

5.0 WATER AND SEWER FACILITIES

5.1 WATER FACILITIES

To serve the Colonies at San Antonio, a water system will be constructed, and service will be provided by the City of Upland, within whose service area the project site is located. The Colonies development will be served by pressure Zone 3 of the City of Upland's water system, which derives its supplies from the following sources: City-owned wells, wells owned by others, existing water treatment plants, and connections with other agencies. Detailed information on water facilities is provided in the Colonies at San Antonio Technical Study, which is available under separate cover.

5.1.1 Water Demand

The land use proposed for the Colonies at San Antonio Specific Plan, along with City of Upland water consumption factors for the proposed land uses, was used to calculate the future water demand for the Colonies at San Antonio Specific Plan. The water technical study prepared for the Colonies at San Antonio Specific Plan indicates that daily water consumption at build out will be 910,000 gallons per day.

5.1.2 Water Technical Study

Domestic water will be provided to the Colonies at San Antonio Specific Plan area by the City of Upland. The backbone water system required to serve project site and surrounding properties is illustrated in Figure 5.1. The water system proposed for the Colonies at San Antonio Specific Plan will be connected to an existing Upland 12-inch water line on 19th Street at the western boundary of the Specific Plan, to the existing water interconnection between the City of Upland and the Cucamonga County Water District on 19th street at the eastern boundary of the Specific Plan, and to the existing 8-inch water line on Tanglewood Avenue south of the Specific Plan boundary. Where feasible, looped connections to existing facilities have been provided. Water lines have been sized to meet an anticipated fire flow and projected domestic water demands. Off-site water facilities, such as wells, storage facilities, and related off-site connections and improvements will be constructed at off-site locations as determined by the City Engineer.

5.2 SEWER FACILITIES



5.2.1 Introduction

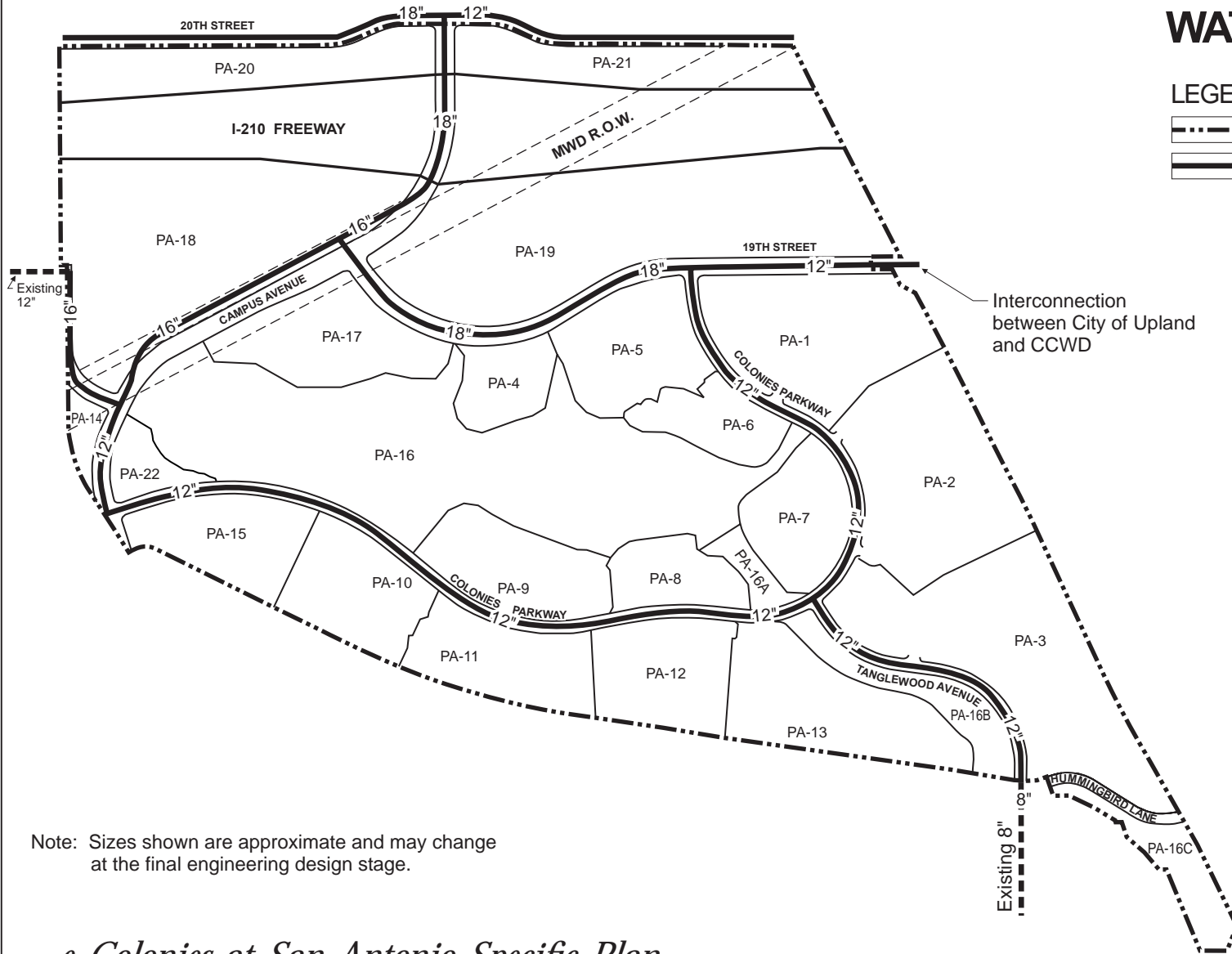
Sewage collection services for the Colonies at San Antonio Specific Plan area are provided by the City of Upland. Sewage is treated by the Inland Empire Utilities Agency (IEUA) at their Regional Treatment Plant No. 1 in Ontario (RP-1). Detailed information on sewer facilities is provided in the Colonies at San Antonio Sewer Technical Study, which is available under separate cover.

