

## SECTION 10

### ULTIMATE SYSTEM

#### 10-1 Introduction

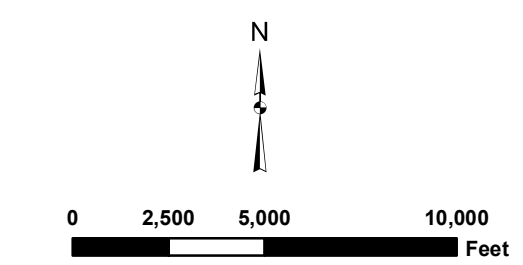
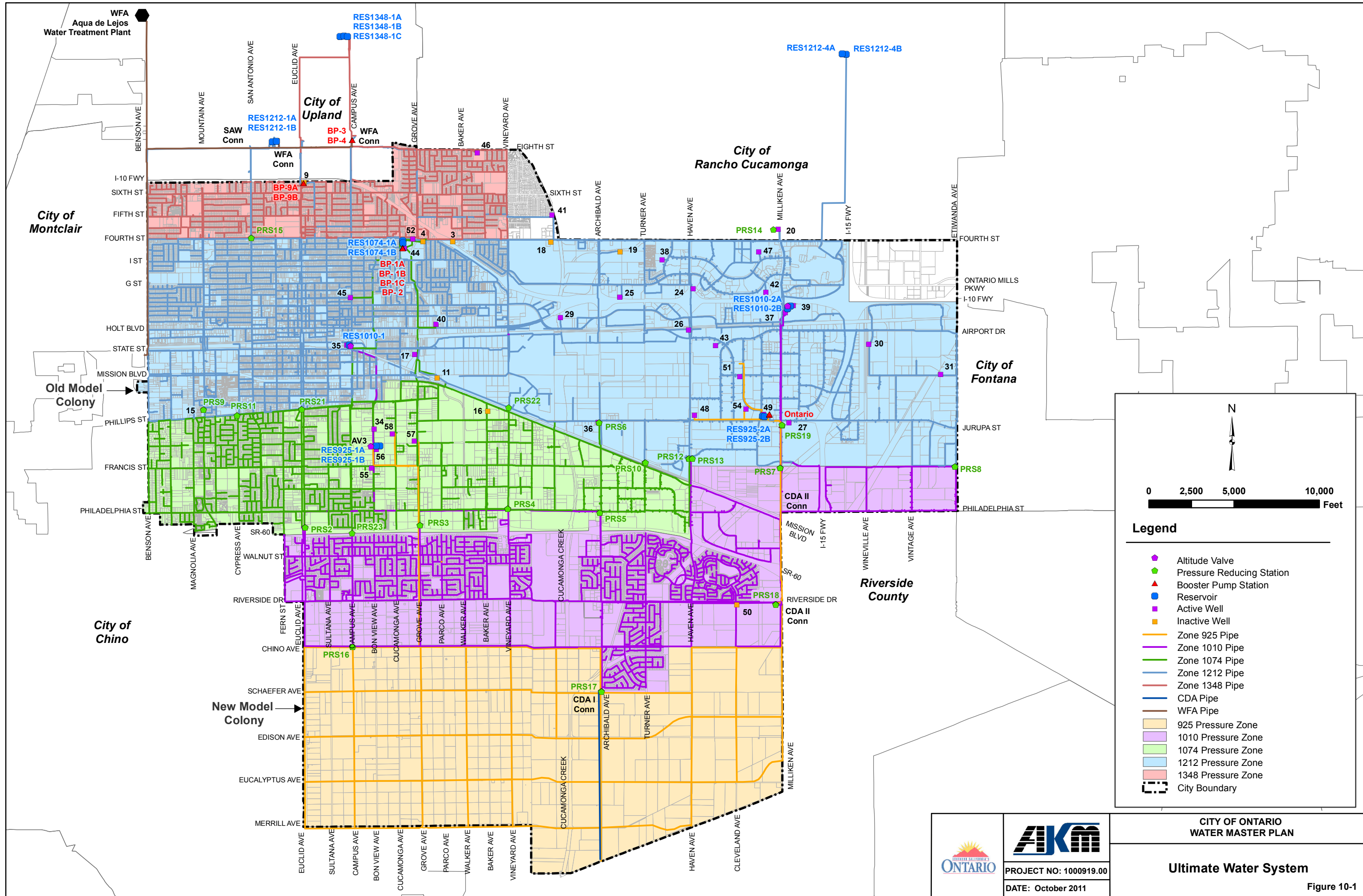
The ultimate domestic water system will consist of five pressure zones as shown on Figure 10-1. As New Model Colony is developed, the 1010 Zone will be expanded further south to Chino Avenue and a fifth pressure zone, the 925 Zone, will be added, covering the rest of New Model Colony. A hydraulic schematic of the ultimate system is shown on Figure 10-2.

