891	$ 11,871,032	$ 11,821,417	$ 9,806,704	$ 9,110,856	$ 8,671,244	$ 7,234,328	$ 6,193,775	$ 5,804,646	$ 5,978,786	$ 2,753,501	$ 2,836,106	$ -

Assumptions:

Base Annual rate increase (%) =	12.92%	17.00%	14.00%	11.00%	8.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.81%	2.15%	2.15%	2.15%	2.15%

O&M Inflation= 3.00%
Total EDU's = 10,748
rate stabilization threshold= $200,000
Year 1 $ per EDU (monthly) = $9.00
Property Tax Increase starting in Year 3= 2.00%
one time increase/(decrease) in year 7= 0.00%
Annual Capital Costs increase (%)= 3.00%
Annual Interest Earnings on Fund Balance (%)= 0.50%

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

RATE ANALYSIS - Alternative 3C
Seaside County Sanitation District

$13.7 Million (unescalated) capital replacement program; fund first 11 projects and capital outlay projects by Year 6; fund remaining projects by Year 15

DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$10.50	$11.65	$12.58	$13.21	$13.66	$13.66	$13.66	$13.67	$13.96	$14.26	$14.57	$14.88	$15.20	$15.53	$15.86
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,354,000	$ 1,502,940	$ 1,623,175	$ 1,704,334	$ 1,761,429	$ 1,761,429	$ 1,761,429	$ 1,762,662	$ 1,800,559	$ 1,839,271	$ 1,878,816	$ 1,919,210	$ 1,960,473	$ 2,002,623	$ 2,045,680
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,653,262	$ 1,802,202	$ 1,927,399	$ 2,013,619	$ 2,075,877	$ 2,217,470	$ 2,222,841	$ 2,229,552	$ 2,273,038	$ 2,317,450	$ 2,362,808	$ 2,409,132	$ 2,456,444	$ 2,504,764	$ 2,554,114
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 824,262	$ 881,382	$ 994,868	$ 1,036,721	$ 1,086,555	$ 1,181,079	$ 1,173,269	$ 1,130,045	$ 1,159,547	$ 1,150,982	$ 1,181,505	$ 1,192,391	$ 1,203,200	$ 1,213,923	$ 1,224,547
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 699,912	$ 805,732	$ 994,868	$ 1,036,721	$ 1,086,555	$ 1,181,079	$ 1,173,269	$ 1,130,045	$ 1,159,547	$ 1,150,982	$ 1,181,505	$ 1,192,391	$ 1,203,200	$ 1,213,923	$ 1,224,547
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 379,722	$ 432,362	$ 951,881	$ 863,744	$ 257,181	$ 309	$ 212,367	$ 651,301	$ 166,480	$ 97,340	$ 1,279,332	$ 2,478,119	$ 388,226	$ 1,604,091
Contribution to capital replacement reserves	$ 699,912	$ 805,732	$ 994,868	$ 1,036,721	$ 1,086,555	$ 1,181,079	$ 1,173,269	$ 1,130,045	$ 1,159,547	$ 1,150,982	$ 1,181,505	$ 1,192,391	$ 1,203,200	$ 1,213,923	$ 1,224,547
Interest Earnings on Fund Balance	$ -	$ 1,899	$ 2,162	$ 4,759	$ 4,319	$ 1,286	$ 2	$ 1,062	$ 3,257	$ 832	$ 487	$ 6,397	$ 12,391	$ 1,941	$ 8,020
Less use of funds (based on 100% of costs)	$ (920,190)	$ (754,990)	$ (477,511)	$ (1,129,617)	$ (1,697,436)	$ (1,439,236)	$ (961,212)	$ (692,173)	$ (1,647,625)	$ (1,220,955)	$ -	$ -	$ (3,305,484)	$ -	$ (2,836,106)
Ending Fund Balance	$ 379,722	$ 432,362	$ 951,881	$ 863,744	$ 257,181	$ 309	$ 212,367	$ 651,301	$ 166,480	$ 97,340	$ 1,279,332	$ 2,478,119	$ 388,226	$ 1,604,091	$ 553
Near Term Capital Projects Funded	1,2,3,4,9,10	6	11	5	7	8,4,13,14,15,18	NA	NA	12	16	NA	NA	17	NA	NA
SCSD Capital Outlay Projects Funded	1	2,3	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	4	2	NA	NA	NA	NA	NA	NA	3
Remaining Project Costs	$ 13,147,042	$ 12,763,813	$ 12,654,891	$ 11,871,032	$ 10,478,804	$ 9,310,754	$ 8,600,028	$ 8,145,091	$ 6,692,390	$ 5,635,579	$ 5,804,646	$ 5,978,786	$ 2,753,501	$ 2,836,106	$ -

Assumptions:

