

(Figure 2-2). No traffic control measures or utility conflicts are anticipated for this project since, despite its location, the project appears to be highly accessible.

**SP 7, Monarch Bay Drive** - The District will replace approximately 375 feet of existing 8-inch diameter gravity main with 10-inch diameter pipe (Figure 2-2). Utility conflicts are anticipated for this project due to the parallel water main. Additionally, the project is located on a narrow street, which may cause some traffic and mobility issues.

No Phase III CI Projects have been identified for this system.

## 2.4 RECYCLED WATER

Recycled water demands have steadily increased since the system's inception and reached approximately 940 AFY of demand with 171 meters served in 2006. Recycled water now accounts for approximately 11 percent of the total water used in the District. Since increasing the recycled water system and the utilization of recycled water would further reduce dependence on domestic water, the District's Board of Directors has expressed an active interest in expanding the recycled water system.

A description of the existing recycled water system, system issues identified from the IMP, and the proposed CI Projects for the system are discussed in the following sections.

### 2.4.1 Existing Recycled Water System

The District began distributing recycled water in 1984. The District's existing recycled water system provides the District with a supplemental, non-interruptible supply of irrigation water. The District's recycled water system consists of 15 miles of pipeline, three pump stations three storage tanks with a total capacity of 4.7 MG. The District delivers approximately 960 AFY of recycled water to 98 accounts (33 customers; 171 meters) in Laguna Beach and Dana Point, including MNWD, which annually uses about 15 percent of the average supply. The District is also contracted to supply up to 1.44 MGD to MNWD from the Joint Reservoir. However, MNWD only takes flow from the District in an emergency or during routine maintenance periods.

The system is supplied by the SOCWA Coastal Treatment Plant and Advanced Water Treatment (AWT) facility. The AWT facility receives influent from the adjacent SOCWA Coastal Treatment Plant (discussed further in Section 2.3). The AWT is designed to produce 2.61 MGD of recycled water. With additional treatment, filtration, and disinfection, the secondary effluent from the Coastal Treatment Plant is converted to recycled water that meets California's health criteria for landscape irrigation use. This recycled water is used to irrigate parks, golf courses, sports fields and greenbelts and helps free drinking water for human consumption.

Monarch Beach Golf Links is the District's largest recycled water customer and used approximately 282 AF of recycled water in 2006. The second largest customer of recycled water in the District is the Niguel Shores Home Owners Association (50 irrigation meters in total) which used approximately 130 AF in 2006. The third largest recycled water customer in the District is MNWD, which has an agreement with SCWD to receive a contracted amount of recycled water not to exceed 1.44 MGD. In 2006, the total average annual use for MNWD was 128 AFY or 0.11 MGD. Excluding MNWD, the District uses an average of 0.72 MGD of recycled water from the AWT facility and an approximate maximum of 1.3 MGD.

SOCWA is the general permit holder for water reclamation activities in most of southern Orange County. Waste Discharge Permit Order 97-52, issued through the San Diego Regional Water

Quality Control Board, governs the quality of recycled water produced at the AWT facility.<sup>7</sup> The District and the Orange County Health Care Agency also conducts annual inspections of all users to ensure that regulations are strictly followed.

#### 2.4.2 Recycled Water System Planned Projects

The following present the recycled water CI Projects proposed to be completed in five years (2009 – 2013):

**W-1, PCH Bottleneck Replacement** – The District will replace approximately 6,100 feet of the existing 10-inch diameter pipeline in Pacific Coast Highway with 16-inch diameter pipeline between Aliso Creek and 10<sup>th</sup> Avenue. Upgrading the bottleneck will decrease head loss within the pipe and increase capacity within the system.

**RW-2, New 800-gpm pump at PS #1** - The District will upgrade PS #1 with an additional 800-gallon per minute (gpm) pump to increase capacity to Reservoir #2.

**RW-3, Bypass Valve at PS #2** – The District will install a new motor-operated valve at the control (bypass) valve to facilitate operation of PS #2.

**RW-18, Recycled Water Retrofit Conversion Design and Construction Tier I** – The District will prepare a preliminary design of onsite facilities needed to connect Tier I Potential Recycled Water Customers to the recycled water system. The District will also implement Tier I retrofit conversions.

The following present the recycled water CI Projects proposed to be completed in between 2014 and 2018: Due to the current drought situation, the schedule for these projects may be accelerated.

**RW-7 to RW-14, Recycled Water Pipeline Extensions** – The District will complete Tier II Pipeline Extensions A through E in the Dana Point Harbor, Headlands, and Stonehill.

