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May 14, 2014

Thomas Moore, President
Marina Coast Water District
11 Reservation Road
Marina, CA 93933

Subject: Sewer Service to the Ord Community

Dear President Moore;

I am in receipt of your letter dated April 18, 2014 informing me of Marina Coast Water District's (MCWD's) decision to form an ad hoc committee to work with the Seaside County Sanitation District (SCSD). On May 13, 2014, the SCSD Board requested that District Manager Dunn and I represent the SCSD on future discussions with MCWD on the subject sewer services.

With this letter, I am also forwarding a draft engineer's report evaluating the sewer collection service within the city limits for the City of Seaside within the Ord Community. The draft report finds that it would be feasible for the SCSD to serve a large portion of this area with the caveat that the SCSD and MCWD come to an agreement for conveying sewage from Seaside's northern boundary to the point of connection with the MRWPCA near 8th Street in the City of Marina. I hope that we will have the opportunity to discuss this report in the near future.

Per your letter request, I am agreeable to meeting with the ad hoc committee, but believe that during these early discussions our interests could be better served if the representatives from the SCSD continue to meet with the President and the General Manager of the MCWD. If this is agreeable with you, you may contact District Manager John Dunn at (831) 899-6701 to arrange a meeting.

Sincerely,

Ralph Rubio
Chair, Seaside County Sanitation District

Copy John Dunn, District Manager
Diana Ingersoll, District Engineer
Lesley Milton, District Clerk

Attachment

Draft Engineering Analysis, Seaside County Sanitation District LAFCO Application for Sphere of Influence Amendment and Service Area Annexation, dated May 2014

FINAL DRAFT

ENGINEERING ANALYSIS

Seaside County Sanitation District LAFCO Application for Sphere of Influence Amendment and Service Area Annexation

MAY 2014

District Board

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District Legal Counsel: Cynthia Hasson

District Secretary: Lesley Milton

Approved By:

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District Engineer

Prepared By:

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Kari Wagner, P.E. 66026
Senior Civil Engineer

WALLACE GROUP®

Table of Contents

Executive Summary

This report was prepared as a technical supporting document for the Local Agency Formation Commission (LAFCO) of Monterey County application, which is being submitted by Seaside County Sanitation District (SCSD). SCSD currently provides wastewater service to Region A as shown on Figure 1. Region B, which currently is 100% vacant, is part of the City of Del Rey Oaks and is already included in SCSD's wastewater service area. SCSD is preparing this LAFCO application to expand the sphere of influence and annex Regions C, E, and F into the SCSD wastewater service area. Following an evaluation of the collection system facilities, it is proposed that the entire California State University Monterey Bay (CSUMB) campus remain part of the Marina Coast Water District (MCWD) service area even though a portion of the campus resides within the City of Seaside.

Land Use

The purpose of identifying the existing conditions and researching the anticipated land uses is to better understand the existing wastewater infrastructure and master plan for the future undeveloped or under-utilized land. Region C, part of the Former Ford Ord Area, is located in the City of Seaside and is comprised of primarily low density residential with open space and some recreational uses. Region C is mostly undeveloped at this time. There are approximately 325 acres of low density residential, which equates to approximately 2,600 residential units. Region E includes residential developments, schools, a golf course, resort and open space. A large portion of the region is occupied by the golf course which requires minimal sanitary sewer infrastructure. Region F has a mix of residential developments, retail areas, schools, and parks. A portion of CSUMB is located within this region although most of the sanitary sewer facilities run north toward the City of Marina.

Existing Wastewater Collection System

This section presents an overview of the existing wastewater collection system. Since Region C is vacant at this time with no existing collection system, this section will only focus on Regions E and F.

Figure 4 illustrates the collection system within Region E. Region E is comprised of the area known as Seaside Highlands, Hayes Park, and Bayonet and Black Horse Golf Courses located at the Seaside Resort. The wastewater collection system has approximately 38,700 feet (7.3 miles) of sewer main that range in size from 6- to 15-inch per MCWD's GIS database provided to SCSD in December 2013. Region E has a total of 183 manholes and one lift station known as Ord Village Lift Station. All wastewater within Region E flows west to the Ord Village Lift Station, which then is pumped north to Region F and then ultimately flows to the Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Lift Station located in the City of Marina.

Figure 5 illustrates the collection system within Region F. Region F is significantly larger than Region E and encompasses Ford Ord and CSUMB. There are four wastewater drainage basins within Region F.

Figure 5 illustrates the four drainage basins. Region F1 has approximate 22,090 LF of sewer mains that range in size from 6- to 15-inch, with 60% of the system 6-inch. Region F1 has a total of 65 manholes and one lift station known as Giggling Lift Station. In addition, Region F1 receives all flow from Region E.

Region F2 has approximately 31,860 LF of sewer mains that range in size from 6- to 16-inch and has a total of 112 manholes. All wastewater flow from Region F2 flows by gravity to the north through a 12-inch sewer main.

Region F3 has approximately 71,225 LF of sewer mains that range in size from 6- to 21-inch and has a total of 273 manholes. Region F3 also has one pocket lift station known as Hatten Lift Station, which only receives a small amount of wastewater flow. The wastewater from Region F3 flows by gravity to the north, ultimately collecting all flow from Regions E and F1 via the Giggling Lift Station Force Main. Regions F2 and F3 sewer mains join together in the City of Marina, just north of the City of Marina/City of Seaside border. All of the wastewater then flows to the north to the MRWPCA Regional Lift Station.

Region F4 is comprised entirely of CSUMB. Since CSUMB is not proposed to be annexed into SCSD, its collection system will not be reviewed.

Existing Wastewater Flows

Region A's wastewater flows were obtained from SCSD's 2011 Sewer Master Plan. Region E and F's wastewater flows were obtained for MCWD's 2005 Sewer Master Plan. Table E-1 provides a summary of the existing wastewater flows for each region within the SCSD's Sphere of Influence.

Table E-1 – Existing Wastewater Flows by Wastewater Service Area Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor
Region A	1.80	2.72	1.5	3.78	2.1
Region E[1]	0.39	0.59	1.5	1.18	3.0
Region F1[1]	0.11	0.17	1.5	0.34	3.1
Region F2[1]	0.13	0.19	1.5	0.38	2.9
Region F3[1]	0.37	0.56	1.5	1.12	3.0
Total	2.8	4.23		6.8	

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Future Wastewater Flows

The future wastewater flows for each region within the SCSD's Sphere of Influence is based on the future development potential. Information for Regions A, B, and C was obtained from SCSD Sewer Master Plan. Information for Regions E and F was obtained from the MCWD Master Plan with additional data provided by the Monterey Downs Specific Plan. Although a portion of the proposed Monterey

Downs development is not included within the proposed sphere of influence, this report will identify the proposed demands since this project is anticipated for future development and will be a significant addition to the existing infrastructure. Table E-2 provides a summary of the future anticipated wastewater flows for each region within the SCSD's Sphere of Influence.

Table E-2 – Summary of Future Wastewater Flows by Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor[2]
Region A	2.36	3.54	1.5	4.96	2.1
Region B	0.91	1.37	1.5	1.91	2.1
Region C	0.56	0.84	1.5	1.18	2.1
Region E[1]	0.39	0.59	1.5	1.17	3.0
Region F1[1]	0.11	0.17	1.5	0.33	3.0
Region F2[1]	0.13	0.20	1.5	0.39	3.0
Region F3[1]	0.46	0.69	1.5	1.38	3.0
Monterey Downs A	0.33	0.50	1.5	0.69	2.1
Monterey Downs B	0.09	0.14	1.5	0.19	2.1
Total	**5.34**	**8.01**		**12.20**	

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Proposed Improvements

This section presents the physical constraints and the recommended projects required for SCSD to expand their service area to include Regions C, E, and F.