Base Annual rate increase (%) =	31.71%	11.00%	8.00%	5.00%	3.35%	0.00%	0.00%	0.07%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%
O&M Inflation=	3.00%														
rate stabilization threshold=	$200,000														
Property Tax Increase starting in Year 3=	2.00%														
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Total EDU's =	10,748
Year 1 $ per EDU (monthly) =	$10.50
one time increase/(decrease) in year 7=	0.00%

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

RATE ANALYSIS - Alternative 5A
Seaside County Sanitation District
$13.7 Million (unescalated) capital replacement program; Draw on LOC in Years 6,10, & 15; fund first 11 projects and capital outlay projects by Year 6; All projects not funded
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$8.97	$9.16	$9.36	$9.56	$9.76	$9.97	$10.19	$10.41	$10.63	$10.86	$11.09	$11.33	$11.57	$11.82	$12.08
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,156,500	$ 1,181,365	$ 1,206,764	$ 1,232,710	$ 1,259,213	$ 1,286,286	$ 1,313,941	$ 1,342,191	$ 1,371,048	$ 1,400,525	$ 1,430,637	$ 1,461,395	$ 1,492,815	$ 1,524,911	$ 1,557,696
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,455,762	$ 1,480,626	$ 1,510,988	$ 1,541,995	$ 1,573,660	$ 1,742,326	$ 1,775,353	$ 1,809,081	$ 1,843,526	$ 1,878,704	$ 1,914,629	$ 1,951,318	$ 1,988,786	$ 2,027,052	$ 2,066,130
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 626,762	$ 559,806	$ 578,457	$ 565,097	$ 584,338	$ 705,935	$ 725,781	$ 709,574	$ 730,035	$ 712,236	$ 733,326	$ 734,576	$ 735,542	$ 736,210	$ 736,564
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 502,412	$ 484,156	$ 578,457	$ 565,097	$ 584,338	$ 705,935	$ 725,781	$ 709,574	$ 730,035	$ 712,236	$ 733,326	$ 734,576	$ 735,542	$ 736,210	$ 736,564
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 449,972	$ 181,388	$ 105,381	$ 179,168	$ 764,402	$ 379	$ -	$ -	$ 453,801	$ 29,920	$ -	$ -	$ 265,202	$ 878,188
Contribution to capital replacement reserves	$ 502,412	$ 484,156	$ 578,457	$ 565,097	$ 584,338	$ 705,935	$ 725,781	$ 709,574	$ 730,035	$ 712,236	$ 733,326	$ 734,576	$ 735,542	$ 736,210	$ 736,564
Proceeds from Line of Credit	$ -	$ -	$ -	$ -	$ -	$ 1,500,000	$ -	$ -	$ -	$ 1,710,000	$ -	$ -	$ -	$ -	$ 1,910,000
Interest Earnings on Fund Balance	$ -	$ 2,250	$ 907	$ 527	$ 896	$ 3,822	$ 2	$ -	$ -	$ 2,269	$ 150	$ -	$ -	$ 1,326	$ 4,391
Less use of funds (based on 100% of costs)	$ (652,440)	$ (754,990)	$ (655,371)	$ (491,836)	$ -	$ (2,958,780)	$ -	$ -	$ -	$ (2,831,286)	$ -	$ -	$ -	$ (124,551)	$ (3,506,788)
Payment on Line of Credit [1]	$ -	$ -	$ -	$ -	$ -	$ (15,000)	$ (726,161)	$ (709,574)	$ (276,234)	$ (17,100)	$ (763,396)	$ (734,576)	$ (470,340)	$ -	$ (19,100)
Ending Fund Balance	$ 449,972	$ 181,388	$ 105,381	$ 179,168	$ 764,402	$ 379	$ -	$ -	$ 453,801	$ 29,920	$ -	$ -	$ 265,202	$ 878,188	$ 3,255
Near Term Capital Projects Funded	1,2,3,9,10	6	4	11	NA	5,7,8	NA	NA	NA	12,18	NA	NA	NA	13	17
SCSD Capital Outlay Projects Funded	1	2,3	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA
Remaining Project Costs	$ 13,422,824	$ 13,047,869	$ 12,764,273	$ 12,640,610	$ 13,019,828	$ 10,362,879	$ 10,673,765	$ 10,993,978	$ 11,323,798	$ 8,747,287	$ 9,009,706	$ 9,279,997	$ 9,558,397	$ 9,716,861	$ 6,396,375

Assumptions:

Base Annual rate increase (%) =	12.50%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%
O&M Inflation=	3.00%			Total EDU's =	10,748										
rate stabilization threshold=	$200,000			Year 1 $ per EDU (monthly) =	$8.97										
Property Tax Increase starting in Year 3=	2.00%			one time increase/(decrease) in year 6=	0.00%										
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Projects Not Funded by Year 15

Near Term Capital Projects	14,15,16
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	3,4

Last LOC issued is paid off in Year 18

[1] Based on an annual interest rate of 8.00% which is the sum of a typical historical LIBOR rate of 5% plus 3%. Also includes costs of issuance for the LOC equal to 1% of the borrowed amount.

