

Appendix A: Infrastructure Analysis

CITY OF LAGUNA NIGUEL GENERAL PLAN UPDATE

EXISTING CONDITIONS INFRASTRUCTURE REPORT FOR
WATER, SEWER, STORM DRAINAGE AND WATER QUALITY

CITY OF LAGUNA NIGUEL
ORANGE COUNTY, CALIFORNIA

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The City of Laguna Niguel ("City") is currently undergoing a General Plan Update (GPU) which is intended to shape redevelopment opportunities in the City over the next 30-plus years. A General Plan is the principal long-range policy and planning document for guiding the physical development, conservation, and enhancement of California cities and counties. The State of California ("State") recommends that general Plans be updated approximately every 10 to 15 years, depending on local conditions. As part of these regular updates, infrastructure such as water systems, sewer, storm drainage, and water quality that support the existing and proposed land uses will be evaluated at a citywide level and in connection with the proposed changes. This report will focus on the existing conditions of the infrastructure systems that serve the City of Laguna Niguel.

The City is located in the southwestern part of Orange County, California. The entire City encompasses approximately 9,456 acres or 14.72 square miles and is bounded by Dana Point to the south, San Juan Capistrano to the southeast, Aliso Viejo and Laguna Beach to the west, and Laguna Hills and Mission Viejo to the north. See Figure 1 for an aerial view of the City.

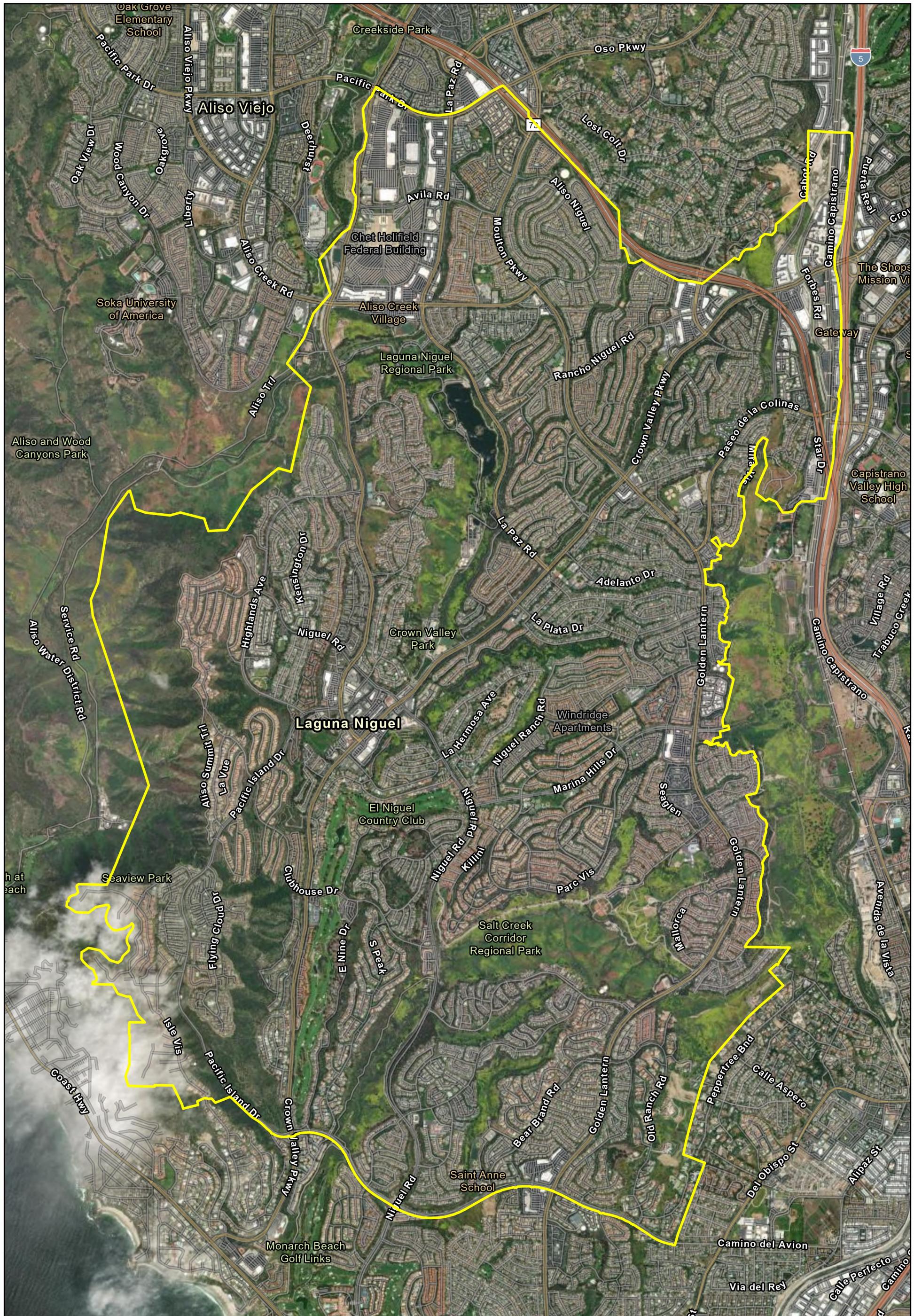
1.2 SCOPE OF WORK

This existing conditions infrastructure report focuses on describing the primary wet utility infrastructure systems that support the City of Laguna Niguel including water, sewer, storm drainage systems, and water quality programs. The existing conditions infrastructure report will be used as part of an existing conditions assessment for the upcoming GPU. The purpose of this assessment is to identify the primary facilities, existing conditions, any major deficiencies, and if there are any major Capital Improvements Plans (CIP) planned within the City area to remedy existing or prospective deficiencies within the water, sewer, storm drainage, or water quality systems. Additional details about each system are provided below.

1.3 LAND USE DESCRIPTION

Existing land uses include approximately 3,549 acres residential, 276 acres commercial, 223 acres mixed uses, 222 acres public/institutional facilities, 3,650 acres designated to parks and open space and remaining acres consists of major streets and right of way¹.

¹ City of Laguna Niguel, About Us. Accessed January 2024. Found here:
<https://www.cityoflagunaniguel.org/904/About-Us>



City of Laguna Niguel GPU Aerial Extent

Figure 1

1/23/2024

2. WATER

2.1 WATER SYSTEM ENVIRONMENTAL SETTING & INFRASTRUCTURE

REGIONAL

Moulton Niguel Water District (MNWD or the District) – MNWD is the regional water purveyor that provides services for the entire City of Laguna Niguel and portions of the Cities of Aliso Viejo, Mission Viejo, Laguna Hills, Dana Point, and San Juan Capistrano. Throughout the City MNWD provides potable water, recycled water, and wastewater services. Within the District's service area MNWD operates and maintains 656 miles of domestic water distribution pipelines, 28 operational storage reservoirs with a storage capacity of 173 million gallons (MG) of potable water and 17 MG of recycled water, 30 pump stations to pump water from lower pressure zones to the higher-pressure zones, and 13 potable water pressure reducing stations and flow control facilities to convey water from high to low zones².

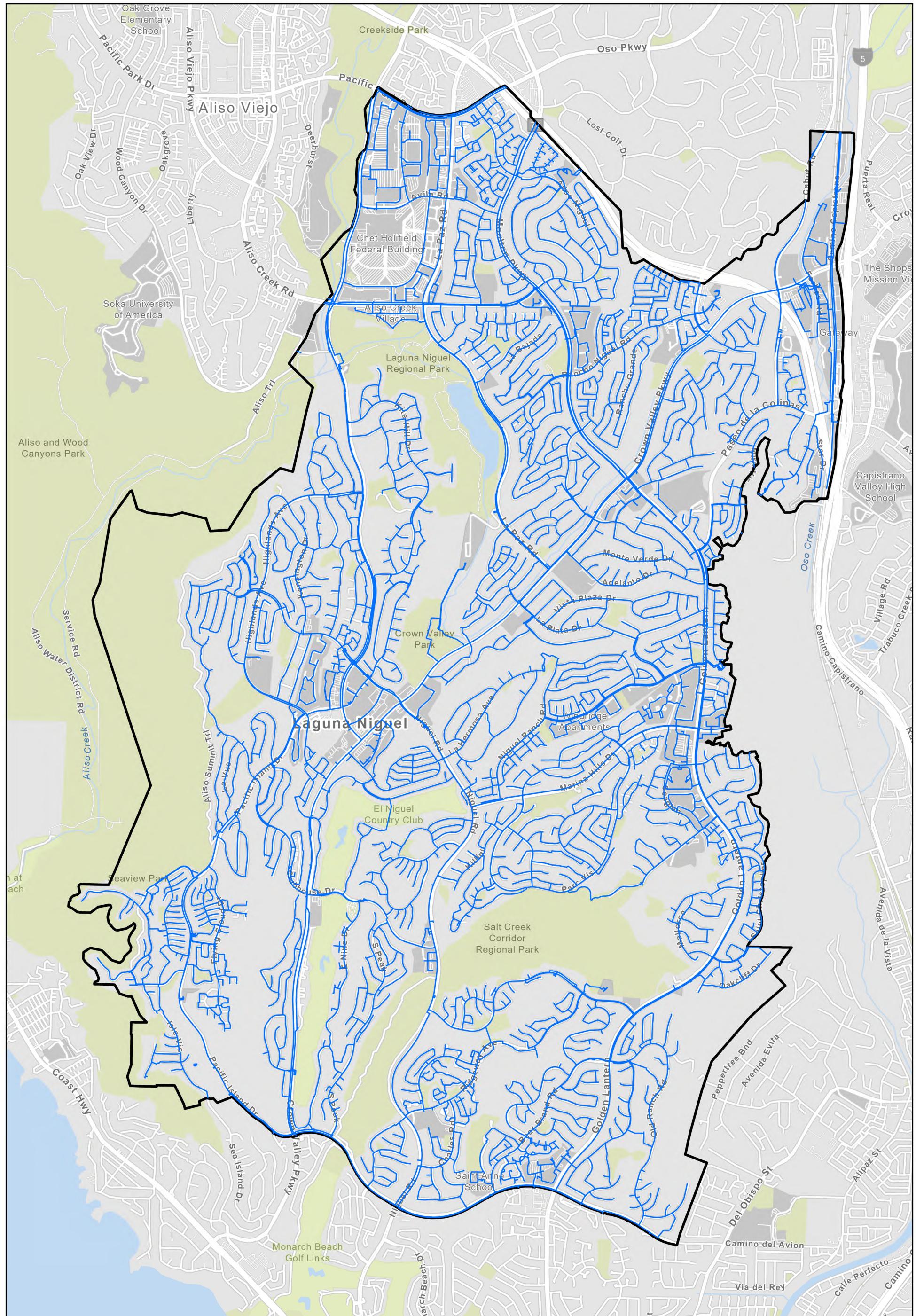
South Coast Water District (SCWD), Joint Regional Water Supply System (JRWSS) – The JRWSS brings imported water from the Metropolitan Water District (MWD) to regional water purveyors and cities in south Orange County. Both SCWD and MNWD receive supply from the Municipal Water District of Orange County (MWDOC), which is a member of MWD. Since 2000, SCWD has managed the facilities at the JRWSS and facilitated the transfer of imported drinking water from MWDs Diemer Filtration Plant (located in Yorba Linda) to regional water purveyors. Imported water supplies from the JRWSS are available to the City through MNWD. See Appendix A for a map of the JRWSS facilities.

