

## SECTION 3

### STUDY AREA

#### 3-1 Purpose

This section describes the City of Ontario water service area, discusses the land uses within the study area, and population estimates.

#### 3-2 Location

The study area, shown on Figure 3-1, coincides with the City of Ontario boundary with the exception of two small areas in the north central and northeastern portion of the City that are served by Cucamonga Valley Water District (CVWD). It is located approximately 35 miles east of downtown Los Angeles and encompasses approximately 50 square miles (32,060 acres) of residential, commercial, industrial, public and agricultural lands and the Ontario International Airport. It is bordered by the Cities of Chino and Montclair on the west; the Cities of Upland and Rancho Cucamonga on the north; the City of Fontana and Riverside County on the east; and Riverside County, and the City of Chino on the south. The major highways crossing through portions of the study area include the San Bernardino Freeway (I-10) on the north, the Pomona Freeway (SR-60) on the south, and the Ontario Freeway (I-15) on the east.

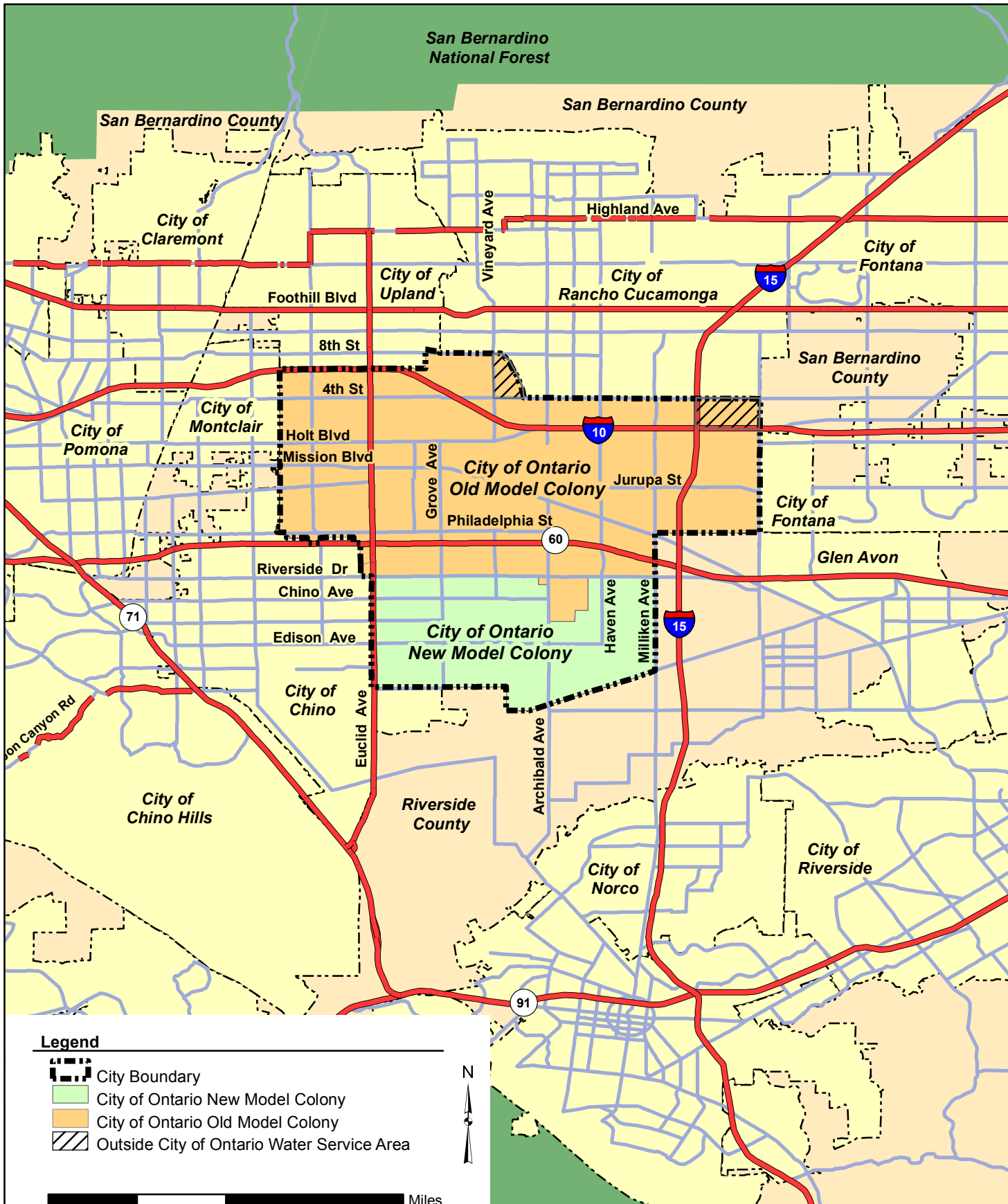
The City is divided into two distinct areas, Old Model Colony (OMC) and New Model Colony (NMC). The two areas are generally divided by Riverside Drive. OMC consists of existing residential, commercial, and industrial developments, and the Ontario International Airport. It comprises approximately 37.2 square miles (23,776 acres). NMC is an agricultural area that was annexed in 1999. It currently consists of approximately 12.8 square miles (8,182 acres) of agricultural land. The City's General Plan 2010 details future development of the agricultural lands in NMC into a mix of residential, commercial, industrial, and public uses. The ultimate residential population of NMC is expected to reach 162,518. Development of NMC has begun with the construction of Colony High School and Edenglen, a Brookfield Homes project, located southwest and southeast of the intersection of Riverside Drive and Mill Creek Avenue, respectively.