RATE ANALYSIS - Alternative 5B
Seaside County Sanitation District
$13.7 Million (unescalated) capital replacement program; Draw on LOC in Years 5,8,12, & 15; fund first 11 projects and capital outlay projects by Year 6; fund all remaining projects by Year 15
DRAFT

Study Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fiscal Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
$ Per EDU (Monthly)	$10.92	$11.16	$11.40	$11.64	$11.89	$12.15	$12.41	$12.68	$12.95	$13.23	$13.51	$13.80	$14.10	$14.40	$14.71
OPERATING REVENUE															
SCSD Rate Revenue	$ 1,408,950	$ 1,439,242	$ 1,470,186	$ 1,501,795	$ 1,534,084	$ 1,567,067	$ 1,600,758	$ 1,635,175	$ 1,670,331	$ 1,706,243	$ 1,742,927	$ 1,780,400	$ 1,818,679	$ 1,857,781	$ 1,897,723
Property Taxes	$ 248,105	$ 248,105	$ 253,067	$ 258,128	$ 263,291	$ 268,556	$ 273,928	$ 279,406	$ 284,994	$ 290,694	$ 296,508	$ 302,438	$ 308,487	$ 314,657	$ 320,950
Use of money and property	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157	$ 51,157
Estimated Capacity Fee Revenue	$ -	$ -	$ -	$ -	$ -	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327	$ 136,327
Total Revenue	$ 1,708,212	$ 1,738,504	$ 1,774,410	$ 1,811,080	$ 1,848,531	$ 2,023,107	$ 2,062,170	$ 2,102,065	$ 2,142,809	$ 2,184,421	$ 2,226,919	$ 2,270,323	$ 2,314,650	$ 2,359,921	$ 2,406,157
OPERATIONAL EXPENSES:															
Labor and Materials															
Sewer Operations and Maintenance	$ 745,000	$ 767,350	$ 790,371	$ 814,082	$ 838,504	$ 863,659	$ 889,569	$ 916,256	$ 943,744	$ 972,056	$ 1,001,218	$ 1,031,254	$ 1,062,192	$ 1,094,058	$ 1,126,879
Outside Services:															
Video Inspection	$ 30,000	$ 82,400	$ 84,872	$ 87,418	$ 90,041	$ 92,742	$ 95,524	$ 98,390	$ 101,342	$ 104,382	$ 107,513	$ 110,739	$ 114,061	$ 117,483	$ 121,007
Sewer System Management Plan	$ -	$ 15,450	$ -	$ 16,391	$ -	$ 17,389	$ -	$ 18,448	$ -	$ 19,572	$ -	$ -	$ -	$ -	$ -
GIS Maintenance/Mapping	$ 25,000	$ 25,750	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851	$ 30,747	$ 31,669	$ 32,619	$ 33,598	$ 34,606	$ 35,644	$ 36,713	$ 37,815
LS Maintenance	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,881	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252
PGE	$ 9,000	$ 9,270	$ 9,548	$ 9,835	$ 10,130	$ 10,433	$ 10,746	$ 11,069	$ 11,401	$ 11,743	$ 12,095	$ 12,458	$ 12,832	$ 13,217	$ 13,613
total operational expenses:	$ 829,000	$ 920,820	$ 932,531	$ 976,898	$ 989,322	$ 1,036,391	$ 1,049,572	$ 1,099,507	$ 1,113,491	$ 1,166,467	$ 1,181,302	$ 1,216,742	$ 1,253,244	$ 1,290,841	$ 1,329,566
NET OPERATING REVENUE	$ 879,212	$ 817,684	$ 841,879	$ 834,182	$ 859,209	$ 986,716	$ 1,012,598	$ 1,002,558	$ 1,029,318	$ 1,017,954	$ 1,045,617	$ 1,053,581	$ 1,061,406	$ 1,069,080	$ 1,076,590