Region C

Region C is an undeveloped area that currently does not have sanitary sewer service. The 2011 SCSD Sewer Master Plan evaluated the impacts of Region C on SCSD's existing infrastructure along with Region B, which also consists of all vacant land, but is already within the SCSD's wastewater service area boundary. These two Regions are capable of being served through a gravity collection system without the need for any new lift stations. Table 9-7 in the 2011 Sewer Master Plan provides a summary of the recommended projects to meet the demands within Regions B and C and their proportional share for the upgrades.

Regions E and F

Regions E and F contain existing sewer facilities that are currently under the jurisdiction of MCWD. Figures 7 and 8 identify the proposed capital improvements to facilitate the proposed service area annexation. The following is a discussion of the areas that are impacted by the annexation and the alternatives for altering the collection system to meet the needs of the community and the annexation.

6th Street and Colonel Durham Street

It is recommended that the sewer main serving a small section of the community on 6th Street, south of Colonel Durham Street, be re-directed to flow west with the installation of a new sewer main along Colonel Durham Street. This would require the construction of approximately 1,200 LF of new 8" pipe. It is estimated that this project will cost $390,000.

Giggling Road Improvements

Based on the Monterey Downs Specific Plan, two locations were proposed for connection into Region F3. As show on Figure 5, Connection A is at Giggling Road. This project will require installing a new 10-inch sewer main along Giggling Road from 7th Avenue to Parker Flats Cut Off Road (See Figure 7). *Note: Sewer main size is estimated and should be verified once flows are finalized.* In addition, the existing 6- and 8-inch sewer main on Giggling from Parker Flats Cut Off Road to just west of Malmedy Road will need to be upsized to 10-inch to meet the proposed demands of the development. Both of these projects should be developer funded as there are not currently any deficiencies in these sewer mains. Therefore, there is no cost impact for these projects to SCSD.

1st Avenue and Divarty Street

All wastewater from Regions E and F flows to the northwest of the service area either by gravity flow, force main, or a combination of the two, excluding CSUMB. Two parallel sewer mains carry the wastewater flow from the City of Seaside north into the City of Marina and towards the Monterey Regional Water Pollution Control Agency (MRWPCA) regional lift station (see Figure 8), which is located approximately 4,800 feet northwest of the city limit line between the City of Seaside and the City of Marina. This sewer main is not a dedicated sewer main from Regions E and F to MRWPCA's Regional Lift Station as it also receives wastewater from MCWD customers.

Prior to annexing regions E and F to SCSD, an agreement between the agencies is required to determine future operational and maintenance responsibilities. The following options are recommended:

Option 1: SCSD Operate and Maintain Sewer Trunk Mains with Access Easement

SCSD would operate and maintain the trunk line all the way to the MRWPCA Regional Lift Station.

Cost: There are no physical construction costs to implement Option 1. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. *Cost Estimate - $50,000. There will be on-going monthly fees paid by MCWD to SCSD for O&M and potential future upgrades.*

Option 2: MCWD Operate and Maintain Sewer Trunk Mains

Option 2 is similar to Option 1 except that MCWD would operate and maintain the sewer trunk main from the City border to the MRWPCA Regional Lift Station. Again, costs to operate and maintain the trunk main would be based on a percentage of flow.

Cost: There are no physical construction costs to implement Option 2. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. *Cost Estimate -*

$50,000. There will be on-going monthly fees paid by SCSD to MCWD for O&M and potential future upgrades.

Option 3: Construct New Trunk Main

At this time, the sewer trunk main on 1st Avenue is flowing approximately one-third full under peak dry weather conditions. There is significant development that is proposed in Region F, including the Monterey Downs Project. In addition, CSUMB and the City of Marina are also proposing development. It is estimated that the future development on CSUMB will add a peak demand of 1.3 mgd per Schaaf & Wheelers 2004 report for the CEQA document prepared for CSUMB. The proposed development will impact the trunk line on 1st Avenue. However, it is estimated that this sewer trunk main is capable of handling up to 15 mgd under peak conditions, which is greater than the anticipated flow from CSUMB and development that will occur within the City of Marina and future development within Regions E and F.

A third option is for SCSD to construct a dedicated sewer main from the border of the two Cities to the MRWPCA Regional Lift Station (approximately 4,800 LF). The sewer main must convey all the flow from Region E, F and the proposed Monterey Downs Project for a total future flow of 4.15 mgd under PHDWF. The sewer main is proposed to be 30-inch, but should be re-evaluated during design. There are two proposed routes for the dedicated sewer trunk main. The first would be parallel to the existing sewer trunk main along 1st Avenue. This route has numerous conflicts with existing utilities and sewer and water laterals, but is not unfeasible to construct. The second route would be to go under Highway 1 and construct a new sewer trunk main paralleling Highway 1 along the west side frontage road (Beach Range Road – See Figure 8). This route would have less existing conflicting utilities, but would require an engineering analysis to confirm that the sewer trunk main can flow by gravity to the Regional Lift Station.

This option would still require an easement with the City of Marina for SCSD to operate and maintain. However, SCSD would pay for 100% of any operation and maintenance cost since no flow would be contributed to the sewer main from MCWD customers.

Cost: Preliminary Cost Estimate for the construction of the dedicated sewer trunk main is $4,400,000.

Recommendation

It is recommended that SCSD and MCWD pursue Option 2 in the interim, until significant future development occurs either within Region F, such as Monterey Downs project, or on the CSUMB campus or within the City of Marina along the existing trunk main. Prior to any significant development project coming on line, it is recommended for SCSD re-evaluate Option 3 to construct a dedicated trunk main that serves only Regions E and F.

FINAL

Seaside County Sanitation District LAFCO Application

Seaside County Sanitation District (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.

This report was prepared as a technical supporting document for the Local Agency Formation Commission (LAFCO) of Monterey County application, which is being submitted by SCSD. The application is for the annexation of the area shown in Figure 1, into the SCSD Wastewater Service Area.

This technical report will provide the following information:

- Proposed annexation boundary;
- Land use and population information;
- A description of the existing wastewater collection system;
- A description of the existing and future wastewater flows;
- A description of the proposed capital improvement projects required for SCSD to expand the service area; and

Proposed Annexation Boundary

SCSD currently provides wastewater service to Region A as shown on Figure 1. Region B, which currently is 100% vacant, is part of the City of Del Rey Oaks and is already included in SCSD's wastewater service area. SCSD is preparing this LAFCO application to expand the sphere of influence and annex Regions C, E, and F into the SCSD wastewater service area. Following an evaluation of the collection system facilities, it is proposed that the entire California State University Monterey Bay (CSUMB) campus remain part of the Marina Coast Water District (MCWD) service area even though a portion of the campus resides within the City of Seaside.

Land Use and Population

This section presents the land use and future population forecasts for the regions proposed to be annexed into the SCSD wastewater service area. The purpose of identifying the existing conditions and researching the anticipated land uses is to better understand the existing wastewater infrastructure and master plan for the future undeveloped or under-utilized land.

Land Use

Region C

Figure 2 illustrates the land uses for the study area described herein as Region C. Region C, part of the Former Ford Ord Area, is located in the City of Seaside and is comprised of primarily low density residential with open space and some recreational uses. Region C is mostly undeveloped at this time. There are approximately 325 acres of low density residential, which equates to approximately 2,600 residential units.

Regions E and F

Regions E and F are currently serviced by Marina Coast Water District although both are located within the limits of the City of Seaside. Information regarding land use and the future development is taken from the Final Wastewater System Master Plan – Ord Community Service Area prepared by RBF Consulting for Marina Coast Water District on July 19, 2005.