#### 3-3 Topographical Description and Geology

##### General Area

The City's water service area is located in the San Bernardino Plain, which is an expanse of sand, gravel and boulders. Dominating the valley are Mt. San Antonio, Cucamonga Peak, and Ontario Peak. Cucamonga Peak is visibly flat on top which represents sections of the original valley floor. Loose dirt and gravel flows swiftly from the slopes of these young mountains with the sometimes torrential rains.

The valley and plain has taken more than 10 million years to form. Geologists place the beginning of the area's geologic history between 12 and 28 million years ago, the same time the San Andreas Fault is believed to have been formed. The San Gabriel Mountains are part of the east-west



	
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<h3>Regional Location Map</h3>
Figure 3-1

trending transverse ranges, which run across the north-south grain of California. The San Gabriel Mountains are intersected 25 miles east of Ontario at the Cajon Pass by the San Andreas Fault.

These mountains were partially formed by geologic activity along this fault. Visible to the south of Ontario is a portion of the peninsular range consisting of the Santa Ana Mountains, the base of which is carved by the Santa Ana River. Several blocks of the peninsular range are separated by faults generally attributed to the San Andreas Fault system. Small rolling hills make up the north and west portions of the valley (Chino Hills, Diamond Bar, and the Covina Hills).

The transverse and peninsular ranges meet in the San Gorgonio Pass area, 50 miles east of Ontario. Mount San Gorgonio is the tallest peak in Southern California and is frequently visible from Ontario.

### Elevations

The topography of the region generally slopes in a southwesterly direction. The highest point in the service area is west of Grove Avenue and north of 8<sup>th</sup> Street at 1180 feet above mean sea level (amsl), and the lowest point is at the intersection of Euclid Avenue and Merrill Avenue (633 feet amsl).