Less:															
Rate Stabilization Reserves@ 15% of expenses	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to near term capital replacement reserves	$ 754,862	$ 742,034	$ 841,879	$ 834,182	$ 859,209	$ 986,716	$ 1,012,598	$ 1,002,558	$ 1,029,318	$ 1,017,954	$ 1,045,617	$ 1,053,581	$ 1,061,406	$ 1,069,080	$ 1,076,590
Budget Surplus (deficit)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Rate Stabilization Reserve Fund Balances:															
Beginning of Fiscal Year	$ -	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Budget Surplus (Deficit)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contribution to (Use of) Reserve Balance from Rates	$ 124,350	$ 75,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
End of Fiscal Year	$ 124,350	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Capital Replacement Fund Balance:															
Beginning Fund Balance	$ 600,000	$ 342,062	$ 330,816	$ 518,978	$ 863,919	$ 745,433	$ 115,877	$ 1,129,054	$ 1,017,620	$ 216,027	$ 1,235,061	$ 1,874,950	$ 1,594,788	$ 1,260,168	$ 2,335,549
Contribution to capital replacement reserves	$ 754,862	$ 742,034	$ 841,879	$ 834,182	$ 859,209	$ 986,716	$ 1,012,598	$ 1,002,558	$ 1,029,318	$ 1,017,954	$ 1,045,617	$ 1,053,581	$ 1,061,406	$ 1,069,080	$ 1,076,590
Proceeds from Line of Credit	$ -	$ -	$ -	$ -	$ 1,500,000	$ -	$ -	$ 1,700,000	$ -	$ -	$ -	$ 1,300,000	$ -	$ -	$ 3,790,000
Interest Earnings on Fund Balance	$ -	$ 1,710	$ 1,654	$ 2,595	$ 4,320	$ 3,727	$ 579	$ 5,645	$ 5,088	$ 1,080	$ 6,175	$ 9,375	$ 7,974	$ 6,301	$ 11,678
Less use of funds (based on 100% of costs)	$ (1,012,800)	$ (754,990)	$ (655,371)	$ (491,836)	$ (2,467,014)	$ -	$ -	$ (2,802,637)	$ -	$ -	$ (411,904)	$ (2,630,118)	$ -	$ -	$ (6,342,894)
Payment on Line of Credit [1]	$ -	$ -	$ -	$ -	$ (15,000)	$ (1,620,000)	$ -	$ (17,000)	$ (1,836,000)	$ -	$ -	$ (13,000)	$ (1,404,000)	$ -	$ (37,900)
Ending Fund Balance	$ 342,062	$ 330,816	$ 518,978	$ 863,919	$ 745,433	$ 115,877	$ 1,129,054	$ 1,017,620	$ 216,027	$ 1,235,061	$ 1,874,950	$ 1,594,788	$ 1,260,168	$ 2,335,549	$ 833,023
Near Term Capital Projects Funded	1,2,3,8,9,10	6	4	11	5,7	NA	NA	12,14	NA	NA	18	13,15,16	NA	NA	17
SCSD Capital Outlay Projects Funded	1	2,3	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Region A Long Term Capital Projects Funded	NA	NA	NA	NA	NA	NA	NA	2	NA	NA	NA	4	NA	NA	3
Remaining Project Costs	$ 13,051,653	$ 12,665,563	$ 12,370,498	$ 12,235,021	$ 10,061,048	$ 10,362,879	$ 10,673,765	$ 8,107,263	$ 8,350,481	$ 8,600,995	$ 8,434,764	$ 5,978,786	$ 6,158,149	$ 6,342,894	$ -