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BACKBONE WATER SYSTEM

LEGEND

-  Project Boundary
-  Water Line



Note: Sizes shown are approximate and may change at the final engineering design stage.

e Colonies at San Antonio Specific Plan

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N Not to Scale

Source: Associated Engineers, Inc.

Figure 5.1

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5.2.2 Sewage Generation Criteria

The projected sewage generation has been calculated based on generally accepted rates used by the local sewer agencies for the different types of development. The following rates, as shown in Table 5.A, have been used:

Table 5.A - Sewage Generation Rates

| Land Use | Generation Rate |
|---------------------------------|------------------------|
| Single Family Residential (SFR) | 270 GPD/Lot |
| Luxury Attached Housing (LAH) | 270 GPD/Unit |
| School | 1500 GPD/Acre |
| Commercial Highway (CH) | 1500 GPD/Acre |
| Neighborhood Commercial (NC) | 1500 GPD/Acre |

Based on these generation factors, the Colonies at San Antonio Specific Plan could generate up to 0.4852 million gallons per day (MGD) non-peaked flows with a 1.4635 MGD peaked flow.

5.2.3 Sewer Technical Study

Figure 5.2 shows the conceptual backbone sewer layout for the Colonies at San Antonio Specific Plan. Flows generated by the initial increment of development (Planning Areas 1, 2, and 3) can be adequately handled by the majority of the existing Upland sewer system. Because the existing City sewers between Hummingbird Lane and Fifteenth Street are not adequate to accept the additional flows from Planning Areas 1, 2, and 3, a 12-inch diameter relief sewer, which will bypass the undersized reach, will be constructed with initial infrastructure improvements. It will run from the project boundary southerly in Tanglewood Avenue across Baseline Road, and then across the Upland Hills Golf Course to the 15th Street Basin. The new sewer will then run westerly along the south edge of the flood control basin to Grove Avenue, where it will join an existing Upland sewer line. Modeling shows that all existing lines south of this intersection are currently adequate for Planning Areas 1, 2, and 3 sewage flows, based on the peak flows calculated for the lines currently in use.

With completion of the balance of the Specific Plan, approximately 1,400 linear feet of existing 8-inch sewer in Grove Avenue, between Fifteenth Street and Fourteenth Street, will become deficient, and a 10-inch relief sewer must be constructed. The increased north-south gradient allows the relief sewer to be a 10-inch pipe, working in parallel with the existing 8-inch sewer. In the Memorial Park East Access Road, from Foothill Boulevard south to San Bernardino Road, there is a 1,150 linear foot reach of existing 15-inch diameter sewer that constricts the additional flows added to the system by the Colonies at San Antonio Specific Plan. New 10-inch and 12-inch relief sewers will be required to run parallel to this sewer.

Approximately 2,900 linear feet of new 10-inch, 12-inch, and 15-inch sewer must be constructed in San Bernardino Road, Thirteenth Avenue and Arrow Highway to handle the increase in peak flows to the existing Upland sewer system. In Grove Avenue, the existing 18-inch sewer will need a parallel

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8-inch relief sewer between the alley south of Ninth Street and the manhole at the AT&SF Railroad. The completion of these sewer improvements will allow The Colonies at San Antonio project to construct up to the 1,150 residential units approved under the Specific Plan. Once these relief sewers are constructed down to the intersection of Arrow Highway and Grove Avenue, the system can handle all of the flows generated by the Colonies at San Antonio. The additional relief sewers discussed are the minimum improvements required for development of Planning Areas 4 through 21. The City of Upland wishes to construct the relief sewers as replacement sewers in order to avoid having two sewer mains in a street. The City intends to participate financially for any additional expense caused by combining existing and new relief sewers into one line and making all new lateral connections. All sizes shown in the Sewer System Map of the Sewer Technical Study are preliminary. Actual sizes to be constructed as replacement sewers will be determined prior to design. The City has also requested that since the depth to diameter ratio exceeds 1:1 for the existing 18-inch sewer in Grove Avenue between Arrow Highway and Ninth Street, it could be replaced.

The City-owned sewer joins the Upland/Ontario Interceptor owned by the IEUA at Grove Avenue and Eighth Street. The IEUA is currently working on future relief sewers for the Upland/Ontario Interceptor in anticipation of future growth in the Upland and Ontario area. They have anticipated accepting flows from the Colonies project and have stated that if the City's sewer flows do not exceed projected flows, then the capacity is allocated. Since the current flow projections have decreased from prior estimates, the reserved capacity is adequate at Regional Plant 1 for the phased construction of the Colonies development, especially once the proposed new IEUA relief sewers are constructed.

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