### Soils

Native soils, shown on Figure 3-2, consist of the following

#### Class I Soils

- Chino Silt Loam
- Grangeville Fine Sandy Loam
- Hanford Sandy Loam

#### Class II Soils

- Delhi Fine Sand
- Hanford Coarse Sandy Loam
- Hilmar Loamy Fine Sand

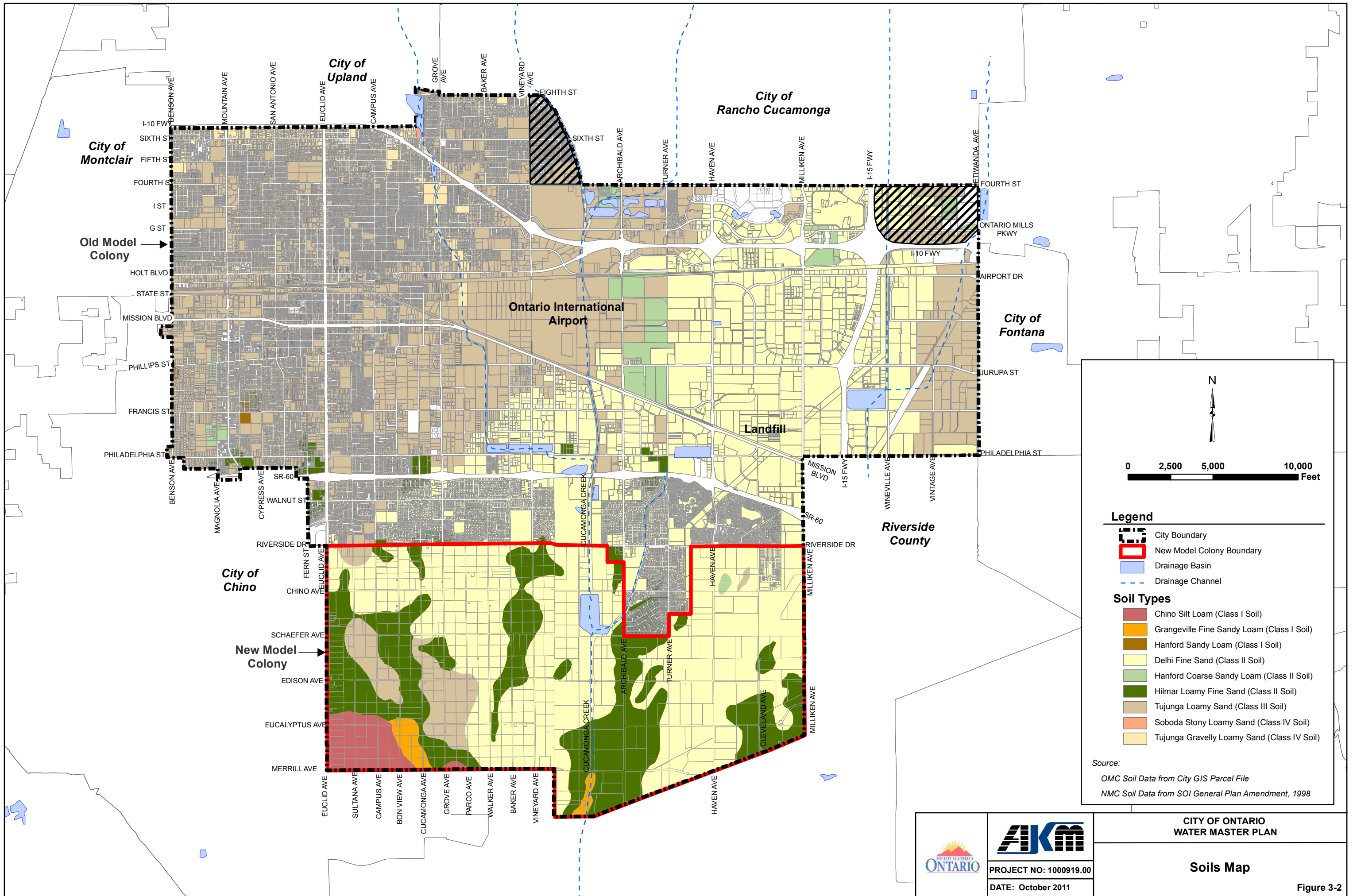
#### Class III Soils

- Tujunga Loamy Sand

#### Class IV Soils

- Soboda Stony Loamy Sand
- Tujunga Gravelly Loamy Sand

Due to the presence of predominantly dairy industries over a long period of time, prime agricultural soils, high in salts and nitrates, cover approximately 2,999 acres or 36 percent of the total area in the NMC (SOI General Plan Amendment, 1998). Organic materials (manure and feed) are reportedly present in thickness of up to six feet.



- Legend**
- City Boundary
  - New Model Colony Boundary
  - Drainage Basin
  - Drainage Channel
- Soil Types**
- Chino Silt Loam (Class I Soil)
  - Grangeville Fine Sandy Loam (Class I Soil)
  - Hanford Sandy Loam (Class I Soil)
  - Delhi Fine Sand (Class II Soil)
  - Hanford Coarse Sandy Loam (Class II Soil)
  - Hilmar Loamy Fine Sand (Class II Soil)
  - Tujunga Loamy Sand (Class III Soil)
  - Soboda Stony Loamy Sand (Class IV Soil)
  - Tujunga Gravelly Loamy Sand (Class IV Soil)

Source:  
 OMC Soil Data from City GIS Parcel File  
 NMC Soil Data from SOI General Plan Amendment, 1998