LOCAL

MNWD provides local water service within the City of Laguna Niguel. Within MNWD's regional water infrastructure the City accounts for approximately 1,529,222 ft (290 miles) of distribution and transmission pipelines ranging in diameter from 3" to 54". The majority of water lines throughout the City were constructed in the 1980's (56%) and are constructed from asbestos-cement (45%) and pressure-rate polyvinyl chloride (PVC) (41%). The City of Laguna Niguel's Public Works Department coordinates with MNWD on water system upgrades and issues encroachment permits when improvements are needed. The District's infrastructure for potable water storage, transmission, and distribution was specifically designed to meet fire flow requirements across the City. This includes numerous pump stations, reservoirs, and interconnections between pressure zones to ensure a reliable water supply and system redundancy. Within the City limits, the District manages 8 potable pressure zones, 10 pump stations, and 12 storage reservoirs, totaling 28 reservoirs with a combined capacity of 71 million gallons (MG), serving customers in the MNWD service area for both everyday water use and firefighting needs.

Overall, SCWD's involvement in the City's local water system primarily revolves around potable water transmission and there is one reservoir pump station that SCWD owns and operates. Although SCWD serves as the contract operator for the JRWSS, supporting potable water transmission, it is not directly involved in local water distribution within the City. MNWD, on the other hand, maintains two takeouts from the JRWSS to meet the City's water needs. Additionally, SCWD has several potable water connections with MNWD for water supply and. See Figure 2, which shows MNWD's water infrastructure and facilities located within the City.

² Moulton Niguel Water District, Water, Recycled Water & Wastewater Operations. Accessed January 2024. Found here: <https://www.mnwd.com/operations/>



City of Laguna Niguel Existing Water System Facilities

Figure 2

1/23/2024



— MNWD Potable Water Mainlines

□ City Boundary

N
1 inch = 2,400 feet

0 2,000 4,000
Feet

2.2 EXISTING WATER DEMANDS

REGIONAL

Water demands throughout the City are incorporated into MNWDs regional 2020 Urban Water Management Plan (UWMP). Within its service area the MNWD estimated that residential uses (single-family and multi-family) accounted for nearly 57% of all water use during Fiscal Year (FY) 2019-2020. Single-family land use is the largest sector, using approximately 13,964 AFY (about 50% of total water use), followed by recycled water for irrigation at 5,013 AFY (18%), potable irrigation uses at 2,645 AFY (9%), commercial use at 2,316 AFY (8%), and multi-family use at 1,914 AFY (7%). Water loss represented approximately 2,224 AFY (8%) and other potable hydrant uses represented less than 20 AFY (1%) of total water use. See Table 1 for a summary of existing water demands throughout MNWDs service area.

Table 1 Existing Water Demands - Regional

Land Use Type ¹	Level of Treatment	Volume (AF)
Residential – Single Family	Drinking Water	13,964
Residential – Multi-Family	Drinking Water	1,914
Commercial and Institutional	Drinking Water	2,316
Landscape/ Irrigation	Drinking Water	2,645
Landscape/ Irrigation	Recycled Water	5,013
Losses		2,224
Potable Hydrant	Drinking Water	20
Total		28,096
Notes		
1.	The District does not have any industrial water use within its service area.	
Source	MNWD, June 2021. 2020 Urban Water Management Plan, Table 4-1 : Demands for Potable and Non-Potable Water – Actual, Figure 4-2: FY 2019-2020 Water Use By Sector. Found here: https://wuedata.water.ca.gov/public/uwmp_attachments/8289945304/2020%20Urban%20Water%20Management%20Plan%5FAdopted.pdf	

2.3 EXISTING WATER SUPPLY

The District primarily meets its water needs through a combination of imported potable water and locally sourced recycled water. For the past 5-years approximately 79 percent of the total water supply has come from the Metropolitan Water District of Southern California (MWD or Metropolitan) and the Municipal Water District of Orange County (MWDOC), with the majority of it being treated at MWDs Robert B. Diemer Water Treatment Plant (WTP) located north of Yorba Linda. The remaining 21% of water supply is recycled water, that is treated either at Diemer WTP or the Baker WTP, the backup facility, in Lake Forest. And if necessary, the District can also purchase recycled water from SCWD. See Table 2 for the list of existing water supply resources available to the District.

Table 2 Existing Water Supply Resources

Water Supply	Additional Details	Actual Volume (AF)
Purchased or Imported Water	Drinking water purchased from MWDOC	23,083
Recycled Water	Recycled water produced locally	5,013
Total		28,096

Source: MNWD, June 2021. 2020 Urban Water Management Plan, Table 4-1: Demands for Potable and Non-Potable Water – Actual, Figure 4-2: FY 2019-2020 Water Use By Sector. Found here: https://wuedata.water.ca.gov/public/uwmp_attachments/8289945304/2020%20Urban%20Water%20Management%20Plan%5FAdopted.pdf

IMPORTED

The District has entitlements and written contracts with the Municipal Water District of Orange County (MWDOC) to receive imported potable water from MWD via the regional distribution system located in Orange County. To demonstrate water supply reliability and the stability of the physical water delivery system the District receives water entitlements and contracts. Although pipeline capacity rights do not guarantee the availability of water, they do guarantee the ability to convey water when it is available. Some of the regional imported water lines that serve the MNWD service area include the following facilities:

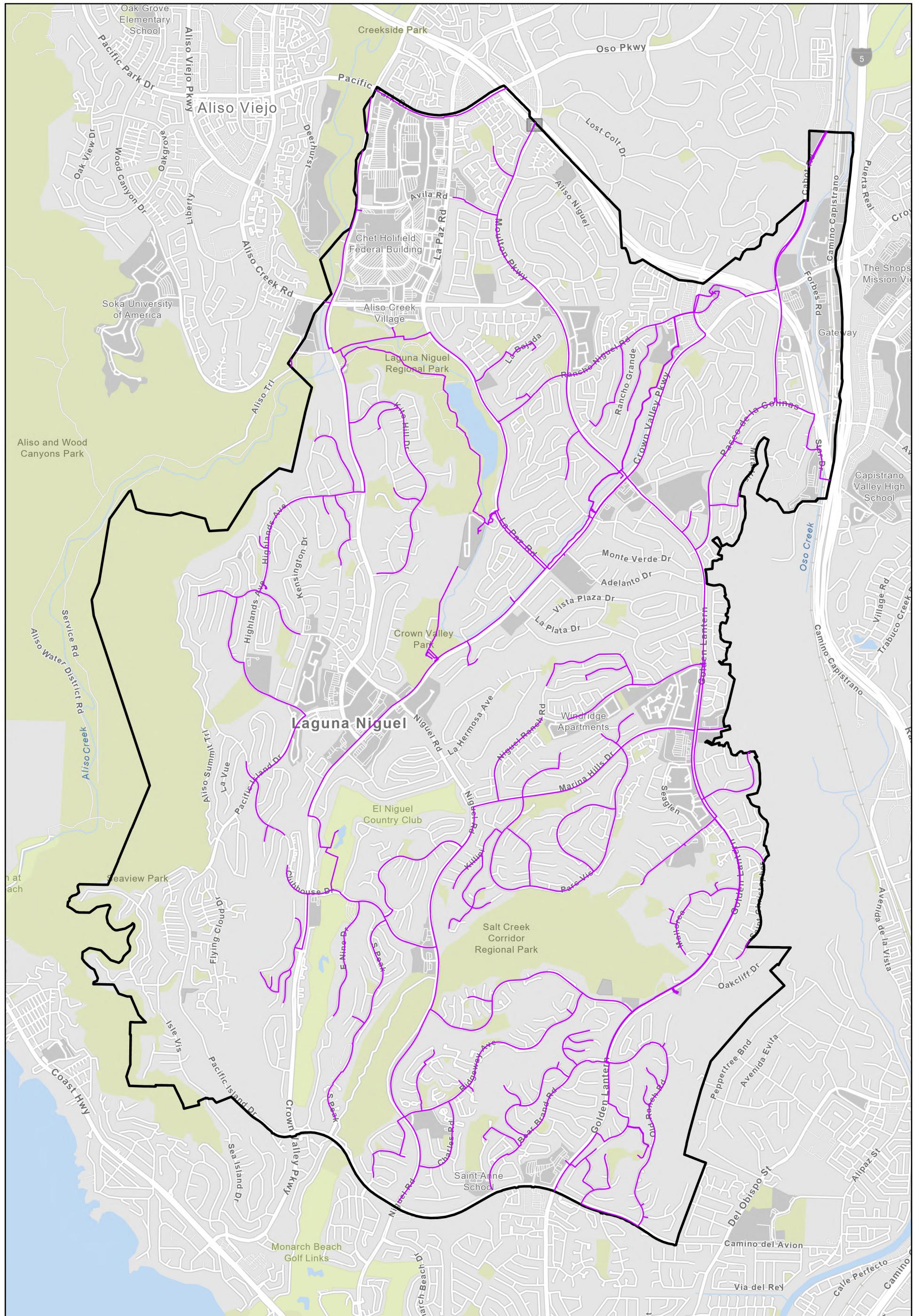
- **Joint Transmission Main or Joint Local Agency Pipeline (JTM)** – The JTM is jointly owned by MNWD and five other water purveyors, including SCWD, which operates the JTM under contract. The District serves the City via the JTM.
- **Eastern Transmission Main (ETM)** – The ETM is jointly owned by MNWD and the Santa Margarita Water District (SMWD). MNWD is responsible for operations through an agreement with SMWD. MNWD serves the City via the ETM.
- **Allen McColloch Pipeline (AMP)** – The AMP terminates in the northeast section of Mission Viejo at the El Toro Water District R-6 Reservoir and conveys water primarily to Mission Viejo and Laguna Hills. MNWD does not serve the City through the AMP.
- **South County Pipeline (SCP)** – The SCP is jointly owned by several local water purveyors SMWD, MNWD, SCWD, and others. Water from the AMP is conveyed via the SCP, which MNWD uses to serve the City.

See Appendix B for a map of these regional and local water supply systems.