Region E

Region E includes residential developments, schools, a golf course, resort and open space. A large portion of the region is occupied by the golf course which requires minimal sanitary sewer infrastructure. Figure 3 illustrates the locations of the various developments within this region.

Region F

Region F has a mix of residential developments, retail areas, schools, and parks. A portion of CSUMB is located within this region although most of the sanitary sewer facilities run north toward the City of Marina. Since the majority of CSUMB is serviced by MCWD, it is proposed that the entire CSUMB campus remain part of the MCWD service area. Figure 3 illustrates the locations of the various developments within this region.

Existing Wastewater Collection System

This section presents an overview of the existing wastewater collection system. Since Region C is vacant at this time with no existing collection system, this section will only focus on Regions E and F.

Region E

Figure 4 illustrates the collection system within Region E. Region E is comprised of the area known as Seaside Highlands, Hayes Park, and Bayonet and Black Horse Golf Courses located at the Seaside Resort. The wastewater collection system has approximately 38,700 feet (7.3 miles) of sewer main that range in size from 6- to 15-inch per MCWD's GIS database provided to SCSD in December 2013. Region E has a total of 183 manholes and one lift station known as Ord Village Lift Station. All wastewater within Region E flows west to the Ord Village Lift Station, which then is pumped north to Region F and then ultimately flows to the Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Lift Station located in the City of Marina.

Based on MCWD's 2005 Sewer Master Plan, approximately 1,940 LF within Region E was flowing 70 to 100% full and is therefore undersized for meeting existing needs (See MCWD Capital Improvement

Project (CIP) #1 and #10). *However, based on the current GIS database that was provided by MCWD, these projects have been completed and therefore are able to meet existing and future demands anticipated by MCWD. The completion of these upgrades is recommended to be confirmed by MCWD.*

Region F

Figure 5 illustrates the collection system within Region F. Region F is significantly larger than Region E and encompasses Ford Ord and CSUMB. There are four wastewater drainage basins within Region F. Figure 5 illustrates the four drainage basins. Region F1 has approximate 22,090 LF of sewer mains that range in size from 6- to 15-inch, with 60% of the system 6-inch. Region F1 has a total of 65 manholes and one lift station known as Giggling Lift Station. In addition, Region F1 receives all flow from Region E.

Region F2 has approximately 31,860 LF of sewer mains that range in size from 6- to 16-inch and has a total of 112 manholes. All wastewater flow from Region F2 flows by gravity to the north through a 12-inch sewer main.

Region F3 has approximately 71,225 LF of sewer mains that range in size from 6- to 21-inch and has a total of 273 manholes. Region F3 also has one pocket lift station known as Hatten Lift Station, which only receives a small amount of wastewater flow. The wastewater from Region F3 flows by gravity to the north, ultimately collecting all flow from Regions E and F1 via the Giggling Lift Station Force Main. Regions F2 and F3 sewer mains join together in the City of Marina, just north of the City of Marina/City of Seaside border. All of the wastewater then flows to the north to the MRWPCA Regional Lift Station.

Region F4 is comprised entirely of CSUMB. Since CSUMB is not proposed to be annexed into SCSD, its collection system will not be reviewed.

Based on MCWD's 2005 Sewer Master Plan, several CIPs were identified for Region F. They are as follows:

F1

- 1,700 LF of sewer main is flowing 75 to 100% full and is therefore undersized for meeting existing needs (See MCWD CIP #2). *Based on the current GIS database, this project has been completed. The completion of these upgrades is recommended to be confirmed by MCWD.*
- Giggling Lift Station and force main are undersized for meeting existing needs (see CIP #23). *Based on the current GIS database, this project has been completed. The completion of these upgrades is recommended to be confirmed by MCWD.*

F2

- 65 LF of sewer main is flowing 71% full and is therefore undersized for meeting existing needs (See MCWD CIP #3). *Based on the current GIS database, this project has been completed. The completion of these upgrades is recommended to be confirmed by MCWD.*

F3

- 1,675 LF of sewer main is flowing more than 67% full and is therefore undersized for meeting existing needs (See MCWD CIP #13, #16, and #17). *Based on the current GIS database, CIP #16 and #17 have been completed, but CIP #13 has not been completed.*
- Long Term projects were also recommended on General Jim Moore Boulevard to meet future needs. Since it is proposed to have Region C flow through Region A instead of Region F, these upgrades were modified as 8-inch sewer mains traversing General Jim Moore Boulevard at the new intersections.

Existing and Future Wastewater Flows

This section presents the existing and future wastewater flows for the current SCSD wastewater service area boundary as well as the proposed future annexed wastewater service area. 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.

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.

Peak Hour Dry Weather Flow (PHDWF) is the maximum flow rate that occurs in a single hour during dry weather. In order to appropriately design wastewater collection system facilities, peak flow conditions must be quantified.

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.

Existing Wastewater Flows

Region A's wastewater flows were obtained from SCSD's 2011 Sewer Master Plan. Region E and F's wastewater flows were obtained for MCWD's 2005 Sewer Master Plan. Tables 1 and 2 provide a breakdown of the estimated existing wastewater flow by area within Regions E and F, respectively. Table 3 provides a summary of the existing wastewater flows for each region within the SCSD's Sphere of Influence.

Table 1. Region E Existing Wastewater Flows

	Existing Flows		
Region E	ADWF (gpd)	MDDWF (gpd)	PHDWF (gpd)
Seaside Resort	125,000	187,500	375,000
Seaside Highlands	123,000	184,500	369,000
Brostrom Park	23,000	34,500	69,000
Fitch Middle School	2,000	3,000	6,000
Sunbay Apartments	60,000	90,000	180,000
Hayes Elementary School	2,000	3,000	6,000
Army - Hayes Park	58,000	87,000	174,000
Totals	**393,000**	**589,500**	**1,179,000**

*Taken from Table 7-2 Marina Coast Water District Final System Master Plan (year 2020 projection)

Table 2. Region F Wastewater Flows

	Existing Flows		
Region F	ADWF (gpd)	MDDWF (gpd)	PHDWF (gpd)
Affordable Housing–SII	87,000	130,500	261,000
Chartwell School	2,000	3,000	6,000
Monterey College of Law	1,000	1,500	3,000
Navy Housing	65,000	97,500	195,000
Marshal Elementary School	2,000	3,000	6,000
Stillwell Elementary School	1,000	1,500	3,000
Army – Fitch Park	189,000	283,500	567,000
Army – Marshal Park	115,000	172,500	345,000
Army – Upper Stillwell Park	38,000	57,000	114,000
Army - Stillwell Park	112,000	168,000	336,000
Totals	**612,000**	**918,000**	**1,836,000**

*Taken from Table 7-2 Marina Coast Water District Final System Master Plan (year 2020 projection)

Table 3 – Existing Wastewater Flows by Wastewater Service Area Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor
Region A	1.80	2.72	1.5	3.78	2.1
Region E[1]	0.39	0.59	1.5	1.18	3.0
Region F1[1]	0.11	0.17	1.5	0.34	3.1
Region F2[1]	0.13	0.19	1.5	0.38	2.9
Region F3[1]	0.37	0.56	1.5	1.12	3.0
Total	2.8	4.23		6.8	

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Future Wastewater Flows

The future wastewater flows for each region within the SCSD's Sphere of Influence is based on the future development potential. Information for Regions A, B, and C was obtained from SCSD Sewer Master Plan. Information for Regions E and F was obtained from the MCWD Master Plan with additional data provided by the Monterey Downs Specific Plan. The following flow conditions were used to evaluate the future sewer infrastructure based on peaking factors identified in Table 3:

- **ADWF** Average Daily Dry Weather Flow
- **MDDWF** Maximum Day Dry Weather Flow
  - 1.5 peaking factor
- **PHDWF** Peak Hour Dry Weather Flow
  - 2.1 peaking factor for Regions A, B, and C and Monterey Downs Development. 3.0 peaking factor for Regions E and F

Tables 4 and 5 provide a summary of the anticipated future wastewater flows from Regions E and F, respectively. Table 6 provides a summary of the future anticipated wastewater flows for each region within the SCSD's Sphere of Influence.