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**Soils Map**

Figure 3-2

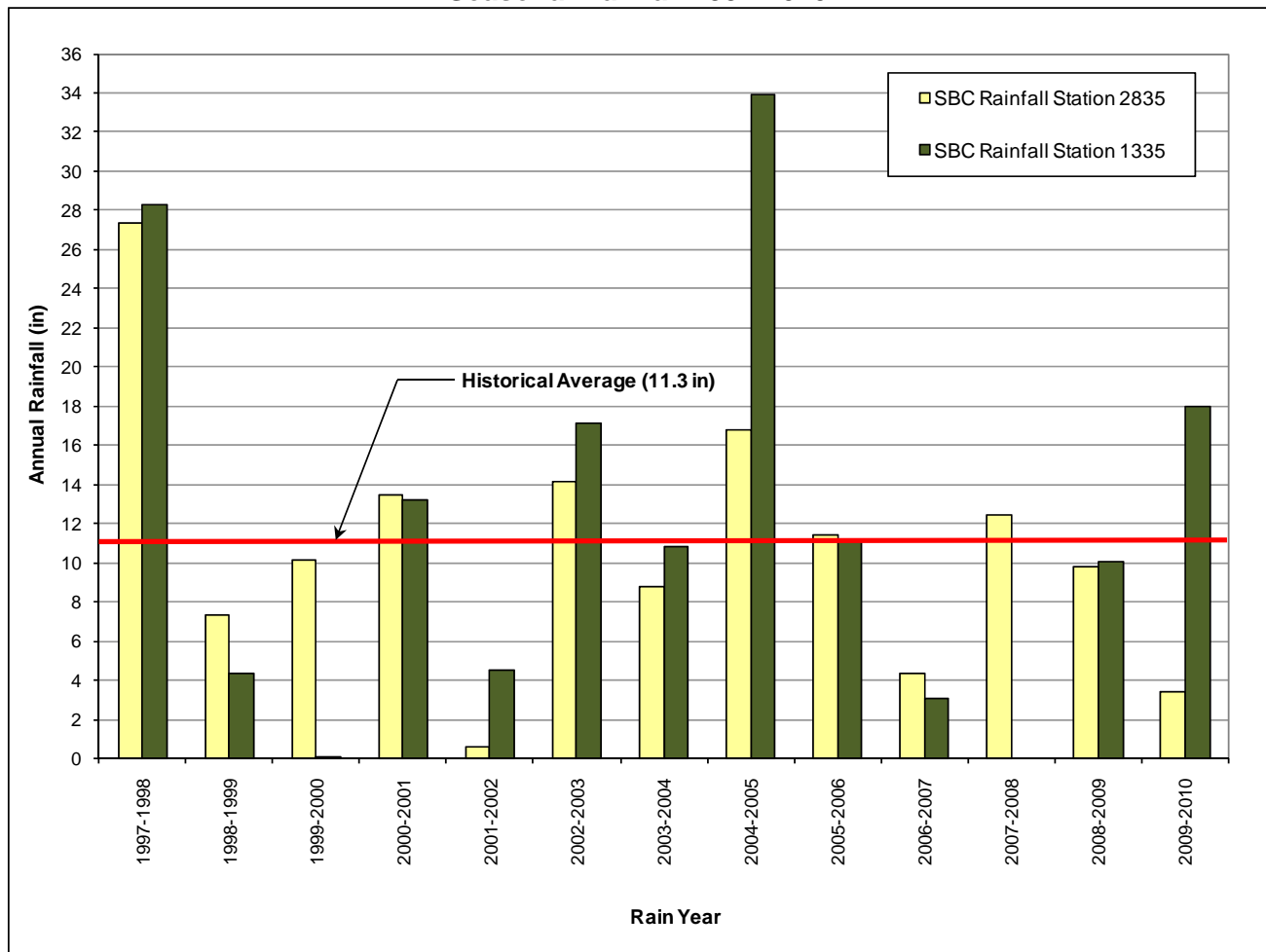
The NMC is located within the Chino Groundwater Basin, which has been found to maintain a relatively shallow water table. The SOI General Plan Amendment reported findings of groundwater elevations ranging from 530 to 590 feet in 1991. Water depths observed in 1991 were about 100 feet (SOI General Plan Amendment).

### 3-4 Climate

The climate in the study area is Mediterranean-like with generally moderate temperatures and low humidity year-round. The average median temperature is approximately 83° F. The average annual days of sunshine is 312.

The historical average annual rainfall is about 11.3 inches. Most of the rainfall typically occurs between October and April. Figure 3-3 shows the seasonal rainfall from 1994 to 2010 as measured by the San Bernardino County Rain Gauge Stations 2835 and 1335. Station 2835 is located at a local fire station on Mountain Avenue, south of Fourth Street. Station 1335 is located on the southeast corner of Francis Street and Parco Avenue.

**Figure 3-3**  
**Seasonal Rainfall 1997-2010**





### 3-5 Land Use

The land use information utilized in the preparation of the Water Master Plan is primarily based upon the City's GIS parcel land use data and newly approved General Plan data. This information was supplemented by aerial photographs, field reviews, and information provided by City staff.