RECYCLED WATER

MNWD collaborates with other agencies in South Orange County to expand recycled water programs and reduce the dependence on imported water. Currently, 21% of the District's water demands are met by recycled water distributed through 142 miles of pipelines. The District also owns two Advanced Wastewater Treatment (AWT) facilities, 13 pump stations for recycled water, 13 pressure reducing stations, and 5 storage reservoirs. The District aims to reduce reliance on imported water and maximize resource reuse. The projected annual demand for their recycled water system is 8,000 acre-feet.

Within the City MNWD operates and maintains approximately 349,221 ft (66 miles) of recycled water distribution and transmission lines ranging in size from 28" to 24". Most of the lines were constructed in the 1990s and 2000s and are made from pressure-rate polyvinyl chloride (PVC) (61%). See Figure 3 for a map of the recycled water facilities within the City.



City of Laguna Niguel Existing Recycled Water Facilities

Figure 3

1/23/2024



— MNWD Recycled Mainlines

□ City Boundary

N
1 inch = 2,400 feet
0 2,000 4,000 Feet

2.4 WATER CAPACITY ASSESSMENT

The management of water systems within the City involves multiple entities including MNWD, SCWD, and the City's Public Works Department and Building Department. The broader responsibility for the public water system, including capacity assessments and oversight of private water improvements affecting public systems, is MNWD's responsibility. Locally the City's Public Works Department plays a role in overseeing water improvement projects within the public right of way, while the City's Building Department oversees private properties through the encroachment permit process. This collaborative approach between MNWD and the City ensures that water capacity, maintenance, and development applications within the City are addressed comprehensively.

URBAN WATER MANAGEMENT PLANS (UWMP)

Through the Urban Water Management Plan (UWMP) reporting, MNWD uses population growth, climate scenarios, water supplies, water conservation, large development projects, and approved specific plans to estimate future water demands and evaluate the ability to meet this demand through various water supply sources over a 20-year projection. The California Water Code requires this document, and it is updated every five years; the latest was prepared in 2020.

LONG RANGE WATER RELIABILITY PLAN (LRWRP)

Long-range water supply planning is essential to ensure the District and its service areas have access to adequate water supplies. MNWD's 2020 LRWRP assesses future water supply scenarios and creates a long-term strategy for all of MNWD's customers. Seeing that the MNWD relies on imported water the District addresses the potential risks from droughts and climate variability. The report identifies reliability risks, presents a framework for water resiliency, and identifies potential water supply projects. Some specific project goals include the development of water supply during outages, expanding water storage for up to 10,000 AF through the Baker WTP and Upper Chiquita Reservoir. The LRWRP also discusses the District's plans to continually expand the recycled water system through the Recycled Water Optimization Study, feasibility studies, and joint local water supply reliability planning³.

BACKFLOW PREVENTION PROGRAM

The primary objective of the cross-connection control/backflow prevention program is to protect MNWD's public potable water system from possible contamination. Protection is accomplished by requiring the installation of an approved backflow prevention assembly⁴ for any private connections to the public water system.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

The SGMA addresses the sustainable management of groundwater in California. This legislation results from water shortages in California, long-term issues with land subsidence, and over drafting of groundwater aquifers. The Department of Water Resources identified the status of water basins by overdraft and priority levels (e.g., very low, low, medium, or high). The consistency requirement between MNWD's UWMP and SGMA is not applicable because the

³ Moulton Niguel Water District, 2020 Long-Range Water Reliability Plan Update. Found here:

https://www.mnwd.com/wp-content/uploads/2021/03/Final_2020-LRWRP-Update_03082021.pdf

⁴ Moulton Niguel Water Districts, Back Flow Prevention Program, Accessed January 2024. Found here:

<https://www.mnwd.com/backflowpreventionprogram/>

District does not use groundwater as a supply. Although, MNWD does not use groundwater as a supply the District is investigating the potential for the Orange County Groundwater Basin as a resource for additional storage during emergencies or potential drought periods.

Orange County Groundwater Basin

The Orange County Groundwater Basin is managed by the Orange County Water District (OCWD) and although the basin is not overdrafted, OCWD prepared a groundwater management plan⁵ to expand long-term groundwater sustainability. The plan describes basin hydrogeology, water supply monitoring, management and operation of recharge facilities, groundwater replenishment system, seawater intrusion and barrier management, and water quality protection.

San Juan Groundwater Basin (SJB)

The San Juan Groundwater Basin or Basin is situated in South Orange County within the San Juan Creek Watershed, spans 26 square miles and is bounded by the Pacific Ocean to the west and semi-permeable marine deposits. The Basin is considered a very low priority basin, which underlies portions of the City of Laguna Niguel, Mission Viejo, San Juan Capistrano, Dana Point, and unincorporated areas of South Orange County. It has four sub-basins: Upper San Juan, Middle San Juan, Lower San Juan, and Lower Trabuco. The Basin plays a crucial role in local water resources and is recharged through various sources including San Juan Creek, Oso Creek, Arroyo Trabuco Creek Channel, precipitation, and Hot Spring Canyon flows.

Although MNWD does not currently utilize groundwater as a resource the District is a member San Juan Basin Authority (SJBA). SJBA was established in 1971 as a joint authority that oversees water resources development and water quality in the San Juan Basin. Its members include SMWD, MNWD, SCWD, and the City of San Juan Capistrano. As the basin is classified as a subterranean flowing stream, the SWRCB issues water rights permits for extraction and diversion. SJBA holds Permit 21074, which allows for the extraction of up to 8,026 AFY. Presently, the City of San Juan Capistrano is the sole agency utilizing water under this permit. SCWD also holds Permit 21138 and is permitted to extract up to 1,300 AFY. While the District has not received groundwater from the San Juan Basin, it remains engaged with SJBA agencies to explore enhancement opportunities.

2.4.1 WATER CAPITAL IMPROVEMENT PLANS

Over the next ten years MNWD plans to invest over \$460.3 million in water and wastewater infrastructure through capital improvement plans (CIP), and will focus on improving reservoir rehabilitation, pump stations, transmission mains, valves, and future water reliability projects⁶. Water supply and reliability investments are based on various water capacity assessments, including the District's LRWRP and the new Computerized Maintenance Management System (CMMS), which is an asset management planning, tools, and data to inform the renewal and replacement of the District's infrastructure. Some of these projects and their estimated completion schedules are described in Table 3 below.

⁵ Orange County Water District, 2015. Groundwater Management Plan. Found here: https://www.ocwd.com/wp-content/uploads/groundwatermanagementplan2015update_20150624.pdf

⁶ Moulton Niguel Water District, Fiscal Year 2023-24 Budget. Found here: <https://www.mnwd.com/wp-content/uploads/FY-2023-24-Adopted-Operating-and-Capital-Improvement-Program-Budget.pdf>

Table 3 Water System Capital Improvement Plans

CIP Project Name	Phase/ FY Completion	Project Summary
East Aliso Creek Reservoir Inlet and Outlet Piping Modifications – Laguna Niguel ¹	In Design FY 24-25	The project involves replacing the current inlet and outlet piping, piping valves in the valve vault, and adding expansion joints to improve seismic resilience.
Plant 3A Subsidence Mitigation – Mission Viejo	Construction FY 24-25	The project involves enhancing site drainage infrastructure, replacing surface pavement, converting the plant water system to recycled water, concrete surfaces on the pump stations, and creating bypass infrastructure for diverting solids to the JB Latham Treatment Plant when necessary.
Reservoir Management Systems (RMS) Replacements – Phase 4 – Throughout the District	In Design FY 25-26	The project involves demolishing current RMS facilities and building new ones at multiple reservoir sites. New facilities include block buildings, on site sodium hypochlorite generation, storage tanks, reservoir mixing systems, sampling stations, safety features, HVAC, and electrical components.
OCWD Basin Emergency Interconnection at Santa Ana East Station	In Design FY 24-25	The project involves exploring alternative of establishing another emergency interconnection to enhance emergency water supply in South Orange County including the District. The most suitable is the interconnection at the Santa Ana East Station, so the District has agreed with OCWD and the City of Santa Ana to prepare a preliminary design of the emergency interconnection.
Doheny Desalination Tracking	In Design FY 27-28	The project involves the South Coast Water District (SCWD), which is developing an ocean water desalination facility in Dana Point, aiming to desalinate the groundwater at an initial capacity of 5 MGD and a potential of 15 MGD. MNWD is tracking the project's development and evaluating opportunities to participate.
Optimized, Adaptive, Sustainable, Integrated Supply (OASIS) Treatment Center	In Design FY 24-25	The project involves the creation of new drinking and recycled water resources through the OASIS Treatment Center. This project would maximize wastewater reuse and capture, reducing the District's reliance on imported water during drought and decreasing discharges to Aliso Creek and the Pacific Ocean.
Sources		
1. Moulton Niguel Water District, Accessed January 2024. Current & Recently Completed Construction Projects. Found here: https://www.mnwd.com/construction-projects/		

As shown above MNWD continues to explore water reliability CIP projects to secure the District's future water supply in preparation for short-term and long-term supply emergencies.

3. SEWER

3.1 SEWER ENVIRONMENTAL SETTING & INFRASTRUCTURE

REGIONAL

Moulton Niguel Water District (MNWD) – The District oversees an extensive sewer network, managing approximately 520 miles of gravity sewers with diameters ranging from 6 inches to 48 inches. Service laterals range in diameter from 4 inches to 8 inches. All gravity sewers contain manholes for efficient cleaning and maintenance⁷. The District also operates 17 lift stations that pump wastewater over ridge lines to treatment plants for disposal or recycling. The majority of the District's sewer lines are constructed with newer materials, which helps to reduce inflow and infiltration. As a member of the South Orange County Wastewater Authority (SOCWA), MNWD actively contributes flow to three regional treatment plants and two ocean outfalls. Other facilities that MNWD owns and operates are described below:

- **Advanced Wastewater Treatment Facility (AWT)** – MNWD owns and operates the AWT facilities located at the Regional Treatment Plant (RTP). The AWT treats water to Title 22 standards for recycled water and supplies up to 20% of the District's total water demands and has a recycled water capacity of 9.4 MGD.
- **Wastewater Treatment Plant 3A** – Located in the City of Mission Viejo, Plant 3A has a maximum capacity of 6 MGD and treats water from MNWD and SMWD. On average Plant 3A treats approximately 1.8 MGD. MNWD owns 72% of the treatment capacity and actively collaborates with Santa Margarita Water District (SMWD). Effluent undergoes secondary or tertiary treatment depending on the disposal method, ocean outfall or recycled water.

South Orange County Wastewater Authority (SOCWA) - SOCWA, was established in the 1970s, and consists of ten governmental agencies, including the City of Laguna Niguel, Laguna Beach, San Clemente, and others. The management of treatment and disposal of wastewater involves proportionate cost-sharing among member agencies based on deliveries and ownership of the plants. Some of SOCWA's regional facilities include the following⁸.