Although a portion of the proposed Monterey Downs development is not included within the proposed sphere of influence, this report will identify the proposed demands since this project is anticipated for future development and will be a significant addition to the existing infrastructure. Preliminary sewer demand estimates have been generated based on the land use information provided in the Monterey Downs Specific Plan. The proposed development is proposed to be connected into the existing wastewater system in two locations; one at the intersection of Gigling Road and Eight Street and the other at the junction of Normandy Road and Parker Flats. Figure 5 shows the two connection locations.

Table 4. Region E Future Wastewater Flows

	Projected Flows		
Region E	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Seaside Resort	125,000	187,500	375,000
Seaside Highlands	123,000	184,500	369,000
Brostrom Park	23,000	34,500	69,000
Fitch Middle School	2,000	3,000	6,000
Sunbay Apartments	60,000	90,000	180,000
Hayes Elementary School	2,000	3,000	6,000
Army - Hayes Park	58,000	87,000	174,000
Totals	**393,000**	**589,500**	**1,179,000**

*Taken from Table 7-2 Marina Coast Water District Final System Master Plan (year 2020 projection)

Table 5. Region F Wastewater Flows

	Projected Flows		
Region F	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Affordable Housing–SII	87,000	130,500	261,000
Chartwell School	2,000	3,000	6,000
Monterey College of Law	1,000	1,500	3,000
Navy Housing	65,000	97,500	195,000
The 26 Acre Site	62,000	93,000	186,000
Regional Shopping Center	10,000	15,000	30,000
Surplus II Area	13,000	19,500	39,000
Marshal Elementary School	2,000	3,000	6,000
Stillwell Elementary School	1,000	1,500	3,000
Army – Fitch Park	189,000	283,500	567,000
Army – Marshal Park	115,000	172,500	345,000
Army – Upper Stillwell Park	38,000	57,000	114,000
Army - Stillwell Park	112,000	168,000	336,000
Totals	**697,000**	**1,045,500**	**2,091,000**

*Taken from Table 7-2 Marina Coast Water District Final System Master Plan (year 2020 projection)

Table 6 – Summary of Future Wastewater Flows by Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor[2]
Region A	2.36	3.54	1.5	4.96	2.1
Region B	0.91	1.37	1.5	1.91	2.1
Region C	0.56	0.84	1.5	1.18	2.1
Region E[1]	0.39	0.59	1.5	1.17	3.0
Region F1[1]	0.11	0.17	1.5	0.33	3.0
Region F2[1]	0.13	0.20	1.5	0.39	3.0
Region F3[1]	0.46	0.69	1.5	1.38	3.0
Monterey Downs A	0.33	0.50	1.5	0.69	2.1
Monterey Downs B	0.09	0.14	1.5	0.19	2.1
Total	**5.34**	**8.01**		**12.20**	

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Proposed Improvements

This section presents the physical constraints and the recommended projects required for SCSD to expand their service area to include Regions C, E, and F. The recommended SCSD service boundary includes all of Regions C, E and most of Region F. As mentioned previously, a portion on the north side of Region F includes California State University Monterey Bay (CSUMB). The majority of the sewer service for CSUMB is located within the City of Marina and the portion that is located in the City of Seaside flows north into the City of Marina. *To maintain one service provider for the campus and to simplify the service boundaries, it is recommended that all of CSUMB remain under MCWD jurisdiction.* The proposed SCSD boundary will follow along the south side of the CSUMB campus on Colonel Durham Street and Lightfighter Drive as shown in Figure 1 and Figure 6.

Region C

Region C is an undeveloped area that currently does not have sanitary sewer service. The 2011 SCSD Sewer Master Plan evaluated the impacts of Region C on SCSD's existing infrastructure along with Region B, which also consists of all vacant land, but is already within the SCSD's wastewater service area boundary. Based on land topography and existing facility locations, the Master Plan provides details on specific projects required to provide wastewater service to Regions B and C. These two Regions are capable of being served through a gravity collection system without the need for any new lift stations. Table 9-7 in the 2011 Sewer Master Plan provides a summary of the recommended projects to meet the demands within Regions B and C and their proportional share for the upgrades. *In addition,* prior to development, *additional modeling/master planning should be completed to verify points of connection*

and Region A's ability to receive the updated flow estimates to determine if any additional infrastructure improvements are required.

Regions E and F

Regions E and F contain existing sewer facilities that are currently under the jurisdiction of MCWD. Defining the limits of the annexation and managing the interface between the two service areas will require planning, study, and decision making based on engineering and economic factors.

Figures 7 and 8 identify the proposed capital improvements to facilitate the proposed service area annexation. The following is a discussion of the areas that are impacted by the annexation and the alternatives for altering the collection system to meet the needs of the community and the annexation.

6th Street and Colonel Durham Street

As previously discussed, it is proposed that MCWD maintain the CSUMB collection system. However, there is a small section of the collection system on 6th Street, south of Colonel Durham Street that is currently within the City of Seaside, but flows through the CSUMB campus. It is recommended that this sewer main be re-directed to flow west with the installation of a new sewer main along Colonel Durham Street. This would require the construction of approximately 1,200 LF of new 8" pipe. Based on MCWD's GIS database, it appears that this proposed project is feasible; however, it is recommended that additional engineering analysis, including survey of the invert elevations for the impacted sewer manholes be verified. Figure 7 shows the location of these proposed improvements. It is estimated that this project will cost $390,000.

Giggling Road Improvements

A new development is proposed in Region F3 known as Monterey Downs. Based on the Monterey Downs Specific Plan, two locations were proposed for connection into Region F3. As show on Figure 5, Connection A is at Giggling Road. This project will require installing a new 10-inch sewer main along Giggling Road from 7th Avenue to Parker Flats Cut Off Road (See Figure 7). *Note: Sewer main size is estimated and should be verified once flows are finalized.* In addition, the existing 6- and 8-inch sewer main on Giggling from Parker Flats Cut Off Road to just west of Malmedy Road will need to be upsized to 10-inch to meet the proposed demands of the development. Both of these projects should be developer funded as there are not currently any deficiencies in these sewer mains. Therefore, there is no cost impact for these projects to SCSD.

1st Avenue and Divarty Street

All wastewater from Regions E and F flows to the northwest of the service area either by gravity flow, force main, or a combination of the two, excluding CSUMB. Two parallel sewer mains carry the wastewater flow from the City of Seaside north into the City of Marina and towards the Monterey Regional Water Pollution Control Agency (MRWPCA) regional lift station (see Figure 8), which is located approximately 4,800 feet northwest of the city limit line between the City of Seaside and the City of Marina. Regions E and F flow via two sewer mains from the City of Seaside into the City of Marina prior to reaching the MRWPCA Regional Lift Station. There are currently three locations where the City of Marina has sewer mains connecting to the main trunk line that carries Regions E and F wastewater flow

to the MRWPCA Regional Lift Station within the City of Marina. In addition, there are sewer laterals that are tied directly to the sewer trunk main from MCWD customers. Therefore, this sewer main is not a dedicated sewer main from Regions E and F to MRWPCA's Regional Lift Station.