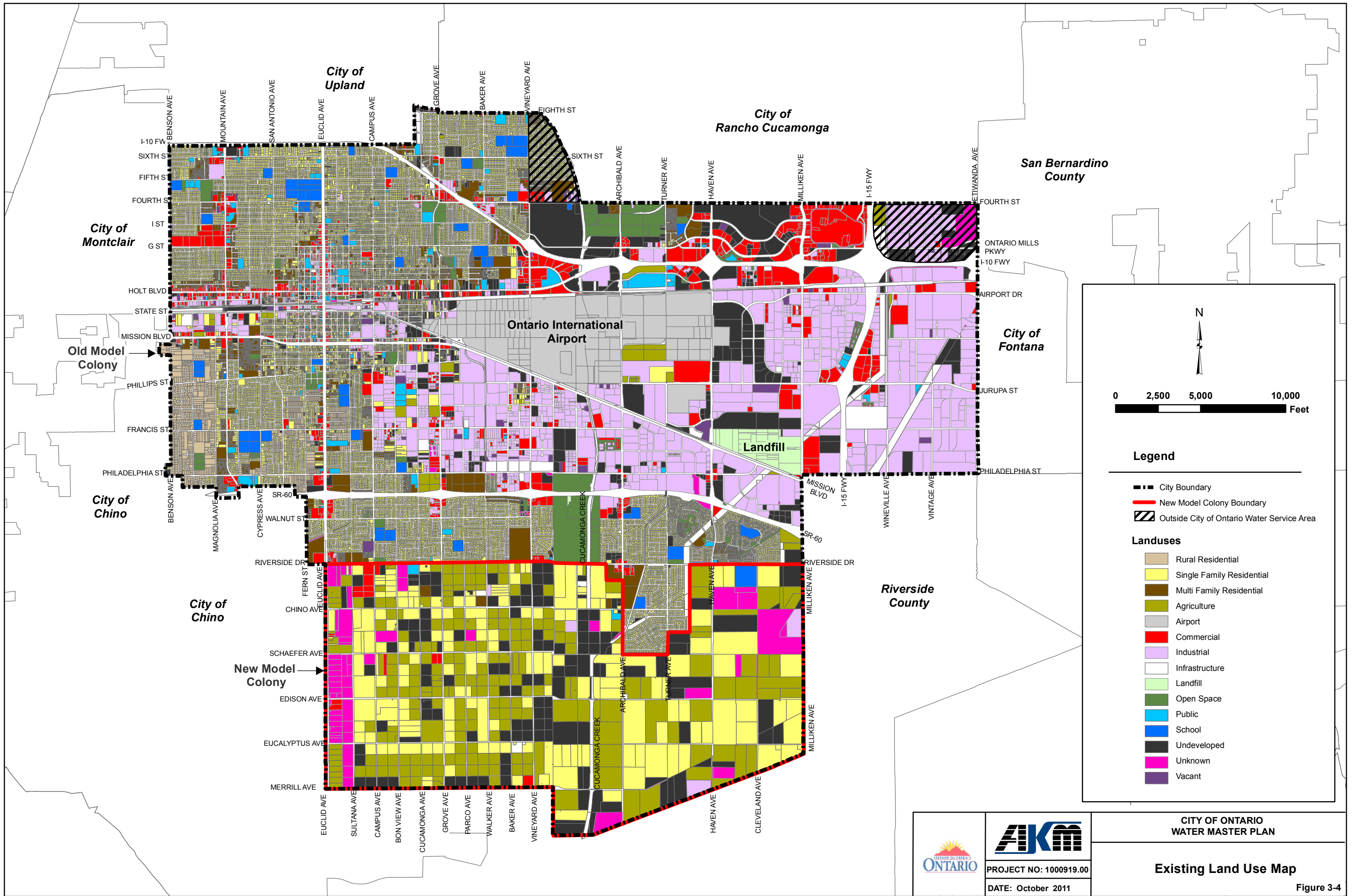
#### Existing Land Use

The City is a well planned urban community with a balance of residential, commercial, and industrial land uses. Within the service area, the primary land use is residential (8,762 Ac or 28.0 %). Industrial use also makes up a significant portion of the total existing land use (4,671 Ac or 14.9%). Approximately 3,290 acres or 10.5 percent of the total is currently undeveloped. Table 3-1 provides a summary of the existing land uses. Figure 3-4 shows the locations of these land uses.