Assumptions:

Base Annual rate increase (%) =	37.06%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%	2.15%
O&M Inflation=	3.00%			Total EDU's =	10,748										
rate stabilization threshold=	$200,000			Year 1 $ per EDU (monthly) =	$10.92										
Property Tax Increase starting in Year 3=	2.00%			one time increase/(decrease) in year 6=	0.00%										
Annual Capital Costs increase (%)=	3.00%														
Annual Interest Earnings on Fund Balance (%)=	0.50%														

Projects Not Funded by Year 15

Near Term Capital Projects	NA
SCSD Capital Outlay Projects	NA
Region A Long Term Capital Projects	NA

Last LOC issued is paid off in Year 18

[1] Based on an annual interest rate of 8.00% which is the sum of a typical historical LIBOR rate of 5% plus 3%. Also includes costs of issuance for the LOC equal to 1% of the borrowed amount.

ATTACHMENT F

FOG PROGRAM

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FOG Program Rate Calculation [1]

Description	Units	EXISTING UNITS			Average Flow (gpd) [2]	Total Flow (gpd)	Seaside Annual FOG Rate ($/unit)	Expected Annual Revenue
		Del Rey Oaks	Seaside	Sand City				
Bed & Breakfast Inn	Each Room				54	0	$ 10.32	$0
Supermarkets	Location	1	5	1	797	5,579	$ 152.26	$1,066
Rest Home/Convalescent	Each Bed of Licensed Capacity		111		54	5,994	$ 10.32	$1,145
General Hospital	Each Bed of Licensed Capacity				320	0	$ 61.13	$0
Restaurant 1 meal/day	Each Restaurant Seat	90	116		7	1,442	$ 1.34	$275
Restaurant 2 meals/day	Each Restaurant Seat		1379	61	11	15,840	$ 2.10	$3,026
Restaurant 3 meals/day	Each Restaurant Seat		233	62	21	6,195	$ 4.01	$1,184
Restaurant with Bar	Each Restaurant Seat	174	370		21	11,424	$ 4.01	$2,182
Nightclub	Location/Each Business				950	0	$ 181.49	$0
Takeout Food - Small	1 Cash Register or Checkout Line	6	17	6	354	10,266	$ 67.63	$1,961
Takeout Food - Medium	2 or 3 Cash Registers or Checkout Lines	1	9	2	871	10,452	$ 166.40	$1,997
Takeout Food - Large	4 or More Cash Registers or Checkout Lines	1	3	2	1,588	9,528	$ 303.38	$1,820
Bakery	Location/Each Business	1	6	4	287	3,157	$ 54.83	$603
Bowling Center	Location/Each Business				1,433	0	$ 273.76	$0
School (Grades 0-6)	School Population		4014		2	8,028	$ 0.38	$1,534
School (7-College)	School Population		307		4	1,228	$ 0.76	$235
Boarding School	School Population				40	0	$ 7.64	$0
Church	Per 100 members	1	33		146	4,964	$ 27.89	$948
Major Hotel	Individual Determination		1		47,233	47,233	$ 9,023.50	$9,023
Totals						**141,330**		**$27,000**

Annual Cost of FOG Program = $27,000
Cost per unit of flow (gpd) = $0.19

[1] Customer data based on information provided by MRWPCA on 12/15/09
[2] Based on data provided by MRWPCA on 7/27/10

K: clients2/seaside/FOG Program

SEWER RATE STUDY
SEASIDE COUNTY SANITATION DISTRICT

BOARD WORKSHOP

March 8, 2011

David Taussig & Associates, Inc.

Overview of Presentation

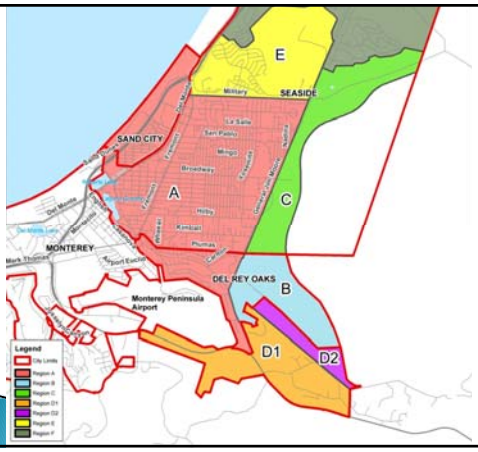
≈ Purpose
≈ Capital Improvement Program
≈ Sewer Use Analysis
≈ Financial Analysis
≈ Next Steps

2

Purpose

≈ Present sewer rate study
≈ Receive Board direction regarding preferred sewer rate alternative

3



4

Capital Improvement Program

≈ **CIP Recommendations**
- Near Term Projects
- Long Term Projects
- CIP Summary Table with Hard & Soft Costs
  - Near Term – By Order of Ranking
    - Total of $9.9 million
  - Long Term – By Region
    - Total of $10.5 million

5

Capital Improvement Program

6

Capital Improvement Program

7

Capital Improvement Program

Projects	Costs allocated to Existing Development	Costs allocated to Potential New Development	Total Costs
Near Term Capital Projects (Health & Safety Projects)	$3,422,107	$1,038,453	$4,460,560
Near Term Capital Projects (Efficiency Projects)	$5,405,299	$30,650	$5,435,948
Capital Outlay Projects	$545,000	$0	$545,000
Region A Long Term Capital Cost (Projects 2 through 4)	$2,039,350	$1,203,450	$3,242,800
Total	$11,411,756	$2,272,553	$13,684,308

8

Sewer Use Analysis

- ≈ SCSD currently charges 66.4% of MRWPCA sewer rate
- ≈ Rate model based on average flow from SCSD users

9

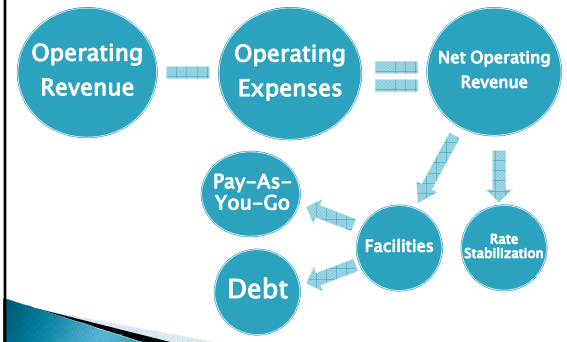
Sewer Use Analysis

- ≈ Equivalent dwelling unit (EDU) factors based on flow
- ≈ Residential user = 1 EDU
- ≈ EDU factors for other users based on relative flow
- ≈ Total EDUs are summarized below