#### 10-2 925 Zone Facilities

The future 925 Zone will provide water service to the majority of New Model Colony. This zone is generally bounded by Chino Avenue to the north, Euclid Avenue to the west, the City boundary to the south, and Milliken Avenue to the east. Some of the facilities that will ultimately serve the 925 Zone have already been constructed. Table 10-1 summarizes the existing 925 Zone facilities and the recommended facilities that are yet to be constructed. The facility locations are shown on Figure 10-3.

Table 10-1				
Existing and Ultimate 925 Zone Facilities				
Facility Type	Existing Facility Description		Ultimate Facility Description	
Reservoirs	Reservoir 925-2A	6 MG	Reservoir 925-2B	6 MG
			Reservoir 925-1A	9 MG
			Reservoir 925-1B	9 MG
Wells	Well 49 - 2,760 gpm	Pumps to Reservoir 925-2A	Well 48 - 2,500 gpm	Pumps to Reservoir 925-2A & 925-2B
			Well 51 - 2,500 gpm	
			Well 54 - 2,500 gpm	
			Well 55 - 2,500 gpm	Pumps to Reservoir 925-1A & 925-1B
			Well 56 - 2,500 gpm	
			Well 57 - 2,500 gpm	
Pressure Reducing Stations	PRS17 - Capable of providing water from 1010 Zone to future 925 Zone at Archibald Ave and Schaeffer Ave		PRS16 - Capable of providing water from 1010 Zone to future 925 Zone at Chino Ave and Campus Ave	
	PRS18 - Capable of providing water from 1010 Zone to future 925 Zone at Riverside Dr and Milliken Ave			
Altitude Valves	-		AV3 - Capable of providing water from 1074 Zone to future Reservoir 925-1A and 925-1B	
Pipes	13,000 feet of pipe from Reservoir 925-2A to PRS 18		253,250 feet of pipe throughout New Model Colony (includes pipes from new wells to reservoirs and from new reservoirs to pressure zone). Proposed pipe sizes range from 12" to 42".	

*\*Pipe sizes recommended in 2006 WMP were maintained for this study except for pipe sizes committed to in the NMC Developer Agreement (see Figure in Appendix 3).*



- Legend**
- ◆ Altitude Valve
  - ◆ Pressure Reducing Station
  - ▲ Booster Pump Station
  - Reservoir
  - Active Well
  - Inactive Well
  - Zone 925 Pipe
  - Zone 1010 Pipe
  - Zone 1074 Pipe
  - Zone 1212 Pipe
  - Zone 1348 Pipe
  - CDA Pipe
  - WFA Pipe
  - 925 Pressure Zone
  - 1010 Pressure Zone
  - 1074 Pressure Zone
  - 1212 Pressure Zone
  - 1348 Pressure Zone
  - City Boundary