**Table 3-1  
Existing Study Area Land Uses**

Landuse Description		Service Area				Outside Service Area		Total City			
		OMC (Ac)	NMC (Ac)	Total (Ac)	% of Total	OMC (Ac)	% of Total	OMC (Ac)	NMC (Ac)	Total (Ac)	% of Total
RR	Rural Residential	566		566	1.8			566		566	1.8
SFR	Single Family Residential	4,489	2,585	7,074	22.6	115	115.0	4,604	2,585	7,189	22.5
MFR	Multiple Family Residential	1,099	23	1,122	3.6	44	44.0	1,143	23	1,166	3.6
<b>Total Residential</b>		<b>6,154</b>	<b>2,608</b>	<b>8,762</b>	<b>28.0</b>	<b>159</b>		<b>6,313</b>	<b>2,608</b>	<b>8,921</b>	<b>27.9</b>
COM	Commercial	1,745	76	1,821	5.8	14	14.0	1,759	76	1,835	5.7
IND	Industrial	4,606	65	4,671	14.9	227	227.0	4,833	65	4,898	15.3
OPEN	Open Space	725	9	734	2.3			725	9	734	2.3
PUBLIC	Public	326	15	341	1.1			326	15	341	1.1
SCHL	Schools	419	38	457	1.5			419	38	457	1.4
ARPT	Airport	1,500		1,500	4.8			1,500		1,500	4.7
LF	Landfill	209		209	0.7			209		209	0.7
AGR	Agriculture	206	2,733	2,939	9.4	20	20.0	226	2,733	2,959	9.3
INF	Infrastructure	869	85	954	3.0	35	35.0	904	85	989	3.1
ROW	Right-of-Ways	4,362	372	4,734	15.1			4,362	372	4,734	14.8
UND	Undeveloped	1,767	1,523	3,290	10.5	79	79.0	1,846	1,523	3,369	10.5
UNK	Unknown	77	658	735	2.3	70	70.0	147	658	805	2.5
VAC	Vacant Buildings	198		198	0.6	9	9.0	207		207	0.6
<b>Total</b>		<b>23,163</b>	<b>8,182</b>	<b>31,345</b>	<b>100.0</b>	<b>613</b>	<b>613</b>	<b>23,776</b>	<b>8,182</b>	<b>31,958</b>	<b>100.0</b>

The total number of housing units in the City is estimated at 47,795. With a population of 174,536 and a 3.67 percent vacancy rate, the average number of persons per household is estimated at 3.766 (Ref: *California Department of Finance, Demographic Research Unit, Table E-5, 2010*).



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**Existing Land Use Map**

Figure 3-4

### **Ultimate Conditions**

The ultimate land uses are based upon the City's latest general plan document entitled *The Ontario Plan (2010)*. Table 3-2 provides a summary of the ultimate land uses and Figure 3-5 shows the locations of these land uses. The residential area will increase to 10,915 acres (34.2 percent of total). The employment area, including business parks and industrial uses, is expected to entail about 8,103 acres (25.4 percent of total).

### **Residential Land Uses**

The Ontario Plan defines five residential land use categories: Rural, Low Density, Low-Medium Density, Medium Density, and High Density. The plan provides densities for each of the residential land use categories, which are summarized in Table 3-3.

### **Retail / Service**

Four retail / service uses are defined: Neighborhood Commercial, General Commercial, Office Commercial, and Hospitality. The intensities for each commercial use are shown in Table 3-3.

### **Employment**

Two employment uses are defined: Business Park and Industrial. The intensities for each employment use are shown in Table 3-3.

### **Open Space**

Open Space land use designations include Non-Recreational Open Space, Recreational Open Space and Water Open Space (i.e. lakes, ponds, etc).

### **Public**

Public land use designations include Public Facility and Public School.

### **Other**

Other land use designations include the Ontario International Airport, Landfill, Railroad and Roadways.