- **Coastal Treatment Plant (CTP)** – Located in the City of Laguna Niguel and constructed in 1983, the CTP has a capacity of 6.7 million gallons per day (MGD). Currently the CTP has an average daily use of 2.9 MGD, with a production of 1.5 MGD of recycled water. The treatment processes at the plant include screening, grit removal, primary clarification, secondary treatment, secondary clarification, anaerobic digestion, and thickening. The District does not currently use capacity at the CTP but owns 29% of the treatment capacity. MNWD's participation and funding obligations for the CTP will end in 2030.
- **JB Latham Treatment Plant (JBLTP)** – Located in the City of Dana Point and constructed in 1964, the JBLTP operates as a conventional activated sludge treatment facility with a total capacity of 13 MGD and currently utilizing 6 MGD. The treatment processes at the facility include screening, grit removal, primary clarification, secondary treatment, secondary clarification, anaerobic digestion, and solids dewatering. MNWD owns 23% of the liquid treatment capacity and 22% of the solid's treatment capacity.

⁷ Moulton Niguel Water District, February 2019. Sewer System Management Plan (SSMP). Found here: <https://www.mnwd.com/wp-content/uploads/2019/03/SSMP-RECERT-2019-WITH-ATTACHMENTS.pdf>

⁸ South Orange County Wastewater Authority, Infrastructure. Accessed January 2024. Found here: <https://www.socwa.com/infrastructure/>

- **Regional Treatment Plant (RTP)** – Located in the City of Laguna Niguel and constructed in 1982, the RTP is a key facility with a total liquid waste capacity of 12 MGD and 20 MGD in solid waste. Currently the RTP is operating at an average of 7.3 MGD and generates up to 7.3 MGD of recycled water. The treatment processes at the facility includes screening, grit removal, primary clarification, secondary treatment, secondary clarification, anaerobic digestion, and solids dewatering. MNWD owns 100% of the liquid treatment capacity, 100% of the recycled water treatment facilities, and nearly 60% of solids treatment capacity.
- **Aliso Creek Ocean Outfall** – The Aliso Creek Ocean Outfall was constructed in 1979 and extends 1.5 miles off of the Aliso Creek Beach. The outfall discharges highly treated wastewater into the Pacific Ocean and handles a capacity of 9.3 MGD. Water quality testing is conducted monthly at 21 ocean and 12 beach monitoring sites.
- **San Juan Creek Ocean Outfall** – The San Juan Creek Ocean Outfall was constructed in 1978 and extends 2.2 miles off of the Doheny State Beach. The outfall discharges highly treated wastewater into the Pacific Ocean and handles a capacity of 10.5 MGD. Water Quality testing is conducted monthly at 21 ocean and 9 beach monitoring sites.

See Appendix C for a map of SOCWAs service area and regional facilities.

LOCAL

Locally, MNWD and SCWD are responsible for the City's local wastewater facilities. MNWD collects wastewater through a network of collectors, gravity lines, lift stations, and force mains, with a primary focus on residential areas.

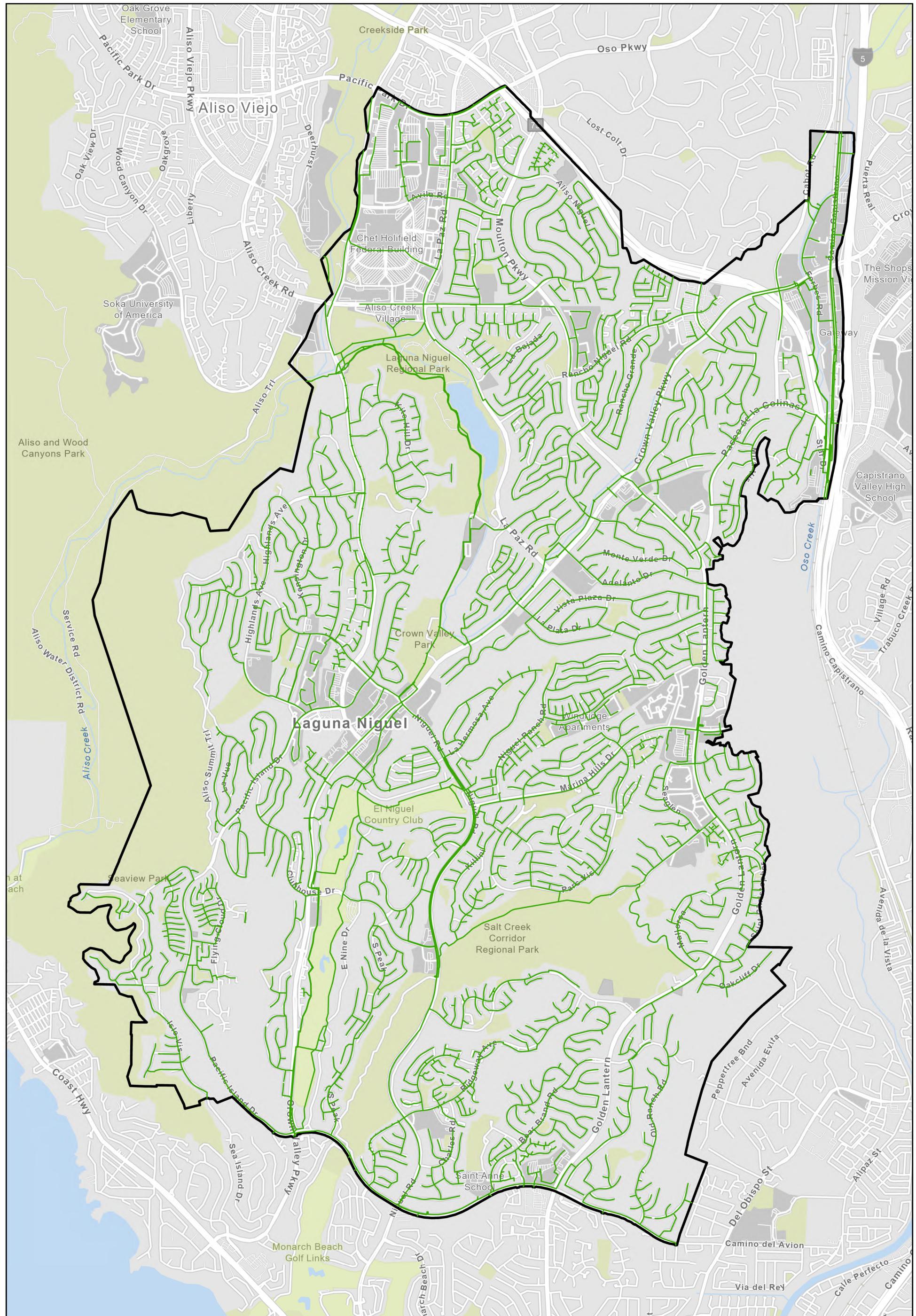
Moulton Niguel Water District (MNWD) – Within the City of Laguna Niguel, the District maintain approximately 1,166,372 ft (221 miles) of sewers lines and service laterals range in size from 4" to 48". The majority of the sewer lines throughout the City were constructed in the 1980s (54%) and are constructed from polyvinyl chloride (PVC) (54%) and vitrified clay pipe (VCP) (43%). The entire gravity sewer system includes manholes that facilitate cleaning and maintenance of the local sewer infrastructure.

MNWD has decreased wastewater flows over the years through active and passive conservation measures. MNWD operates and maintains Plant 3A and the AWT facilities at the RTP and prioritizes the protection of public health, the environment, and compliance with regulatory and public health agencies by performing regular sampling, monitoring, and testing of wastewater treatment. See Figure 4 for a map of the City's existing sewer system facilities.

South Coast Water District (SCWD) – SCWD's involvement in the City's local sewer distribution primarily revolves around wastewater conveyance. SCWD has several connections with MNWD to support wastewater conveyance from the City. Due to local topography, SCWD extends its sewer service beyond its boundaries to certain customers, thus avoiding the need for constructing and operating sewer lift stations in neighboring districts, such as MNWD. One area with approximately 650 customers is within MNWDs service area boundary, but sewer by gravity drains to SCWDs wastewater system.

The District also has a contractual obligation to provide up to 1.44 MGD to MNWD at the Joint Reservoir. However, MNWD only accepts flow from the District during emergencies or

routine maintenance periods. Historically, MNWD's intake from the Joint Reservoir during the summer months has not exceeded approximately 1.0 MGD.



City of Laguna Niguel Existing Sewer System Facilities

Figure 4

1/23/2024



— MNWD Wastewater Mainlines

□ City Boundary



1 inch = 2,400 feet

0 2,000 4,000

3.2 EXISTING SEWER FLOWS

Sewer flows throughout the City are a part of MNWDs 2020 UWMP. Within its service area the District estimated that 11,590 AF of wastewater was treated. 6,101 AF was discharged, and 5,489 AF was recycled within the Districts service area. Flows were discharged into Aliso Creek Channel and San Juan Ocean Outfalls. See Table 4 for a summary of existing sewer flows throughout MNWDs service area.

Table 4 Existing Sewer Flows - Regional

MNWD Wastewater Collection	Treatment Plant	Treated Wastewater (AF)	Treated Discharge (AF)	Recycled Wastewater (AF)
Metered - Wastewater received by SOCWA	Regional Treatment Plant	8,680	3,995	4,685
Metered - Wastewater received by MNWD	3A Treatment Plant	1,761	957	804
Estimated - Wastewater received by SOCWA	JB Latham Treatment Plant	1,149	1,149	0
Total		11,590	6,101	5,489

Source: MNWD, June 2021. 2020 Urban Water Management Plan, Table 6-3 Wastewater Treatment and Discharge within Service Area in 2020. Found here:
https://wuedata.water.ca.gov/public/uwmp_attachments/8289945304/2020%20Urban%20Water%20Management%20Plan%5FAdopted.pdf

3.3 SEWER CAPACITY ASSESSMENT

In managing sewer systems within the City, responsibilities are shared between MNWD, SCWD, and the City's Public Works Department. Larger sewer facilities are regionally overseen by MNWD in collaboration with SCWD. Locally the City of Laguna Niguel's Public Works Department issues encroachment permits to MNWD or SCWD for sewer improvement projects including inspection of backfill above the pipe and surface restoration. For private properties, the City's Building Department is in charge of permitting and inspecting private sewer improvements. This collaborative approach between regional and local agencies ensures comprehensive management, covering both public and private aspects of sewer and wastewater infrastructure within the City.

SEWER SYSTEM MANAGEMENT PLAN (SSMP)

As required by the State Water Resources Control Board No. 2006-0003-DWQ (WDR Order), MNWD has developed and implemented a Sewer System Management Plan (SSMP). To complete the SSMP requirements MNWD also updated the Sanitary Sewer Overflow Prevention Plan and Sanitary Sewer Overflow Response Plan along with existing pre-treatment and engineering programs. These updated documents have been developed to promote proper funding and management of the District's sanitary sewer system. The last formal update was in February 2019 with internal audits occurring annually. Within the SSMP the District describes the following capacity assessment and planning processes it has in place.