Land Use	Total EDUs
Residential	8,902
Non-Residential	1,846
Total	10,748

10

Financial Analysis



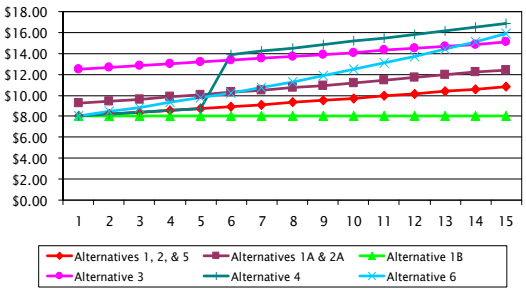
11

Sewer Rate Alternatives

Alt.	Description	
1	Maintain existing residential rates; annual increase of 2.15%	Pay-As-You-Go
1A	Increase residential rates by 15% in Year 1; annual increase of 2.15%	Pay-As-You-Go
1B	Maintain existing residential rates; no escalation	Pay-As-You-Go
2	Maintain existing residential rates; annual increase of 2.15%	Bonds
2A	Increase residential rates by 15% in Year 1; annual increase of 2.15%	Bonds
3	Fund all projects by Year 15; annual increase of 1.35%	Pay-As-You-Go
4	Maintain existing residential rates through Year 5; annual increase of 2.15%; additional increase of 55.8% in Year 6	Bonds
5	Maintain existing residential rates; annual increase of 2.15%	Line of Credit
6	Start with existing residential rates; annual increase of 5%	Pay-As-You-Go

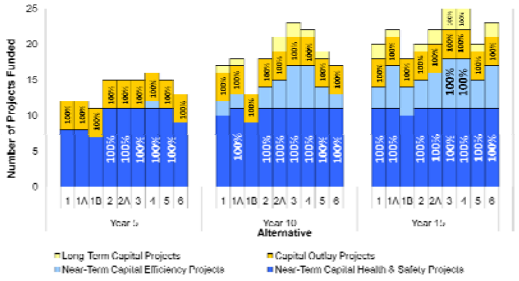
12

Proposed Sewer Rates Per EDU



13

Cumulative Projects Funded



14

Projects Funded by Year 6

	Total Costs	1	1A	1B	2	2A	3	4	5	6
Near-term Health & Safety Projects	$4.5 M	$2.3 M Funded	$3.0 M Funded	$1.8 M Funded	All Funded	All Funded	All Funded	All Funded	All Funded	$2.3 M Funded
Near-term Efficiency Projects	$5.4 M	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$1.0 M Funded	$0.9 M Funded	$2.7 M Funded	$0 Funded	$0 Funded
Capital Outlay projects	$0.5 M	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Long-term Capital Projects 2-4	$3.2 M	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$0.6 M Funded	$0 Funded	$0 Funded
Total	$13.7 M	$2.8 M Funded	$3.5 M Funded	$2.3 M Funded	$5.0 M Funded	$6.0 M Funded	$5.9 M Funded	$8.3 M Funded	$5.0 M Funded	$2.8 M Funded

Note: Costs shown above are unescalated costs.

15

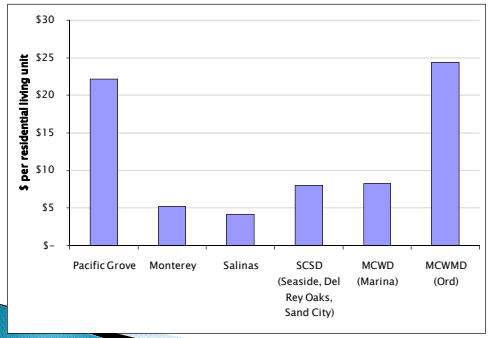
Projects Funded by Year 15

	Total Costs	1	1A	1B	2	2A	3	4	5	6
Near-term Health & Safety Projects	$4.5 M	All Funded	All Funded	$3.4 M Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Near-term Efficiency Projects	$5.4 M	$0.5 M Funded	$3.1 M Funded	$0.9 M Funded	$0.9 M Funded	$1.8 M Funded	All Funded	All Funded	$0.9 M Funded	$3.1 M Funded
Capital Outlay projects	$0.5 M	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Long-term Capital Projects 2-4	$3.2 M	$1.4 M Funded	$0.8 M Funded	$0 Funded	$0.8 M Funded	$1.4 M Funded	All Funded	All Funded	$0.8 M Funded	$1.4 M Funded
Total	$13.7 M	$7.0 M Funded	$9.0 M Funded	$4.8 M Funded	$6.8 M Funded	$8.3 M Funded	All Funded	All funded	$6.8 M Funded	$9.6 M Funded

Note: Costs shown above are unescalated costs.

16

Comparison of Monthly Wastewater Collection Rates



17

Next Steps

- March 2011 — Board provides direction on preferred alternative
- April 2011 — Board approves Master Plan with final Rate Study
- May 2011 — Board directs staff to begin process to adjust rates

18

SEWER RATE STUDY
SEASIDE COUNTY SANITATION DISTRICT

BOARD WORKSHOP

April 12, 2011

David Taussig & Associates, Inc.