**Table 3-2  
Ultimate Study Area Land Uses**

Land Use Category	Acres <sup>2</sup>	% of Total Area	Density (du/ac) <sup>3</sup>	Intensity (FAR) <sup>3</sup>	Units	Population <sup>4</sup>	Square Feet (Non-Office)	Square Feet (Office)	Total Square Feet	Jobs <sup>5</sup> (Non-Office)	Jobs <sup>5</sup> (Office)	Total Jobs <sup>5</sup>
<b>Residential</b>												
Rural Residential	453	1.4	2.0		906	3,621						
Low Density Residential (OMC)	4,308	13.5	4.0		17,232	68,876						
Low Density Residential (NMC)	3,158	9.9	4.5		14,211	56,801						
Low Medium Density Residential (OMC)	295	0.9	8.5		2,508	10,026						
Low Medium Density Residential (NMC)	505	1.6	8.5		4,295	17,167						
Medium Density Residential (OMC)	896	2.8	18.0		16,124	61,551						
Medium Density Residential (NMC)	1,059	3.3	22.0		23,294	77,964						
High Density Residential	241	0.8	35.0		8,421	28,185						
<b>Subtotal</b>	<b>10,915</b>	<b>34.2</b>			<b>86,991</b>	<b>324,192</b>						
<b>Mixed Use</b>												
Downtown	109	0.3	35.0		2,279	4,557	756,202	756,202	1,512,403	543	2,163	2,706
Euclid & Francis	10	0.0	30.0		156	312	181,210	0	181,210	419	0	419
Holt	55	0.2	30.0		412	824	478,289	1,195,722	1,674,011	343	3,420	3,763
Meredith	246	0.8	40.0		2,957	5,914	2,146,637	5,366,592	7,513,229	1,541	15,348	16,890
Hospitality	76	0.2	60.0		457	914	1,493,672	1,493,672	2,987,345	1,072	4,272	5,344
Ontario Festival (MxU in 14)	37	0.1	20.0		368	736	112,211	240,451	352,662	81	688	768
Guasti	83	0.3	30.0		500	1,001	1,089,871	1,271,516	2,361,388	783	3,637	4,419
Ontario Center (E. of Haven)	345	1.1	40.0		4,139	8,278	1,502,384	7,511,922	9,014,306	1,079	21,484	22,563
Mills	240	0.7	40.0		479	958	3,912,233	1,564,893	5,477,126	2,809	4,476	7,285
NMC south	316	1.0	35.0		3,315	6,630	962,632	5,775,795	6,738,427	691	16,519	17,210
NMC east	264	0.8	25.0		1,978	3,956	1,378,413	1,206,111	2,584,524	990	3,449	4,439
SR60 & Hamner	41	0.1	0.0		0	0	349,112	313,305	662,417	251	896	1,147
<b>Subtotal</b>	<b>1,822</b>	<b>5.7</b>			<b>17,039</b>	<b>34,078</b>	<b>14,362,865</b>	<b>26,696,182</b>	<b>41,059,046</b>	<b>10,601</b>	<b>76,351</b>	<b>86,952</b>
<b>Retail/Service</b>												
Neighborhood Commercial	277	0.9		0.30			2,896,914	724,229	3,621,143	6,692	2,071	8,763
General Commercial	552	1.7		0.30			6,488,654	720,962	7,209,616	4,659	2,062	6,721
Office Comercial	526	1.6		0.75			5,151,406	12,019,946	17,171,352	3,699	34,377	38,076
Hospitality	145	0.5		1.00			5,049,475	1,262,369	6,311,844	3,626	3,610	7,236
<b>Subtotal</b>	<b>1,499</b>	<b>4.7</b>					<b>19,586,449</b>	<b>14,727,505</b>	<b>34,313,954</b>	<b>18,675</b>	<b>42,121</b>	<b>60,796</b>
<b>Employment</b>												
Business Park	1,357	4.2		0.40			11,821,313	11,821,313	23,642,626	7,684	33,809	41,493
Industrial	6,747	21.1		0.55			145,469,382	16,163,265	161,632,647	94,555	46,227	140,782
<b>Subtotal</b>	<b>8,103</b>	<b>25.4</b>					<b>157,290,695</b>	<b>27,984,578</b>	<b>185,275,273</b>	<b>102,239</b>	<b>80,036</b>	<b>182,275</b>
<b>Other</b>												
Open Space - Non-Recreational	1,243	3.9										
Open Space - Recreational	991	3.1										
Open Space - Water	59	0.2										
Public Facility	99	0.3										
Public School	627	2.0										
Airport	1,422	4.5										
Railroad	247	0.8										
Landfill	137	0.4										
Right-of-Way	4,794	15.0										
<b>Subtotal</b>	<b>9,619</b>	<b>30.1</b>										
<b>Total</b>	<b>31,958</b>	<b>100.0</b>			<b>104,030</b>	<b>358,270</b>	<b>191,240,009</b>	<b>69,408,264</b>	<b>260,648,273</b>	<b>131,515</b>	<b>198,508</b>	<b>330,023</b>

## Notes

<sup>1</sup> Historically, citywide buildout levels do not achieve the maximum allowable density/intensity on every parcel and are, on average, lower than allowed by the General Plan. Accordingly, the buildout estimates in this General Plan do not assume buildout at the maximum density or intensity and instead are adjusted downward to account for variations in buildout intensity. Buildout assumptions are as agreed upon on 2-4-08.