Collection System Cleaning and Maintenance – Notably the collection systems cleaning, and maintenance initiative involves comprehensive video inspections of the entire sewer system on an 8-year cycle utilizing the Districts closed-circuit television (CCTV) inspection equipment

and visual manhole assessments. Through these routine inspections the District proactively seeks to address any problems. The District's Computerized Maintenance Management System (CMMS) helps to track and monitor all scheduled and unscheduled maintenance involving preventative maintenance, corrective maintenance, and lift station activities. During video inspections, each section of the sewer line undergoes inspection for cracks, roots, low spots, and lateral problems. All detected defects are coded, noted, and prioritized. The 6-inch to 12-inch residential sewer system lines within the District are cleaned on an annual basis. MNWD has also organized its collection systems into 73 cleaning routes and are characterized based on drainage basin identifications. As determined through inspections the larger trunklines in the District undergo annual inspections and cleaning as necessary. Additional maintenance and checks occur for the 16 active lift stations and MNWD conducts daily checks and more frequent inspections for six of the larger lift stations.

Refurbishment and Replacement Plan – Through the SSMPs refurbishment and replacement plan the District incorporates sewer line rehabilitation and replacement projects into the 10-year CIPs on an annual basis. There are planned equipment replacements for sewer lift stations that are scheduled and outlined in the District's 10-year CIP, ensuring that infrastructure maintenance is prioritized.

SOUTH OC WASTEWATER OPTIMIZATION BLUEPRINT

MNWD and SMWD, introduced the South OC Wastewater Optimization Blueprint in January 2023. The blueprint outlines a new approach where retail agencies will directly oversee operations of local treatment facilities to optimize wastewater delivery, integrate system operations, and implement long-term safe, reliable, and efficient wastewater treatment. The Optimization Blueprint also aspires to resolve expiring wastewater agreements for the District's locally owned wastewater treatment facilities. This blueprint was jointly developed with SMWD and aims to optimize wastewater operations, increase local water supply development, and improve MNWDs regional wastewater treatment facilities.

3.3.1 SEWER CAPITAL IMPROVEMENT PLANS

Over the next ten years MNWD plans to invest over \$460.3 million in water and wastewater infrastructure through capital improvement plans (CIP), with a focus on improving pipelines, manholes, lift stations, treatment plants and future wastewater capacity assessments. Coordination between MNWDs planned sewer improvements and the City's Public Works Department involves proactive communication. Namely, MNWD will contact the Public Works Department to discuss requirements, impacts, and infrastructure conditions before starting improvement planning. Typically, the process requires the sewer agency, such as MNWD, to apply for an encroachment permit that the Public Works Department will review. If a permit is issued Public Works inspectors will monitor construction sites to ensure contractors comply with the permit conditions, maintain safe field conditions, minimize impacts on the public, and confirm compliance to the approved plans. Private improvements on private properties are permitted through the Building Department.

Other permits are issued through the City's encroachment process for work done in the public right of way and the City is responsible for inspecting the backfill above pipes and surface restoration. This approach is the typical process that all sewer agencies and contractors are subject to as it ensures that sewer standards are upheld and promotes improvement projects throughout the City. Some of the projects that MNWD is working on to improve sewer infrastructure throughout the City and their estimated completion schedules are described below in Table 5.

Table 5 Sewer Capital Improvement Plans

Project Name	Phase/ FY Completion	Project Summary
Crown Valley Parkway Pipeline Replacements – Laguna Niguel	Construction FY 24-25	This project installs 1.75 miles of dual 12-inch diameter PVC sewer force mains and a new 12-in diameter PVC and steel water transmission main. A belowground master meter facility will also replace the existing ID NO. 1 Master Meter Facility.
Manhole Rehabilitation Program FY 2021-22 – Throughout the District	Construction FY 23-24	This is an on-call services agreement for MNWD to rehabilitate manholes within their service area. As of January 2024, 22 manholes have been rehabilitated.
Regional Lift Station Force Main Replacement – Throughout the District	In Design FY 23-24	Project will replace critical sewer force mains that convey wastewater from the Regional Lift Station, which handles more than half of all the wastewater generated in the District, to the RTP.
Wastewater Treatment Plant Improvements – Plant 3A	Construction FY 23-24	Will rehabilitate and streamline the liquids handling facilities mechanical, electrical, instrumentation, and controls systems to provide operational improvements, and to incorporate salinity management and cogeneration.
Wastewater Treatment Plant Improvements – Regional AWT	Construction FY 23-24	Will rehabilitate and retrofit the filter technology to ensure reliable recycled water production.
Wastewater Treatment Plant Improvements – Regional Treatment Plant	Construction FY 23-24	Will assess the existing facilities and improvements necessary for the facility that has been in operation since 1984.
Sources 1. Moulton Niguel Water District, Accessed January 2024. Current & Recently Completed Construction Projects. Found here: https://www.mnwd.com/construction-projects/		

As shown above MNWD continues to explore wastewater and sewer reliability improvement plans to secure the Districts future sewer system reliability. Other CIP projects are occurring throughout the City and can be found in MNWDs Fiscal Year 2023-24 Budget⁹.

⁹Moulton Niguel Water District, Fiscal Year 2023-24 Budget. Found here: <https://www.mnwd.com/wp-content/uploads/FY-2023-24-Adopted-Operating-and-Capital-Improvement-Program-Budget.pdf>

4. STORM DRAINAGE AND WATER QUALITY

4.1 STORM DRAINAGE ENVIRONMENTAL SETTING & INFRASTRUCTURE

4.1.1 EXISTING DRAINAGE FACILITIES

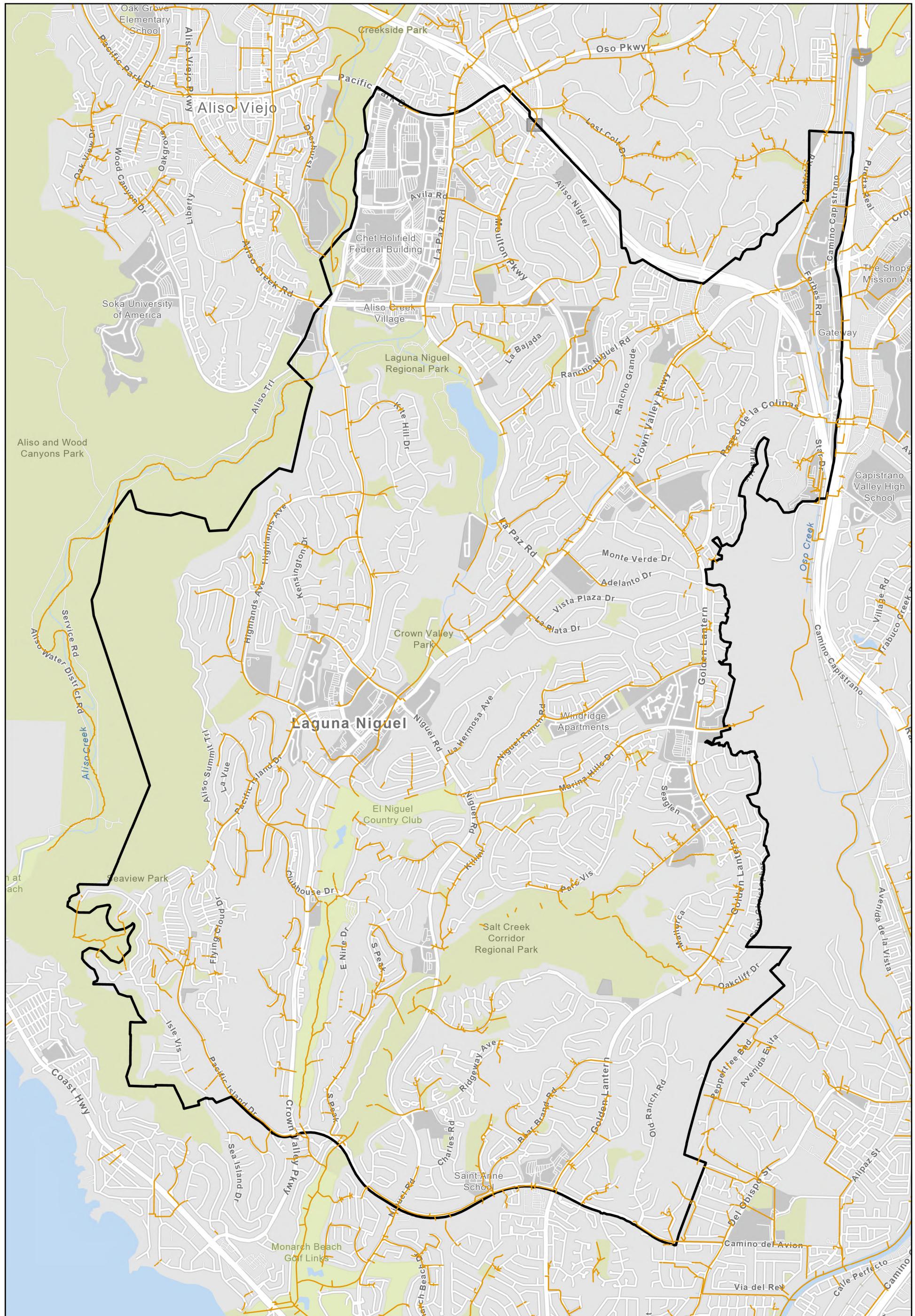
The City has a storm drain system composed of catch basins and storm drains, which conveys stormwater runoff through roadways and underground infrastructure. Storm drain pipelines, channels, and facilities within the City range from 192" to 18" in diameter with a total length of approximately 389,498 ft (74 miles). The majority of the pipelines are owned by the City and are made from reinforced concrete pipe (RCP). The City's Public Works Department and Orange County Flood Control District (OCFCD) work together to monitor and maintain their respective storm drainage infrastructure to ensure the system functions effectively. See Figure 5 for a view of the City- and OCFCD-owned storm drainage facilities. Most storm flows will be conveyed in City roadways, to City-owned catch basins and storm drain systems. From there, the flows are discharged into OCFCD channels (refer to Section 4.1.2, and are ultimately discharged into the Pacific Ocean.

4.1.2 WATERSHED SETTING

The City resides within several watersheds including the Aliso Creek, the Dana Point Coastal Streams, and the San Juan Creek Watershed. These watersheds fall within the South Orange County Watershed Management Area (SOCWMA) and the Integrated Regional Water Management (IRWM) Group. The majority of the City is encompassed into the Aliso Creek Watershed to the north, the Dana Point Coastal Watershed to the south, with smaller portions of the City's eastern boundary falling into the San Juan Creek Watershed. The City drains to the following OCFCD facilities and receiving water bodies.