Overview of Presentation

- ≈ Purpose
- ≈ Revised Sewer Rate Alternatives
- ≈ Next Steps

2

Purpose

- ≈ Present revised sewer rate alternatives
- ≈ Receive Board direction regarding preferred sewer rate alternative

3

Capital Improvement Program

Projects	Costs allocated to Existing Development	Costs allocated to Potential New Development	Total Costs
Near Term Capital Projects (Health & Safety Projects)	$3,422,107	$1,038,453	$4,460,560
Near Term Capital Projects (Efficiency Projects)	$5,405,299	$30,650	$5,435,948
Capital Outlay Projects	$545,000	$0	$545,000
Region A Long Term Capital Cost (Projects 2 through 4)	$2,039,350	$1,203,450	$3,242,800
Total	$11,411,756	$2,272,553	$13,684,308

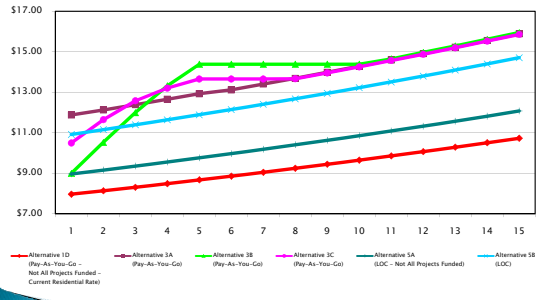
4

Revised Sewer Rate Alternatives

Alt.	Description	
1D	Maintain existing residential rate; increases annually by 2.15%	Pay-As-You-Go
3A	Fund all projects by Year 15; Start with base rate of $11.88; increases annually by 2.15% through Year 5	Pay-As-You-Go
3B	Fund all projects by Year 15; Start with base rate of $9.00; annual rate increases range from 8% to 17% through Year 5	Pay-As-You-Go
3C	Fund all projects by Year 15; Start with base rate of $10.50; annual rate increases range from 3% to 11% through Year 5	Pay-As-You-Go
5A	Start with base rate of $8.97; increases annually by 2.15%	Line of Credit
5B	Fund all projects by Year 15; Start with base rate of $10.92; increases annually by 2.15%	Line of Credit

5

Revised Sewer Rate Alternatives



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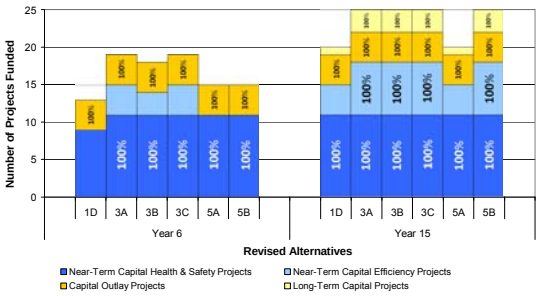
Cumulative Projects Funded



7

Revised Sewer Rate Alternatives Projects Funded by Year 6

	Total Costs	1D (Pay-Go)	3A (Pay-Go)	3B (Pay-Go)	3C (Pay-Go)	5A (LOC)	5B (LOC)
Near-term Health & Safety Projects	$4.5 M	$2.3 M Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Near-term Efficiency Projects	$5.4 M	$0 Funded	$0.9 M Funded	$0.5 M Funded	$0.9 M Funded	$0 Funded	$0 Funded
Capital Outlay projects	$0.5 M	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Long-term Capital Projects 2-4	$3.2 M	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$0 Funded	$0 Funded
Total	$13.7 M	$2.8 M Funded	$5.4 M Funded	$5.5 M Funded	$5.9 M Funded	$5.0 M Funded	$5.0 M Funded

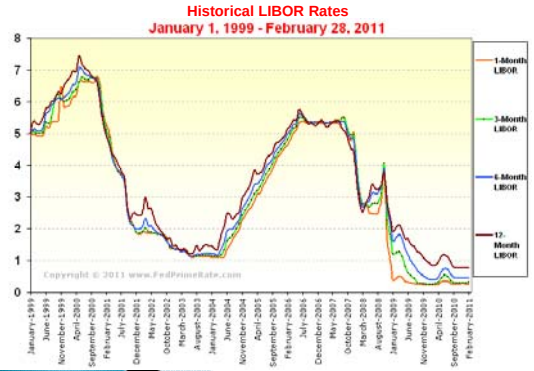
8

Revised Sewer Rate Alternatives Projects Funded by Year 15

	Total Costs	1D (Pay-Go)	3A (Pay-Go)	3B (Pay-Go)	3C (Pay-Go)	5A (LOC)	5B (LOC)
Near-term Health & Safety Projects	$4.5 M	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Near-term Efficiency Projects	$5.4 M	$0.9 M Funded	All Funded	All Funded	All Funded	$4.0 M Funded	All Funded
Capital Outlay projects	$0.5 M	All Funded	All Funded	All Funded	All Funded	All Funded	All Funded
Long-term Capital Projects 2-4	$3.2 M	$0.6 M Funded	All Funded	All Funded	All Funded	$0.6 M Funded	All Funded
Total	$13.7 M	$6.5 M Funded	$13.7 M Funded	$13.7 M Funded	$13.7 M Funded	$9.6 M Funded	$13.7 M Funded