Prior to annexing regions E and F to SCSD, an agreement between the agencies is required to determine future operational and maintenance responsibilities. The following options are recommended:

Option 1: SCSD Operate and Maintain Sewer Trunk Mains with Access Easement

SCSD would operate and maintain the trunk line all the way to the MRWPCA Regional Lift Station. This would require SCSD to obtain an easement from the City of Marina to be able to operate and maintain this sewer main. The easement would require a cost share between the two agencies for cost to operate and maintain the trunk line based on percentage of flow. Flow percentage can be established based on temporary flow meters installed at the City border and just prior to the Regional Lift Station. Adjustments to the percentage of share would change over time as development occurs in both Regions E and F as well as the City of Marina and on CSUMB.

Cost: There are no physical construction costs to implement Option 1. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. *Cost Estimate - $50,000. There will be on-going monthly fees paid by MCWD to SCSD for O&M and potential future upgrades.*

Option 2: MCWD Operate and Maintain Sewer Trunk Mains

Option 2 is similar to Option 1 except that MCWD would operate and maintain the sewer trunk main from the City border to the MRWPCA Regional Lift Station. Again, costs to operate and maintain the trunk main would be based on a percentage of flow as described in Option 1 above.

Cost: There are no physical construction costs to implement Option 2. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. *Cost Estimate - $50,000. There will be on-going monthly fees paid by SCSD to MCWD for O&M and potential future upgrades.*

Option 3: Construct New Trunk Main

At this time, the sewer trunk main on 1st Avenue is flowing approximately one-third full under peak dry weather conditions. There is significant development that is proposed in Region F, including the Monterey Downs Project. In addition, CSUMB and the City of Marina are also proposing development. It is estimated that the future development on CSUMB will add a peak demand of 1.3 mgd per Schaaf & Wheelers 2004 report for the CEQA document prepared for CSUMB. The proposed development will impact the trunk line on 1st Avenue. However, it is estimated that this sewer trunk main is capable of handling up to 15 mgd under peak conditions, which is greater than the anticipated flow from CSUMB and development that will occur within the City of Marina and future development within Regions E and F.

A third option is for SCSD to construct a dedicated sewer main from the border of the two Cities to the MRWPCA Regional Lift Station (approximately 4,800 LF). The sewer main must convey all the flow from

Region E, F and the proposed Monterey Downs Project for a total future flow of 4.15 mgd under PHDWF. The sewer main is proposed to be 30-inch, but should be re-evaluated during design. There are two proposed routes for the dedicated sewer trunk main. The first would be parallel to the existing sewer trunk main along 1st Avenue. This route has numerous conflicts with existing utilities and sewer and water laterals, but is not unfeasible to construct. The second route would be to go under Highway 1 and construct a new sewer trunk main paralleling Highway 1 along the west side frontage road (Beach Range Road – See Figure 8). This route would have less existing conflicting utilities, but would require an engineering analysis to confirm that the sewer trunk main can flow by gravity to the Regional Lift Station.

This option would still require an easement with the City of Marina for SCSD to operate and maintain. However, SCSD would pay for 100% of any operation and maintenance cost since no flow would be contributed to the sewer main from MCWD customers.

Cost: Preliminary Cost Estimate for the construction of the dedicated sewer trunk main is $4,400,000.

Recommendation

It is recommended that SCSD and MCWD pursue Option 2 in the interim, until significant future development occurs either within Region F, such as Monterey Downs project, or on the CSUMB campus or within the City of Marina along the existing trunk main. Prior to any significant development project coming on line, it is recommended for SCSD re-evaluate Option 3 to construct a dedicated trunk main that serves only Regions E and F.

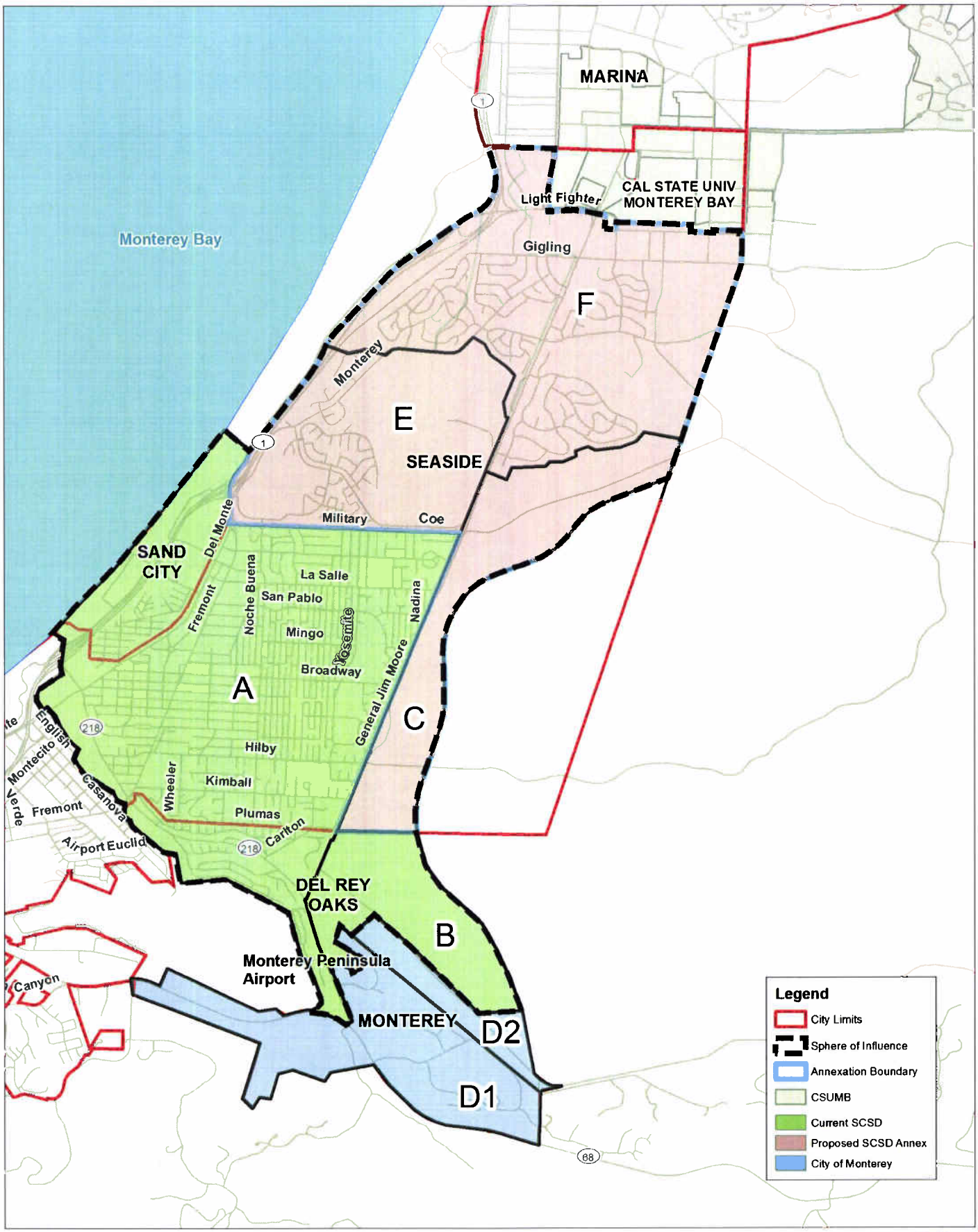

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FIGURE 1: PROPOSED ANNEXATION BOUNDARY