- **Aliso Creek Watershed**
 - Aliso Creek Channel
 - Narco Channel
 - Sulphur Creek Channel
 - Laguna Niguel Park Lake (Sulphur Creek Reservoir)
 - Niguel Storm Drain
- **Dana Point Coastal Streams Watershed**
 - Salt Creek Channel
- **San Juan Creek Watershed**
 - Oso Creek Channel
 - Arroyo Trabuco Creek Channel, Lower

The water bodies listed above all drain to other storm drainage facilities that ultimately drain to the Pacific Ocean. See Figure 6 for a depiction of the City's watersheds.



City of Laguna Niguel Existing Storm Drain Facilities

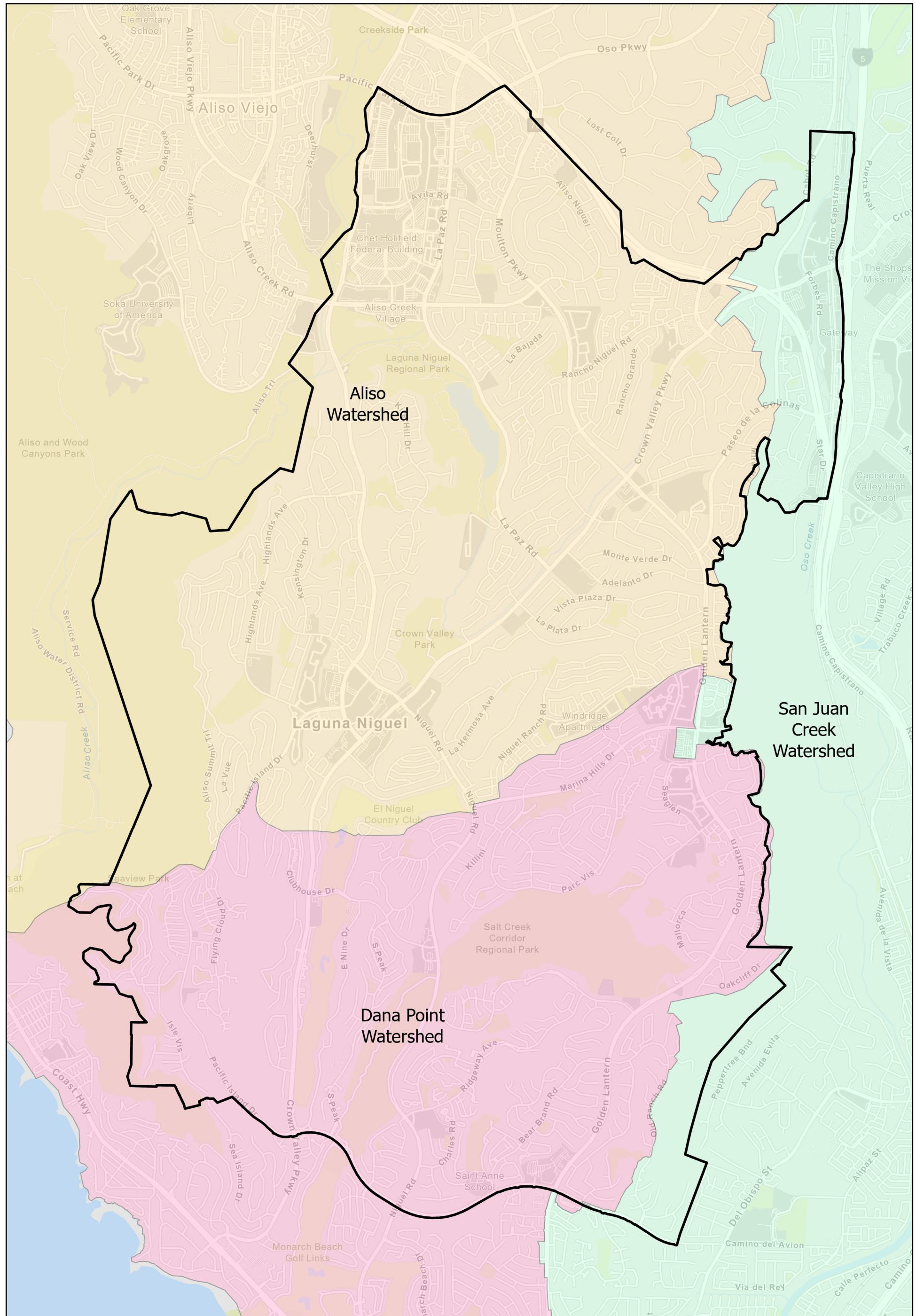
Figure 5

1/23/2024



City Boundary
Storm Drain Mainlines

N
1 inch = 2,400 feet
0 2,000 4,000 Feet



City of Laguna Niguel Watersheds

Figure 6

1/23/2024

4.2 EXISTING FLOOD PLAIN MAPPING

The National Flood Insurance Act (1968) established the National Flood Insurance Program, which is based on the minimal requirements for flood plain management and is designed to minimize flood damage within Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) is the agency that administers the National Flood Insurance Program. Special Flood Hazard Areas (SFHA) are defined as areas that have a 1 percent chance of flooding within a given year, also referred to as the 100-year flood. Flood Insurance Rate Maps (FIRMs) were developed to identify areas of flood hazards within a community.

According to the Flood Zone Determination¹⁰ the majority of the City is designated as unshaded Zone X, with varying flood zones surrounding the waterbodies and wetland areas. Unshaded Zone X is defined as the area determined to be outside the 100 and 500-year flood and mandatory flood insurance is not required. This and other flood zones and floodways throughout the City are described in Table 6 and shown in Figure 7. Although the majority of the City is not subject to flooding hazards as defined by FEMA, localized flooding and/or ponding can still occur during large rain events due to the inadequacy of existing drainage facilities including drainage inlets, culverts, catch basins, storm drain pipes, curbs, and gutters.

Table 6 FEMA Flood Zone Designations

Zone Designation	Zone	Zone Description
Special Flood Hazard Area – With or Without Base Flood Elevation or Depth	Zone A	Areas with a 1% annual chance of flooding and -a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are available within these zones.
	Zone AE	The base floodplain where base flood elevations are provided.
	Zone AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are available at selected intervals within these zones.
Other Areas of Flood Hazard	Zone X	<u>Shaded</u> : Area of 500-year flood; area subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than one square mile; and areas protected by levees from the base flood.

Source: FEMA, Glossary. Found here: <https://www.fema.gov/about/glossary>.

Although flooding is a risk present throughout the City, the Public Works Department has implemented a regular annual maintenance program to minimize the reoccurrence of flooding in specific locations. The Public Works Department has identified that there are catch

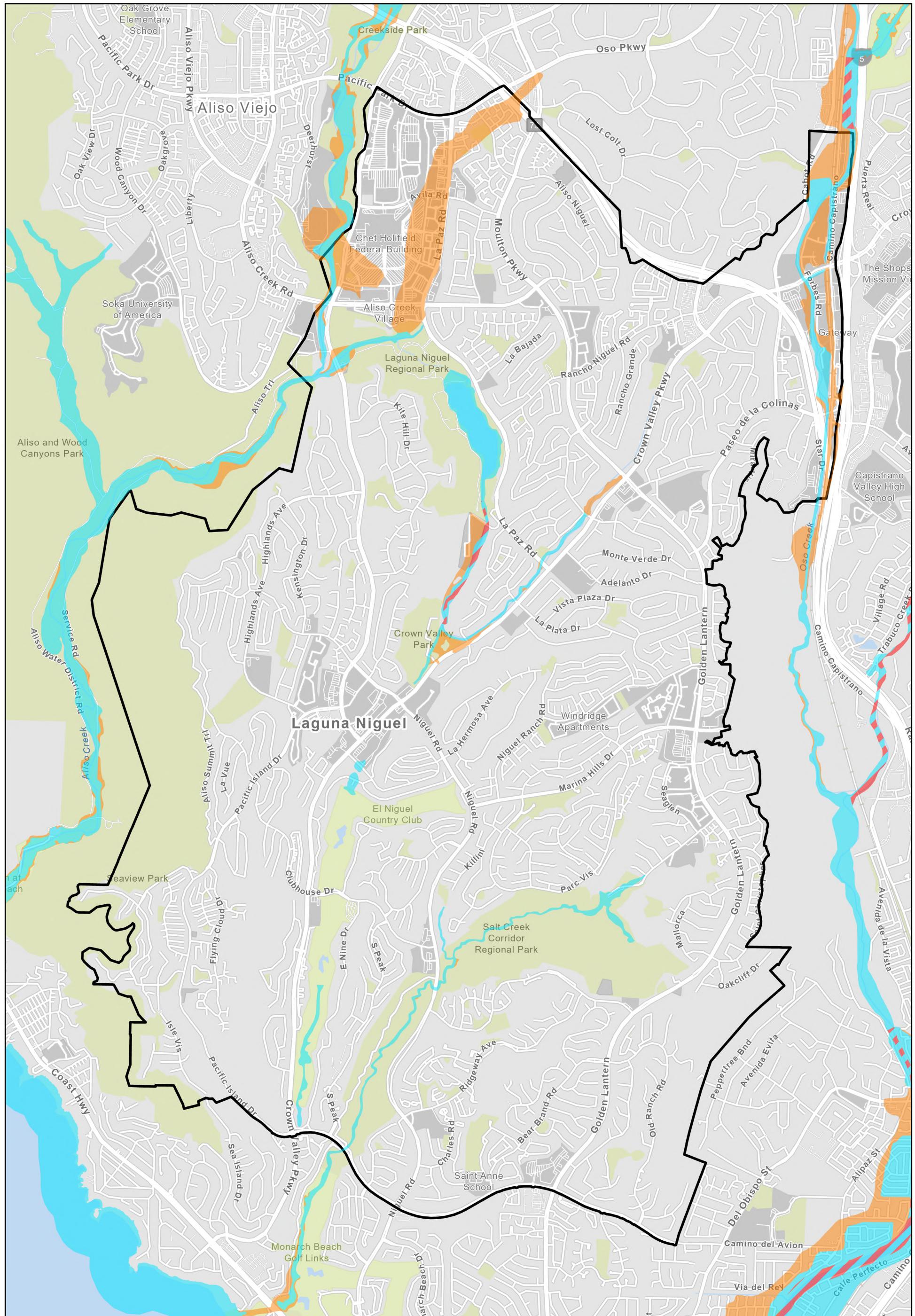
¹⁰ Federal Emergency Management Agency, Flood Maps. Accessed January 2024. Found here: <https://www.fema.gov/flood-maps>

basins at Adelanto Drive and Crown Valley Parkway that may lead to flooding without regular maintenance¹¹. Additional ongoing maintenance is crucial for the City's 13 wetland areas present throughout the City, as these areas convey runoff from regional tributaries and could be prone to flooding without routine maintenance.