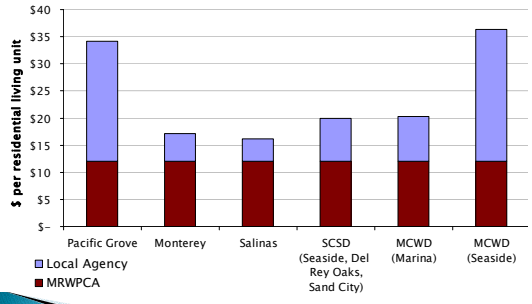
9

Line of Credit Assumptions



10

Comparison of Monthly Wastewater Rates



11

Next Steps

- April 2011 — Board provides direction on preferred rate structure
- May 2011 — Board approves Master Plan with Rate Study
- June 2011 — Board directs staff to begin process to adjust rates

12

SEWER RATE STUDY
SEASIDE COUNTY SANITATION DISTRICT

BOARD WORKSHOP

April 19, 2011

David Taussig & Associates, Inc.

Purpose

- Present sewer rate alternatives
- Receive Board direction regarding sewer rate structure

2

Capital Improvement Program

Projects	Costs allocated to Existing Development	Costs allocated to Potential New Development	Total Costs
Near Term Capital Projects (Health & Safety Projects)	$3,422,107	$1,038,453	$4,460,560
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Total	$11,411,756	$2,272,553	$13,684,308

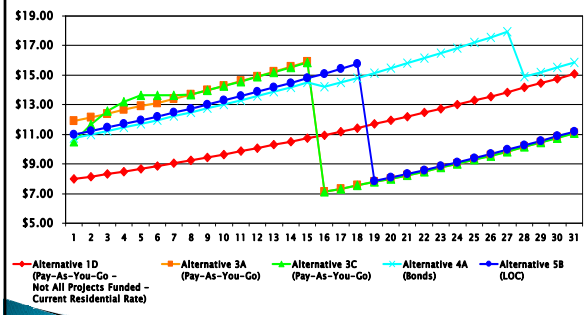
3

Revised Sewer Rate Alternatives

Alt.	Description	Rate in Year 1	
1D	Maintain existing residential rate; Increases annually by 2.15%	$7.97 (no increase)	Pay-As-You-Go
3A	Fund all projects by Year 15; Start with base rate of $11.88; Increases annually by 2.15%	$11.88 (49.01% increase)	Pay-As-You-Go
3C	Fund all projects by Year 15; Start with base rate of $10.50; Annual rate increases range from 3% to 11% through Year 5	$10.50 (31.71% increase)	Pay-As-You-Go
4A	Fund all projects by Year 15; Start with base rate of $10.76; Increases annually by 2.15%	$10.76 (35.01% increase)	Bonds
5B	Fund all projects by Year 15; Start with base rate of $10.98; Increases annually by 2.15%	$10.98 (37.75% increase)	Line of Credit

4

Revised Sewer Rate Alternatives



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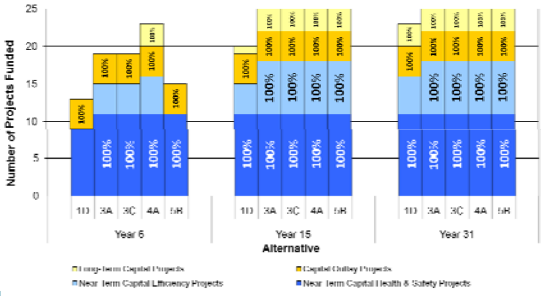
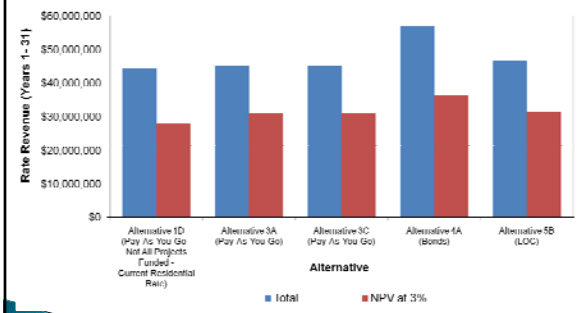
Cumulative Projects Funded



6

Sewer Rate Revenue



7

Next Steps

- April 19, 2011 Board selects rate structure
- May 10, 2011 Board approves Master Plan with Rate Study
- June 28, 2011 Board holds Public Hearing
- July 1, 2011 New Rates Effective

8