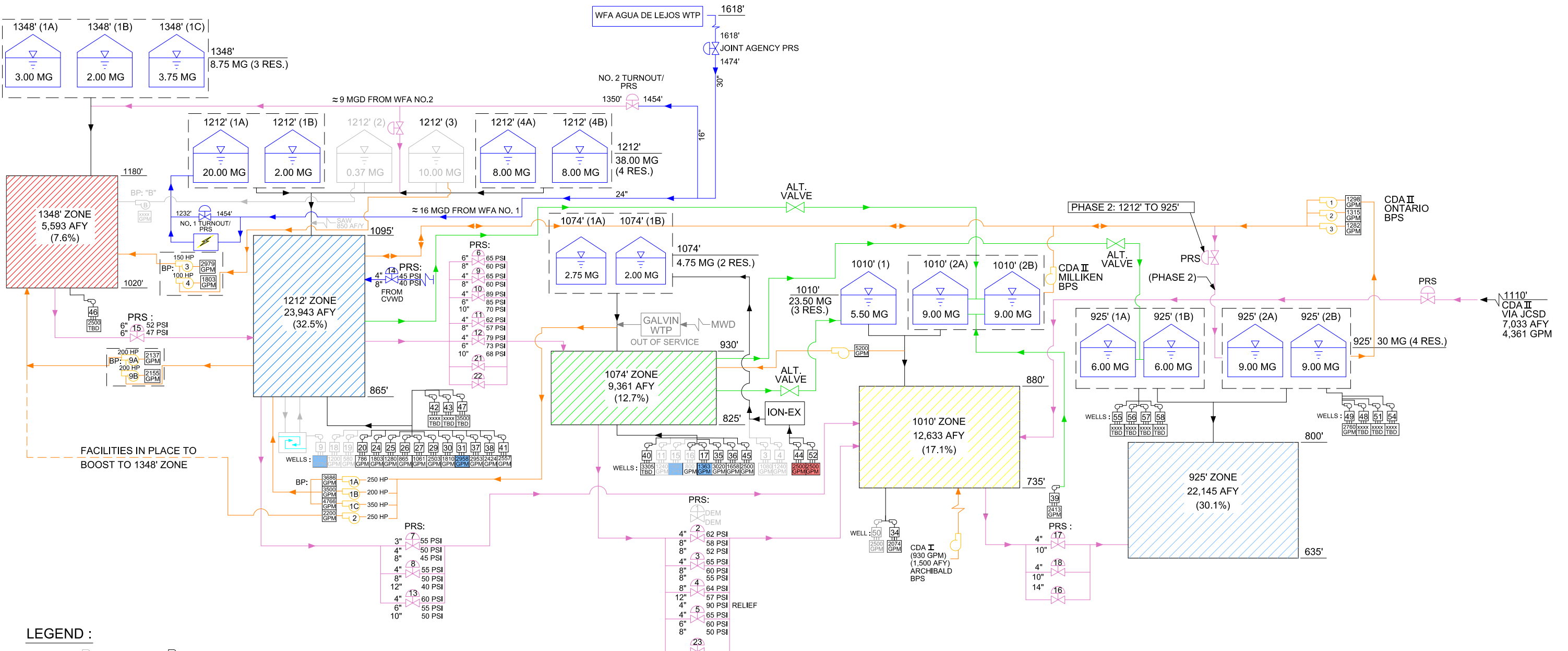
**AKM**  
 PROJECT NO: 1000919.00  
 DATE: October 2011

**CITY OF ONTARIO  
 WATER MASTER PLAN**

**Ultimate Water System**

Figure 10-1

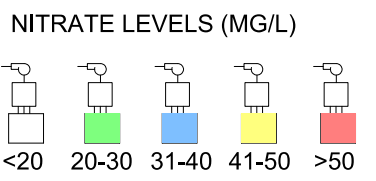
1500'  
1400'  
1300'  
1200'  
1100'  
1000'  
900'  
800'  
700'  
600'  
500'  
400'  
300'  
200'  
100'