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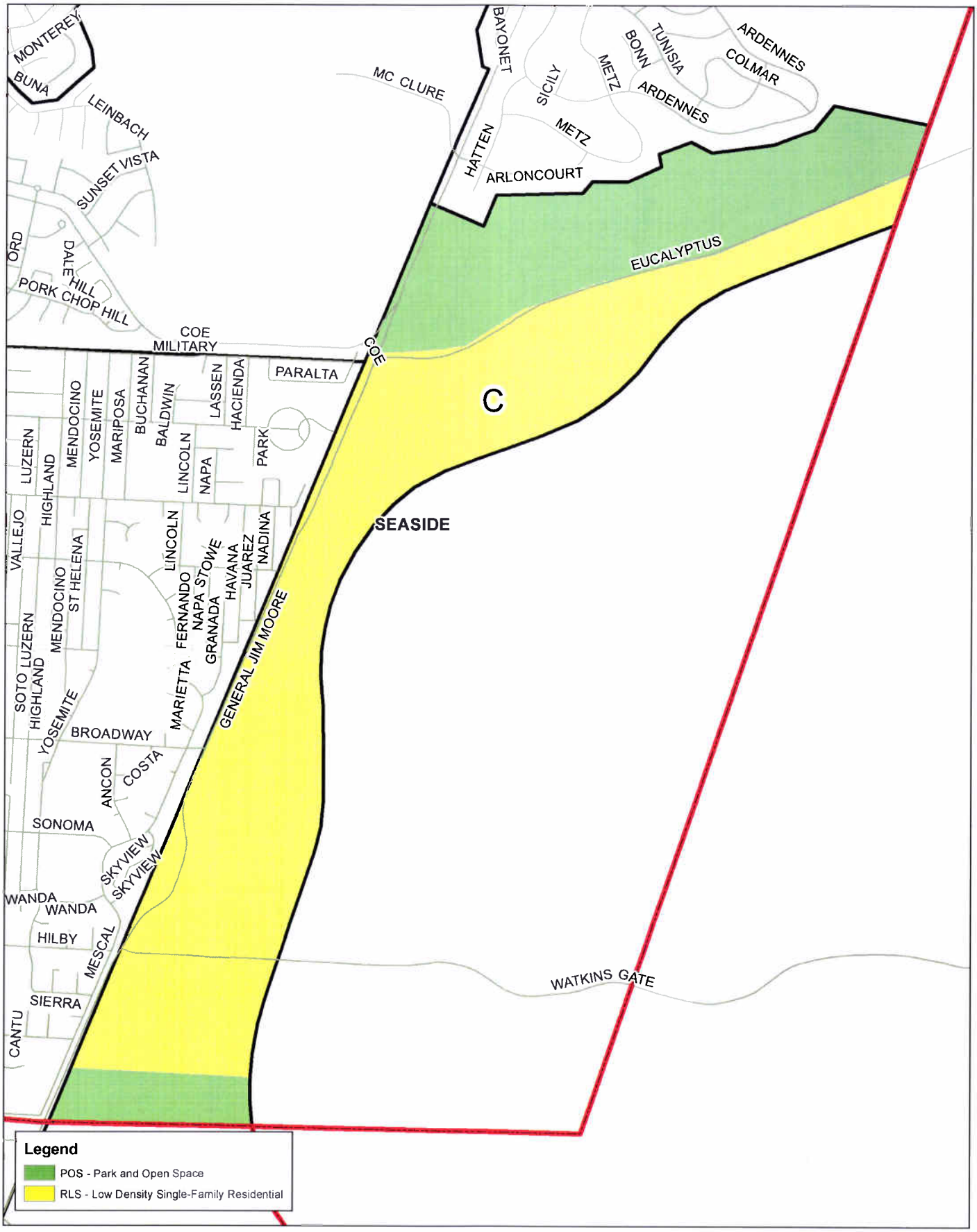

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FIGURE 2: REGION C LAND USE MAP

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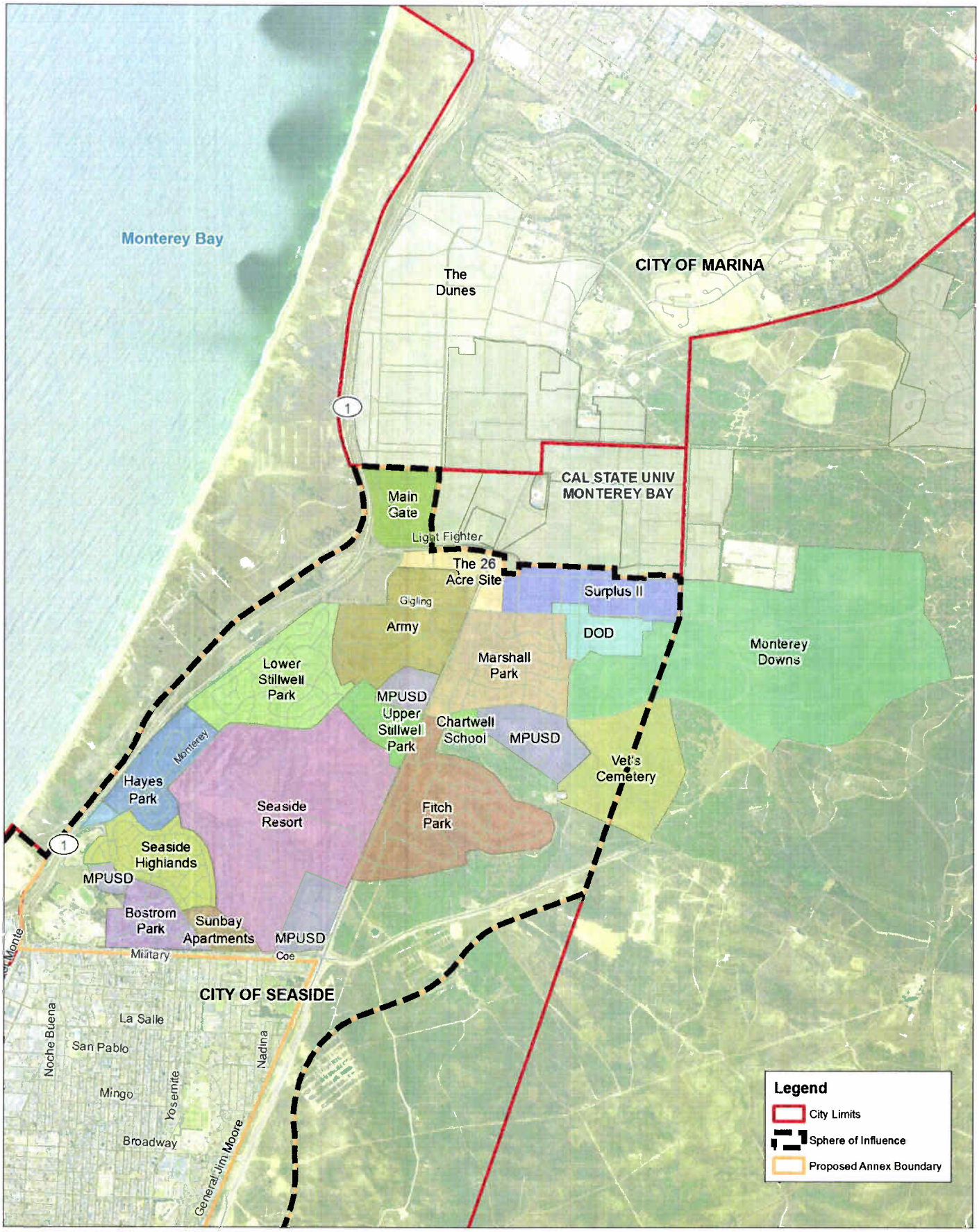

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FIGURE 3: MCWD DEVELOPMENT AREAS