MASTER PLAN OF DRAINAGE

The last update to the City's Master Plan of Drainage was published in 1971 and prepared for the County of Orange. As a resource the document provides a basis for historic drainage deficiencies, requirements, planning objectives, and capital improvement programs. OC Public Records provided the original document for this master plan alongside other subsequent drainage documents that will be discussed in more detail in the following sections, as they outline a more up-to-date look at the City and its drainage facilities. An updated Storm Drain Master Plan has been added to the City's CIP and is planned to start phasing in Fiscal Year 2025/2026.

¹¹ City of Laguna Niguel, Public Works Department. "City Infrastructure Questions." Received by Fuscoe Engineering, 18 January 2024. Email interview.



City of Laguna Niguel Flood Zones

Figure 7

1/23/2024

City Boundary

Flood Hazard Zones

Zones A, VE, AH, AE & AO: 1% Annual Chance Flood Hazard
(AE with Base Flood Elevations Determined; AO with flood depths of 1' - 3')

Zone AE: Regulatory Floodway

Zone X: 0.2% Annual Chance Flood Hazard

N
1 inch = 2,400 feet
0 2,000 4,000
Feet

4.3 STORM DRAINAGE CAPACITY ASSESSMENT

In managing the storm drainage infrastructure and systems within the City, responsibilities are shared between OCFCD, and the City's Public Works Department. Additional regional resources for watershed protection and flood conveyance include the following:

SOUTH ORANGE COUNTY INTEGRATED REGIONAL WATERSHED MANAGEMENT PLAN (SOCIRWMP)

The SOCIRWMP is a regional watershed-based plan that prioritizes, identifies, and promotes multi-beneficial storm drainage improvements. It is a partnership between 21 cities and water/wastewater agencies in South Orange County. As a member, the City benefits from collaborative resource projects focused on improving storm drain capacity, water quality, water supply reliability, and flood management.¹²

WATERSHED INFILTRATION AND HYDROMODIFICATION MANAGEMENT PLAN (WIHMP)

The WIHMP is an GIS initial screening tool for determining the suitability of infiltration BMPs at a watershed and sub-watershed level. Suitability is based on lands uses, soils, slope, ownership, channel morphology, and local drainage systems. These projects aim to meet the regional management goals and are essential in the timing, funding, design, and permitting of storm drainage improvements throughout the region¹³.

OCFCD INFRASTRUCTURE MAINTENANCE

The Orange County Flood Control District performs regular operations and maintenance for the County of Oranges flood control facilities. OCFCD ensures that regional flood control facilities are able to handle flows from storm drains and other runoff that is channeled into the bay or ocean. Services that they provide include the following; on-site investigations, technical assistance with evaluating river and stream bank erosion, emergency flood response, maintenance and inspection of flood levees and flood control facilities owned by the County of Orange, channel and creek restoration and improvement projects, and illegal dumping mitigation.¹⁴ OCFCD has conducted routine spring and fall 2023 inspections for a majority of the storm drain channels and water bodies within the City¹⁵.

LAGUNA NIGUEL WETLANDS OPERATIONS AND MAINTENANCE (O&M) PLAN

The O&M Plan describes routine maintenance and habitat management activities for the City's 13 wetland sites and aims to ensure long-term sustainability and public safety. Goals include implementing flood and vector control, maintaining restored ecosystems, and managing sites for the stability of the Aliso Creek Watershed. The plan follows federal and state laws and is prepared to secure permits for necessary and routine maintenance. The plan allows for additional restoration sites and maintenance facilities as needed, with updates generally occurring every 5 years during permit renewals.¹⁶

¹² Orange County Public Works, March 2022. Stormwater Resource Plan. Found here: <https://www.southocirwm.org/maps/OCPW::oc-stormwater-resource-plan-data-map/about>

¹³ Found here: Orange County Public Works, 2018. WIHMP <https://data-ocpw.opendata.arcgis.com/documents/d1483f13e0ce4f6da092fa9cebfcfa2/about>

¹⁴ Orange County Public Works, Flood Control Operations and Maintenance. Accessed January 2024. Found here: <https://ocom.ocpublicworks.com/service-areas/oc-operations-maintenance/flood-control/flood-control-infrastructure-maintenance>

¹⁵ Orange County Public Works, Routine Channel and Basin Inspections 2023. Accessed January 2024, Found here: <https://ocom.ocpublicworks.com/service-areas/oc-operations-maintenance/gis-maps>

¹⁶ City of Laguna Niguel, July 2019. Final Operations and Maintenance Plan. Found here: <https://www.cityoflagunaniquel.org/DocumentCenter/View/17398/LN-Wetlands-OM-Plan-July2019>

4.4 EXISTING WATER QUALITY REGULATIONS

In addition to the resources discussed above there are several state and regional regulations that focus on protecting storm water quality throughout the City and South Orange County region. They are described as follows.

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD (SDRWQCB) MS4 PERMIT

The City is within the jurisdiction of the SDRWQCB and is subject to the regional Municipal Separate Storm Sewer Systems (MS4) Permit requirements. The Regional MS4 Permit covers 39 municipal, county government, and special district entities (referred to jointly as Co-permittees) located in San Diego County, southern Orange County, and southwestern Riverside County who own and operate large MS4s which discharge storm water runoff and non-storm water runoff to surface waters throughout the San Diego Region¹⁷. In May 2013, the San Diego RWQCB re-issued the Regional MS4 Storm Water Permit as WDR Order R9-2013-0001 (NPDES Permit No. CAS0109266. The Regional MS4 Storm Water Permit has been amended twice, once in February 2015 (Order Nos. R9-2015-001) and again in November 2015 (Order Nos. R9-2015-0100). As of June 27, 2018, the Regional Permit expired, but remains in effect under an administrative extension until it is reissued by the San Diego RWQCB.

TOTAL MAXIMUM DAILY LOADS (TMDLS)

303(d) list, a TMDL for the constituent of concern (pollutant) must be developed for that water body. A TMDL is an estimate of the daily load of pollutants that a water body may receive from point sources, non-point sources, and natural background conditions (including an appropriate margin of safety), without exceeding its water quality standard. Those facilities and activities that are discharging into the water body, collectively, must not exceed the TMDL. In general terms, Municipal Separate Storm Sewer System (MS4) and other dischargers within each watershed are collectively responsible for meeting the required reductions and other TMDL requirements by the assigned deadline.

Identifying water quality priorities is a main component of the EWMP process as the MS4 Permit requires that water quality characterization, water body pollutants, and source assessments are prioritized. The MS4 Permit describes three categories of priority as follows:

- Category 1 – Highest Priority
 - Water body pollutants with an established TMDL in the MS4 Permit.
- Category 2 – High Priority
 - Pollutants that indicate water quality impairment according to the State's Water Quality Control Policy 303(d) list and MS4 discharges that could be contributing to water quality impairment.
- Category 3 – Medium Priority
 - Pollutants that have exceeded applicable receiving water limitations in the MS4 Permit but have insufficient data to indicate they contribute to water quality impairment or exceedance in the receiving water(s).

¹⁷ San Diego Regional Water Quality Control Board. Accessed January 2024. Found here: https://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/sd_stormwater.html

In addition, the California State Water Resources Control Board (State Board) has adopted the statewide Trash Provisions¹⁸ that requires implementation of best management practices (BMPs) that mitigate or abate trash within Priority Land Use Areas (PLUs). PLUs are defined as, "high density residential, industrial, commercial, mixed urban, and public transportation stations." The purpose of the Trash Provisions is to establish a statewide water quality objective that ensures the quality of surface waters that enter storm drains and eventually lead out to major water ways are free of trash. State and Regional Water Board MS4 permits have or will contain trash control implementation requirements and compliance milestones to demonstrate progress towards 100 percent compliance with the Trash Provisions. The City is currently undergoing and implementing this process through the SDRWQCB requirements.

Presented below in Table 7 are the 303(d) list and TMDLs for the applicable regional channels and water bodies that receive flows from the Laguna Niguel GPU area.

Table 7 List of 303(d) Impairments and TMDLs

Aliso Creek Watershed		
Water Body / Channel	List of 303(d) Impairments	TMDL
Aliso Creek Channel	Benthic Community Effects, Indicator Bacteria, Malathion Nitrogen, Phosphorus, Selenium, Toxicity	Indicator Bacteria
Dana Point Coastal Streams Watershed		
Water Body / Channel	List of 303(d) Impairments	TMDL
Salt Creek Channel	Benthic Community Effects, Imidacloprid, Malathion, Toxicity	N/A
San Juan Creek Watershed		
Water Body / Channel	List of 303(d) Impairments	TMDL
Oso Creek Channel	Nitrogen, Phosphorus, Selenium, Toxicity	N/A
Arroyo Trabuco Creek Channel, Lower	Benthic Community Effects, Indicator Bacteria, Nitrogen, Phosphorus, Toxicity	N/A
Source	1. San Diego Regional Water Quality Control Board, Adopted TMDLs. Accessed January 2024. Found here: https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdl/tmdladopted.html	

SOUTH ORANGE COUNTY WATER QUALITY IMPROVEMENT PLAN (WQIP)

The Water Quality Improvement Plan (WQIP) is a useful tool that addresses the impacts of urban stormwater runoff, the implementation and compliance with the municipal separate storm sewer system (MS4) permit and total maximum daily load (TMDL) requirements. This plan monitors and assesses watershed health by tracking receiving water conditions, stormwater runoff quality, and the performance of environmental quality projects.

The MS4 permit guides stormwater runoff requirements in the San Diego Region and requires the development and execution of a Water Quality Improvement Plan (WQIP) for designated

¹⁸ State Water Resources Control Board - Statewide Storm Water Program – Trash Implementation Program. Accessed January 2024 Found here: https://www.waterboards.ca.gov/water_issues/programs/stormwater/trash_implementation.html

for Watershed Management Areas like the South Orange County WMA. The South Orange County WQIP, covers a significant portion of the San Juan Hydrologic Area and guides the efforts of the County of Orange and eleven cities in managing stormwater runoff. The most recent WQIP was accepted by SDRWQCB in 2018, with some of the plans goals extending until 2047. The plan emphasizes the interconnectedness of water resource management efforts in the region and aims to foster ongoing and future integrated water management.

4.4.1 STORM DRAINAGE CAPITAL IMPROVEMENT PLAN PROJECTS

The City's Public Works Department has confirmed that there are no known locations in the storm drainage system that are significantly undersized. The City's CIP program identifies several improvement projects that align with the Storm Drain Master Plans goal of assessing and addressing any storm drainage and water quality deficiencies throughout the City. See Table 8 below for a list of the City's planned storm drainage CIPs.