**LEGEND :**

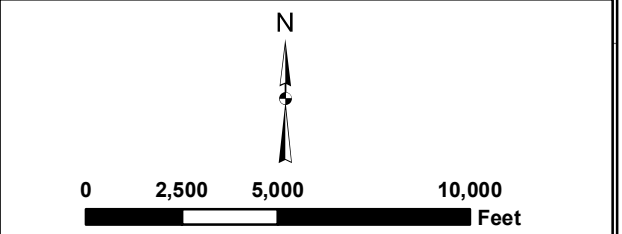
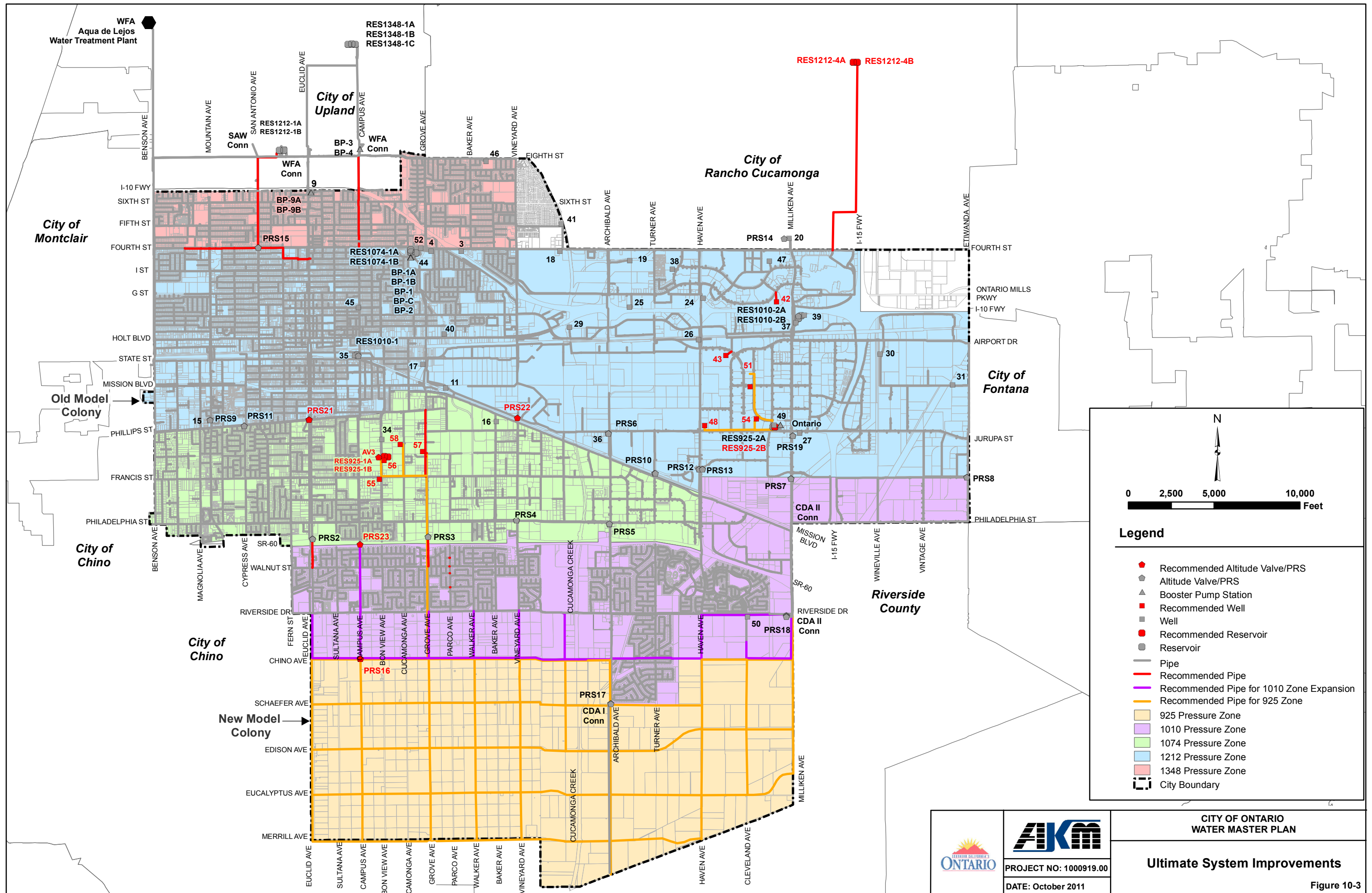
- WELLS : INACTIVE ACTIVE
- RES. = RESERVOIR INACTIVE ACTIVE
- SAME SITE =
- BP = BOOSTER PUMP INACTIVE ACTIVE
- CDA = CHINO BASIN DESALTING AUTHORITY
- PRS. = PRESSURE REDUCING STATION INACTIVE ACTIVE
- SAW = SAN ANTONIO WATER CO. ABANDONED
- WFA = WATER FACILITIES AUTHORITY
- AFY = ULTIMATE ANNUAL CONSUMPTION
- (%) = PERCENT OF TOTAL CONSUMPTION
- HYDROELECTRIC FACILITY =
- ALTITUDE VALVE =
- BLENDED STATION =
- TURNOUT / PRS
- ION EXCHANGE PLANT

- BOOSTER LINE
- PRV LINE
- RES. DEDICATED FILL LINE
- WFA FACILITY



		<p>CITY OF ONTARIO WATER MASTER PLAN</p> <p><b>Ultimate Water System Hydraulic Schematic</b></p>
<p>PROJECT NO. 1000919.00 DATE: March 2011</p>		<p>Figure 10-2</p>