**RW-19, Recycled Water Retrofit Conversion Design and Construction Tier II** – The District will prepare a preliminary design of the onsite facilities necessary to connect Tier II Potential Recycled Water Customers to the recycled water system. The design will include implementation of Tier I retrofit conversions.

**RW-22, Replace 12-inch PCH pipeline** – The District will replace a 12-inch diameter pipeline from bottleneck to existing 16-inch pipe in Pacific Coast Highway. This replacement is contingent on the completion of the AWT facility expansion.

**RW-23, Stand-by Pump Upgrades at PS #1 and #2** – The District will upgrade recycled Pump Stations 1 and 2 with backup pumps for improved reliability. This project may be necessary if the recycled water system are used for fire protection.

The following present the recycled water CI Projects proposed to be completed after 2019:

**RW-16, Recycled Water Pipeline Extensions** – The District will perform Tier III Pipeline Extension F, if retrofit conversions are considered viable. The project will include the completion of pipeline extensions and retrofit conversions.

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<sup>7</sup> The permit regulates the water quality specifications for constituents such total dissolved solids (TDS), coliform, turbidity and iron.

**RW-20, Recycled Water Retrofit Conversion Design and Construction Tier III –** The District will complete the preliminary design of onsite facilities necessary to connect Tier I Potential Recycled Water Customers. The design will include Tier I retrofit conversions.

**RW-24, Rebuild PS #1 –** The District will rebuild PS 1 to match the capabilities of PS 2 to balance and optimize system hydraulics. Coordinating pump station capabilities also improves efficiency and simplifies operations.

Several of the recycled water projects proposed as part of the IMP are covered by project specific CEQA documents or are otherwise exempt from CEQA review.

### 2.4.3 Project Plans, Workforce, and Equipment

The CI Projects address improvements to the domestic water supply, water distribution, wastewater, and recycled water systems and have been prioritized in three phases (2009-2013, 2014-2018, and 2019 and beyond) as described above. The CI Projects anticipated by the Master Plan primarily involve pipeline projects as well as other projects such as pumps, pressure reducing stations and similar facilities as summarized in Tables 2-1 and 2-2. Construction of the pipelines and other facilities would require various types of equipment which are summarized in Table 2-3.

For the purpose of evaluating potential construction impacts, construction of the proposed projects were assumed to be evenly spread over the course of each of the five-year prioritized phases identified in the Master Plan. Projects anticipated for the 2019 and beyond phase were not considered for this analysis because they are highly speculative and specific construction or design information is not available.

For the water and sewer pipeline projects an annual average of 4177 and 4985 feet of pipeline would be constructed in years 2009-2013 and 2014-2019, respectively. Based on the District's recent experience with similar projects, it is anticipated that a typical construction crew of approximately five persons using the construction equipment in Table 2-3 can excavate and install approximately 20 feet of pipeline per day including all construction related activities from survey to pavement restoration, final testing and start-up. The typical pipeline construction sequence is as follows:

1. Construction staking and survey
2. Asphalt cutting (where required)
3. Trench excavation
4. Trench bedding installation and preparation
5. Pipe installation
6. Joint welding (if required)
7. Joint diaper installation (if required)
8. Initial backfill (imported material)
9. Excavated native soil classification, segregation, and moisture conditioning
10. Final backfill (with appropriate backfill material)
11. Surface restoration (pavement replacement where required)
12. Testing, and start-up

For the other projects listed in Table 2-2, a typical workforce would consist of approximately four individuals using the construction equipment listed in Table 2-3. Based on experience with similar projects the District estimates that for the six projects anticipated in the 2009-2013 phase, a total of approximately 29 months of construction would be required using the typical

workforce and equipment list shown in Table 2-3. On average there would be approximately 5.8 months of construction in each year of Phase II (2009-2013). Only two projects are anticipated in the Master Plan for the years 2014-2018, with an estimated two months of total construction using the workforce and equipment shown in Table 2-3.

**Table 2-3 Typical Construction Equipment and Workforce**

<b>Equipment Type</b>	<b>Pipelines</b>	<b>Other Facilities</b>
Front Loader	1	--
Crawler Tractor/Dozer	1	--
Pickup Trucks	2	2
Paver	1	--
Dump Trucks	1	1
Roller	1	--
Water Truck	1	--
Backhoe/Excavators	2	1
Concrete Mixer	1	1
Concrete Saw	1	1
Generators	2	1
Air Compressors	2	1
Sweeper	1	--
Signal Boards	2	--
Crane	1	1
Workforce (average)	5	4