Table 8 Storm Drainage Capital Improvement Plans

Project Name	Phase/ Schedule	Project Summary
Pacific Island Drive Drainage and Wall Improvement	Construction FY 23-24	This project will address drainage and runoff issues along Pacific Island Drive. Project design was completed in FY 21-22 and FY 22-23.
Storm Drain Master Plan – Phase I	Planning FY 25-26	This project will focus on updating the City's drainage master plan and assess the condition of the City's storm drainage infrastructure, flood conditions, to further develop recommendations for CIPs.
OC Public Works - Aliso Creek Watershed Capture and Reuse Project	Planning FY 26-27	This project explores the possibility of collecting urban runoff and small storm flows, which can also help supplement water supply. Upon initial finding there may need to be enhancement to increase capacity. MNWD will conduct a Runoff Diversion Feasibility Study.
OC Public Works - Stormwater Capture Decision Support Tool	In Design FY 24-25	This project aims to develop a support tool benefitting water districts and watershed managers. The tool will enable access to monitored and modeled data, facilitating streamlined analyses of multi-benefit projects, including climate resiliency assessments.

Sources

1. City of Laguna Niguel, Capital Improvement Program Fiscal Year 2023-2024. Found here: <https://cityoflagunani.org/DocumentCenter/View/24808/FY-2023-24-Adopted-Operating-Budget-and-Capital-Improvement-Program>
2. Orange County Public Works, SWRP Projects Map. Accessed January 2024. Found here: <https://ocpw.maps.arcgis.com/apps/webappviewer/index.html?id=f9a22919c80b4097af2f9de1a65a63f6>

As shown above the City and OC Public Work are continuously exploring storm drainage and water quality improvement projects that secures the reliability of the City's storm drainage infrastructure, flood management efforts, and water quality.

5. APPENDICES

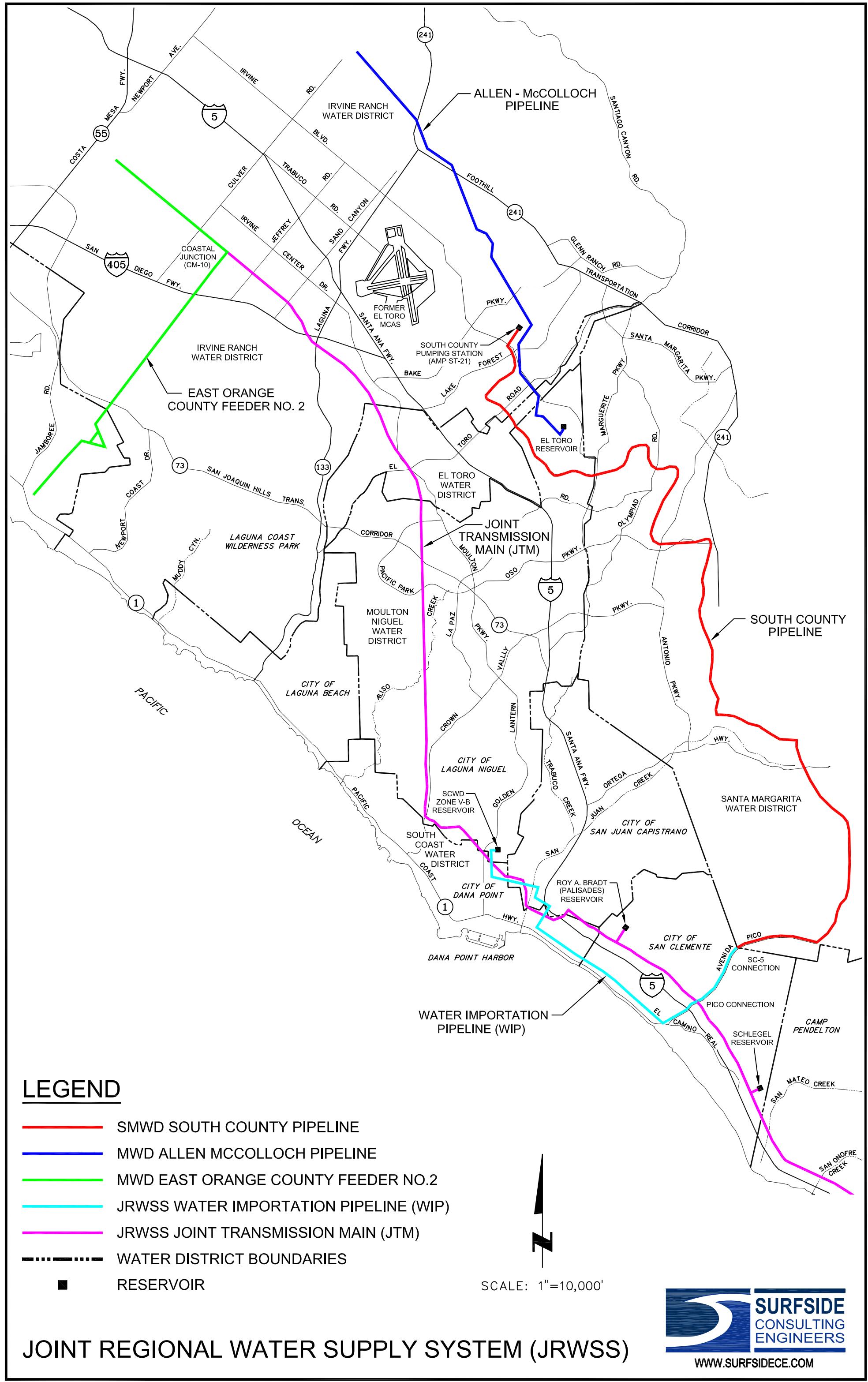
Appendix A – Joint Regional Water Supply System Map

Appendix B – County of Orange Water Retailers and Transmission Mains Map

Appendix C – SOCWA Service Area Map

APPENDIX A

JOINT REGIONAL WATER SUPPLY SYSTEM MAP



APPENDIX B

COUNTY OF ORANGE WATER RETAILERS AND TRANSMISSION MAINS MAP



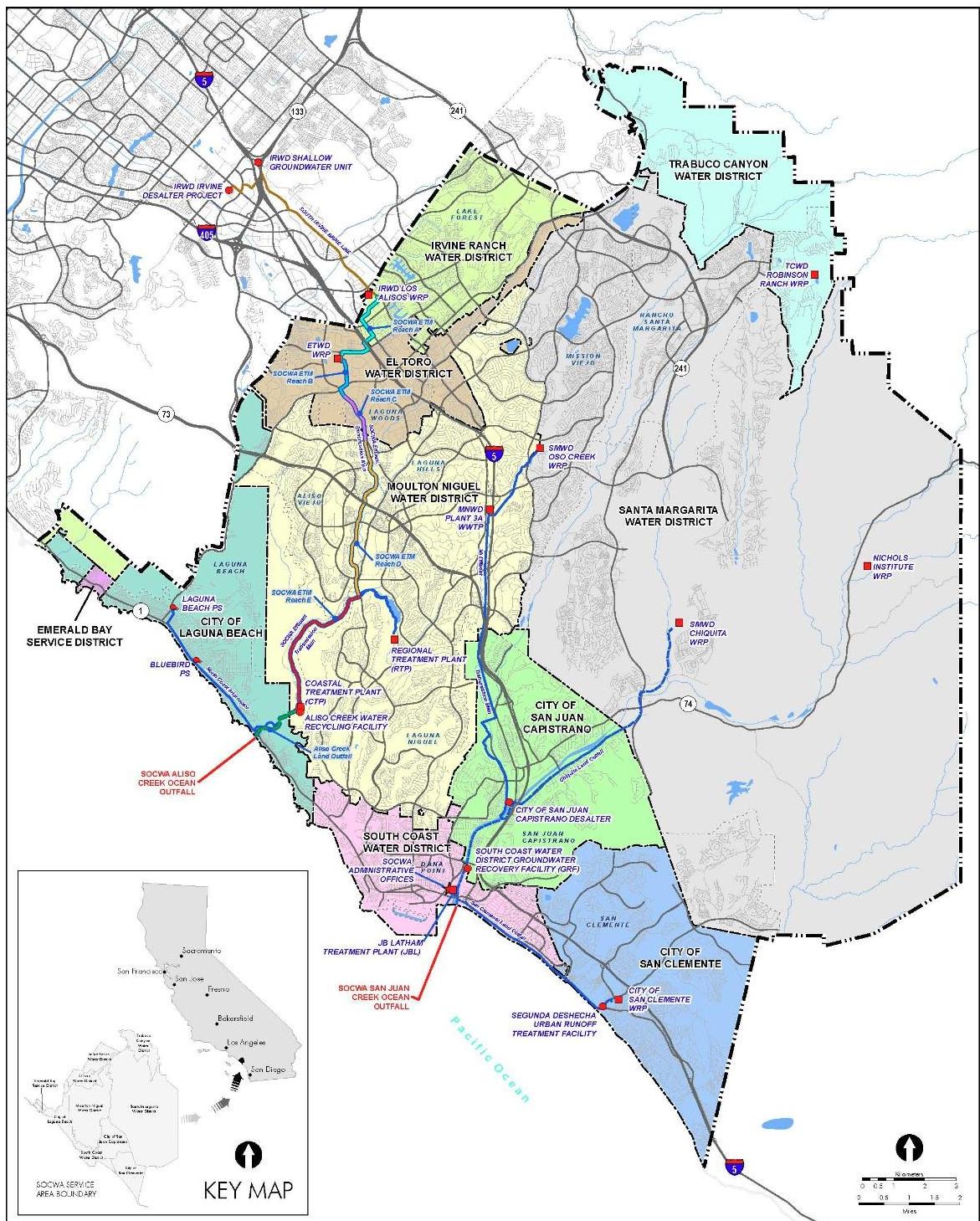
OC Water Retailers and Transmission Mains

Source: Moulton Niguel Water Districts, 2020 Urban Water Management Plan, Figure 3-2: Regional and Local Water Supply System. June 2021.

APPENDIX C

SOCWA SERVICE AREA MAP

SOCWA SERVICE AREA MAP



Member Agencies

- City of Laguna Beach
- City of San Clemente
- City of San Juan Capistrano
- El Toro Water District
- Emerald Bay Service District
- Irvine Ranch Water District
- Moulton Niguel Water District
- Santa Margarita Water District
- South Coast Water District
- Trabuco Canyon Water District

Facilities

- SOCWA Administrative Offices
- Desalter/Treatment Facility
- Pump Station
- Treatment Facility
- Transmission Line
- South Irvine Brine Line
- Land Outfall
- Ocean Outfall

SOCWA Effluent Transmission Line

- ETL - Reach A
- ETL - Reach B
- ETL - Reach C
- ETL - Reach D
- ETL - Reach E
- Aliso Creek Land Outfall

- SOCWA Boundary Line
- City Boundary
- Member Agency Boundary
- Waterbody
- Creek/Stream