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FIGURE 4: REGION 'E' EXISTING COLLECTION SYSTEM

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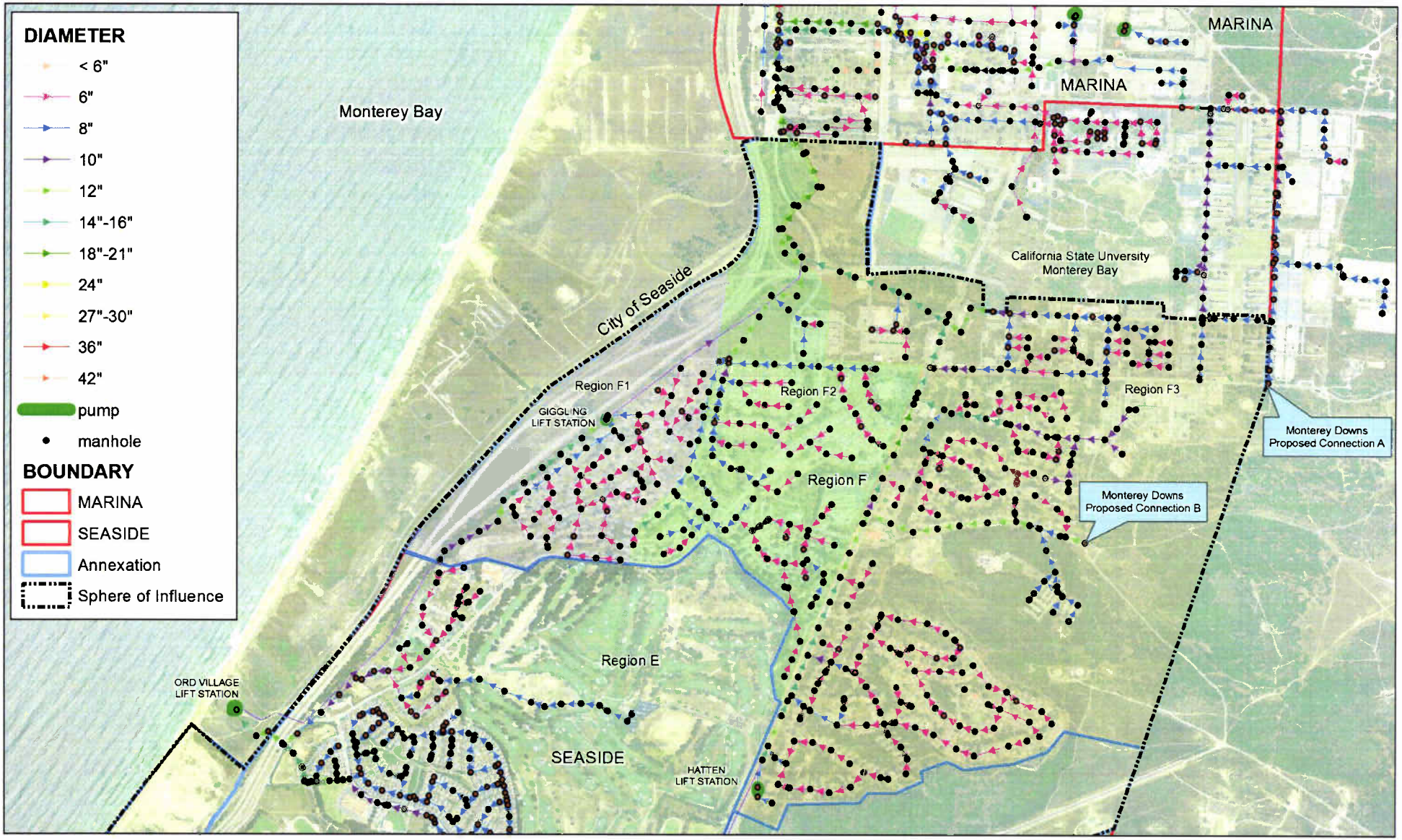

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FIGURE 5: REGION 'F' EXISTING COLLECTION SYSTEM

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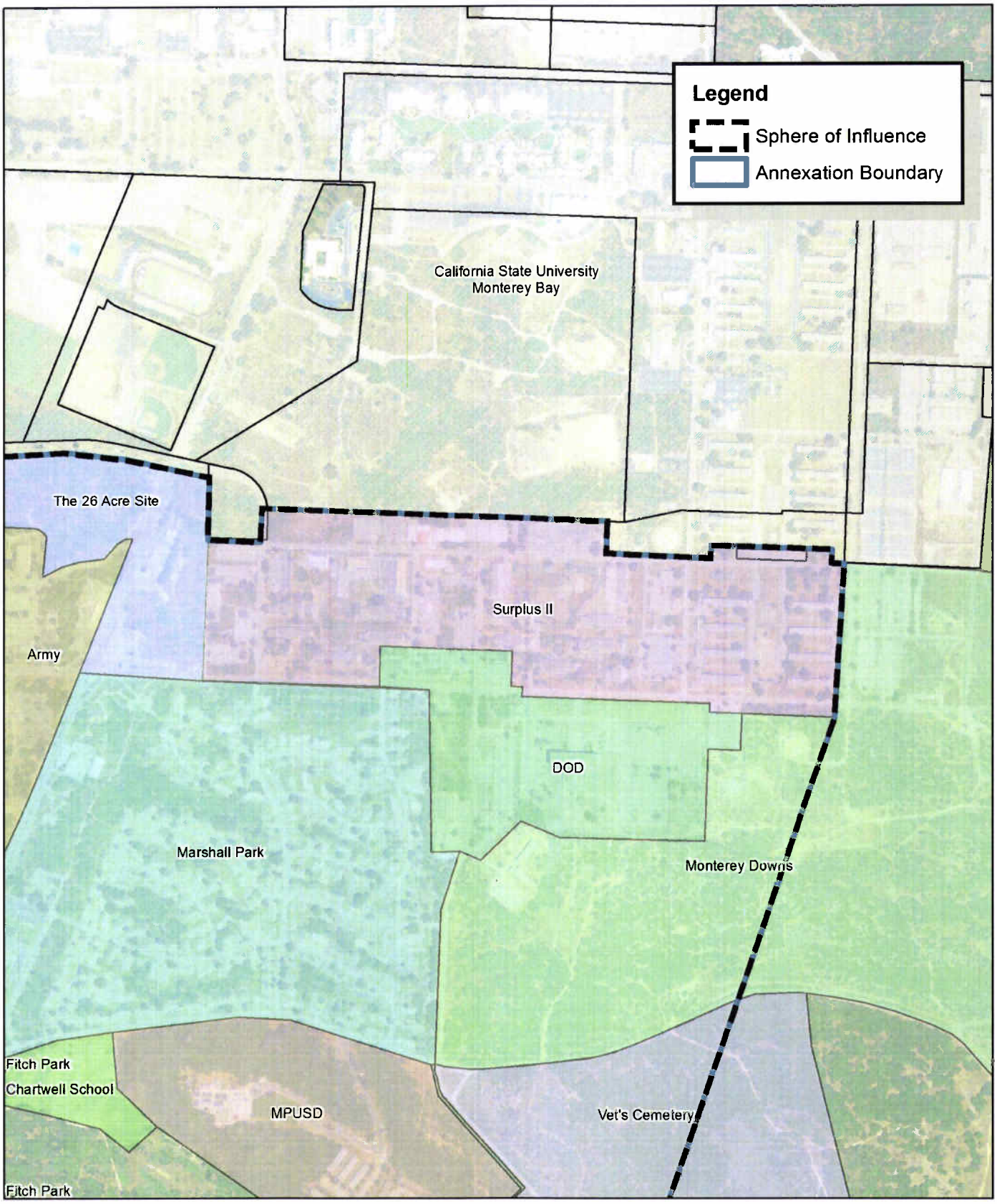

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FIGURE 6: ANNEXATION BOUNDARY DETAIL