- Legend**
- ◆ Recommended Altitude Valve/PRS
  - ▲ Altitude Valve/PRS
  - Booster Pump Station
  - Recommended Well
  - Well
  - Recommended Reservoir
  - Reservoir
  - Pipe
  - Recommended Pipe
  - Recommended Pipe for 1010 Zone Expansion
  - Recommended Pipe for 925 Zone
  - 925 Pressure Zone
  - 1010 Pressure Zone
  - 1074 Pressure Zone
  - 1212 Pressure Zone
  - 1348 Pressure Zone
  - City Boundary



**AKM**

PROJECT NO: 1000919.00

DATE: October 2011

**CITY OF ONTARIO**  
**WATER MASTER PLAN**

**Ultimate System Improvements**

Figure 10-3

### 10-3 Expanded 1010 Zone Facilities

The southerly boundary of the existing 1010 Zone will ultimately be expanded south to Chino Avenue from Euclid Avenue to Milliken Avenue. Currently, mainline pipes are planned in major streets as shown on Figure 10-2. The future pipes will tie into existing 1010 Zone pipes in Riverside Drive. The expanded 1010 Zone will require approximately 58,650 feet of mainline pipes. Recommended sizes range from 12-inches to 18-inches. Pipe sizes recommended in the 2006 WMP and existing agreements with developers were maintained for this study.

A new booster pump station from 1010 Zone to 1074 Zone is recommended to provide water to 1074 Zone in emergencies or when storage reserves are low. The location of this future pump station should be determined during a preliminary design study.

### 10-4 1212 Zone Facilities

It is recommended that the future 1212 Zone include two additional 8 MG reservoirs (1212-4A and 1212-4B) to meet the storage criteria. The City has obtained a site located north of Foothill Boulevard and west of Rochester Avenue in the City of Rancho Cucamonga. Piping has already been installed through the adjacent shopping center located on the property east of the reservoir site. The total length of 30-inch pipe required to connect the future Reservoirs 1212-4A and 1212-4B to the existing system is approximately 13,600 feet (will depend on final alignment). The new pipe is proposed to tie into an existing 24-inch waterline in Fourth Street. See Figure 10-2 for approximate locations of the recommended 1212 Zone facilities. Reservoir 1212-3 will be abandoned following the construction of Reservoir 1212-4A and 1212-4B.

Under ultimate conditions, the City may take up to 25 mgd from WFA connections in the 1212 Zone. Some of this water needs to be conveyed south through pressure reducing stations to serve other zones. Pressure reducing stations between the 1212 Zone and 1074 Zone are currently located on the east and west end of the 1074 Zone. Two additional pressure reducing stations are recommended at Euclid Avenue and Vineyard Avenue to assist in increasing pressures in the north central portion of the 1074 Zone. Another pressure reducing station is recommended between the 1074 Zone and 1010 Zone at Grove Avenue and SR-60, to increase the pressures in the northern portion of the 1010 Zone.

### 10-5 Facilities Recommended to Maintain Minimum Peak Hour Pressures

System analysis conducted with existing facilities and ultimate demands resulted in the identification of areas with pressures less than 40 psi under maximum day, peak hour conditions. These areas of low peak hour pressures are shown on Figure 9-1. The recommended improvements to the existing system to maintain minimum peak hour pressures are shown on Figure 9-2 and 9-3 and are listed in Table 9-5.

## 10-6 Facilities Recommended to Meet Maximum Day plus Fire Flow Demands

System analysis conducted with ultimate facilities and demands under maximum day plus fire flow conditions resulted in the need for additional or upsized pipes. The recommendations resulting from this analysis are shown on Figure 9-4 and in Table 9-6.

## 10-7 Milliken Booster Pump Station

The City's Chino II Desalter product water entitlements from CDA will increase by 3,533 AFY following the completion of the Chino II expansion project. The total supply from CDA II will be 7,033 AFY. New facilities are being designed so that the CDA II product water can be delivered to the City's 1010 Zone in the vicinity of the intersection of Milliken Avenue and Riverside Drive. Ultimately, the water will be pressure reduced through PRS 18 to supply water to the City's 925 Zone (New Model Colony).

Until New Model Colony is further developed, it is proposed to construct a pump station that will pump the CDA II water from the 1010 Zone to the 1212 Zone. The Milliken Booster Pump Station is proposed to be constructed adjacent to and take suction from Reservoir 1010-2A and 1010-2B, located on the southeast corner of Milliken Avenue and the I-10 Freeway. Per the *Chino Desalter Phase 3 Comprehensive Predesign Report (June 2010)*, the Milliken Pump Stations will have a firm capacity of about 5,560 gpm.