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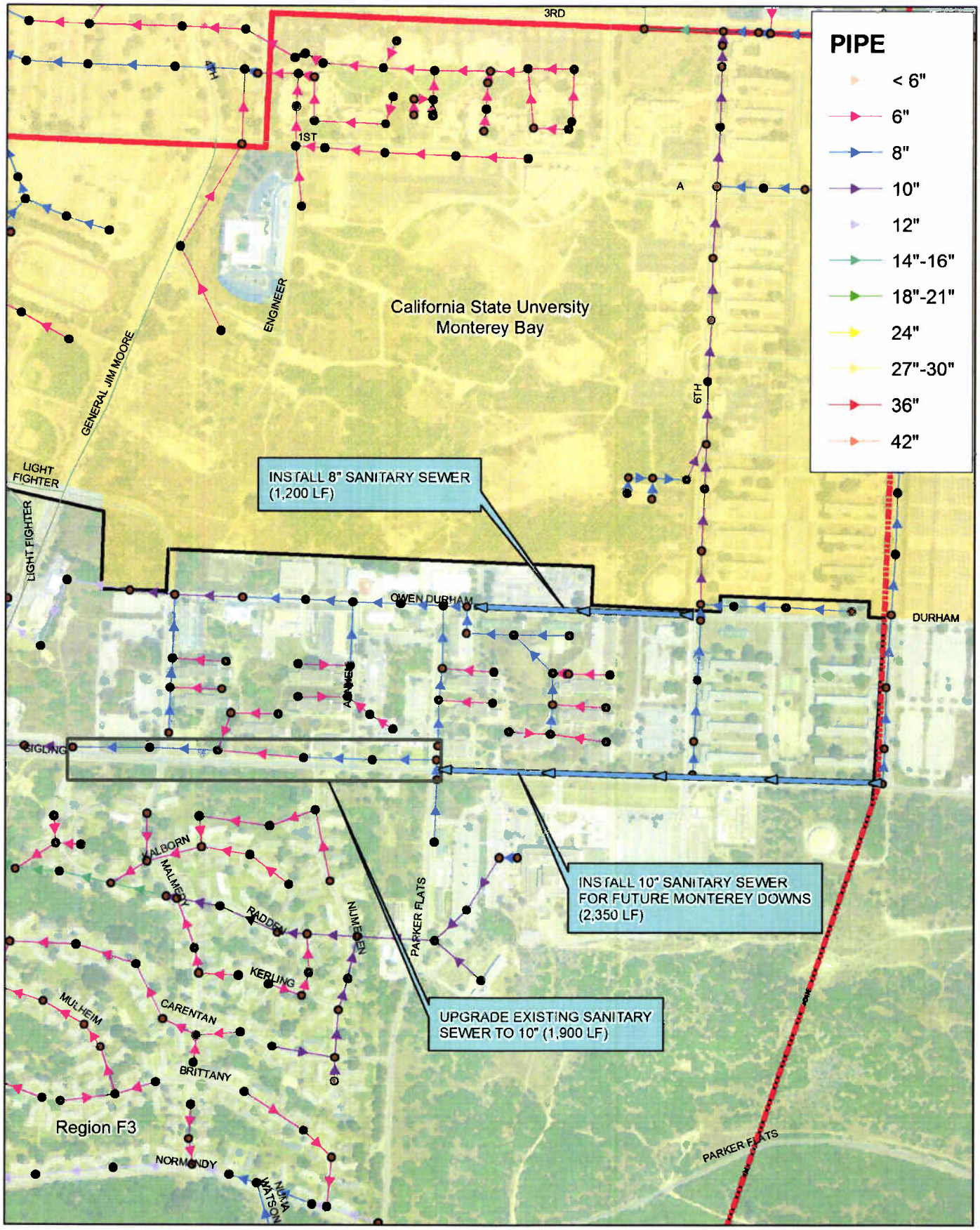

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FIGURE 7: PROPOSED CAPITAL IMPROVEMENTS

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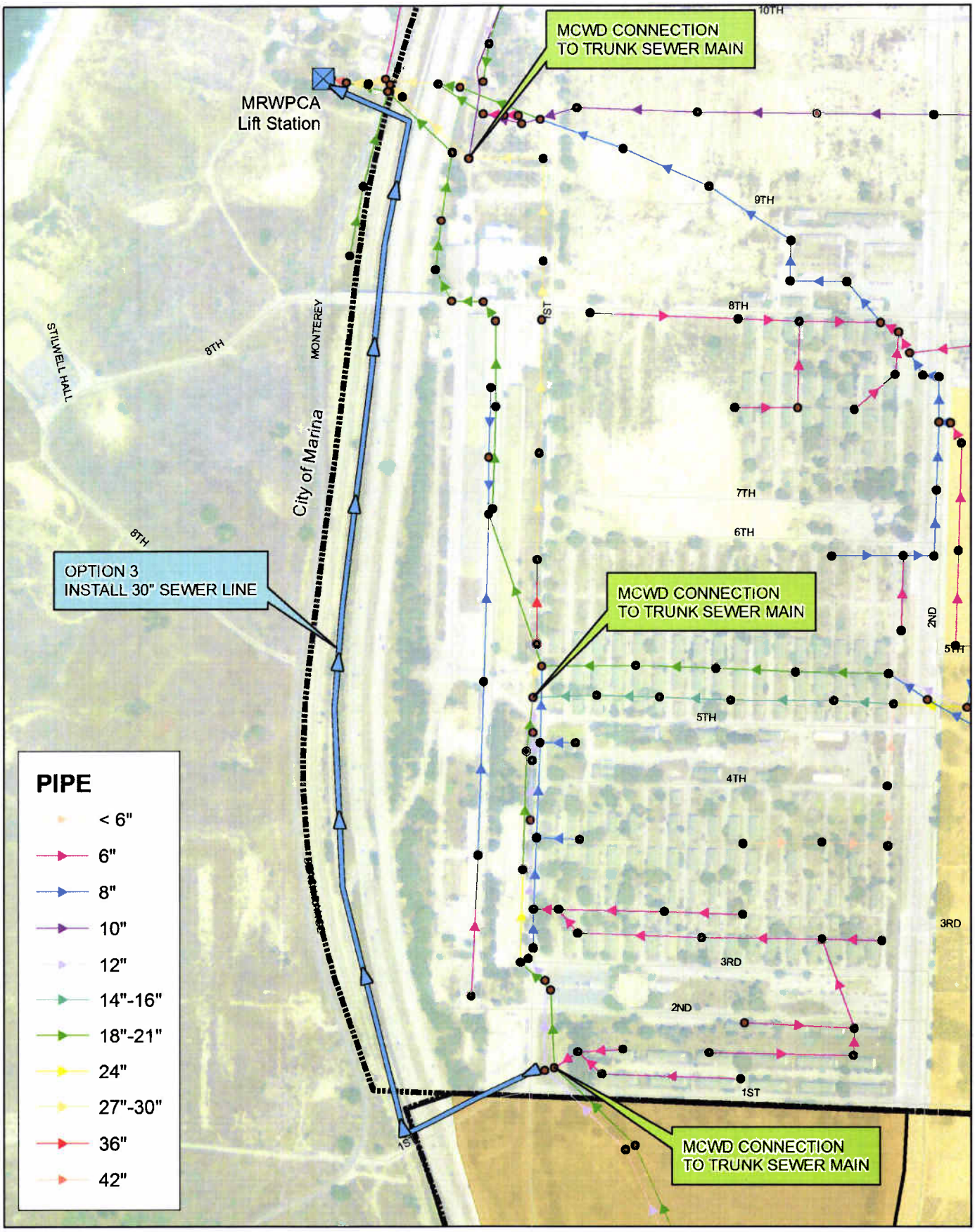

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FIGURE 8: PROPOSED IMPROVEMENTS

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