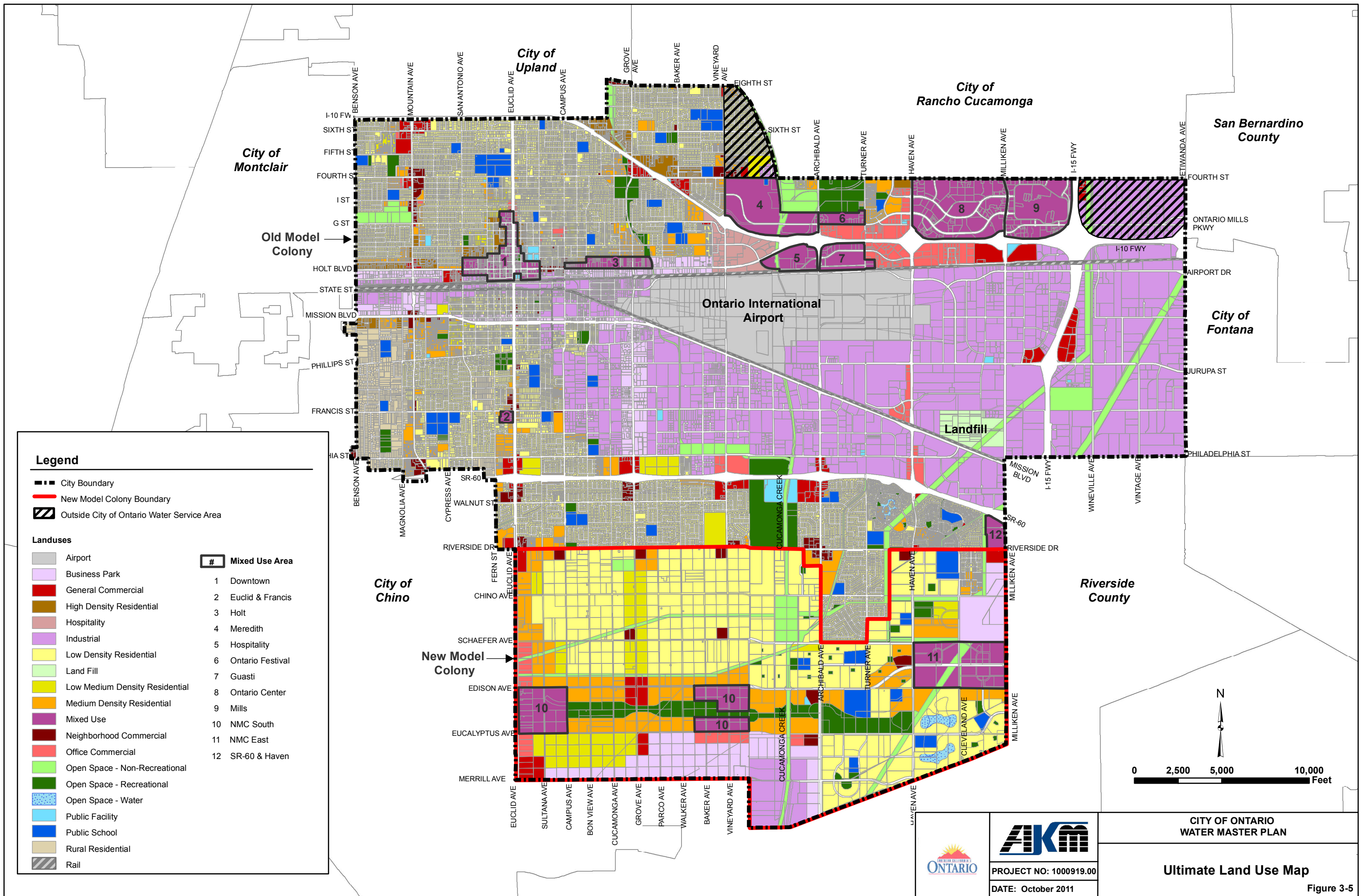
<sup>2</sup> Acres are given as adjusted gross acreages, which do not include the right-of-way for roadways, flood control facilities, or railroads.

<sup>3</sup> Density/ Intensity includes both residential density, expressed as units per acre, and non-residential intensity, expressed as floor area ratio (FAR), which is the amount of building square feet in relation to the size of the lot.

<sup>4</sup> Estimates of population by residential designation are based on a persons-per-household factor that varies by housing type. 3.347 pph for MF, 3.278 pph for sfa, and 3.997 pph for sfd.

<sup>5</sup> The factors used to generate the number of employees are 2.310 e/ 1000 sf of community commercial; .718 e/ 1000 sf of regional commercial; .650 e/ 1000 sf of industrial; and 2.86 e/ 1000 sf of office.

Reference: The Ontario Plan Approved Landuse Buildout Estimates, January 2010



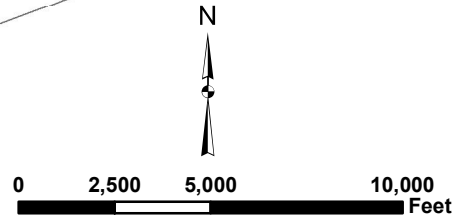
**Legend**

- City Boundary
- New Model Colony Boundary
- Outside City of Ontario Water Service Area

**Landuses**

- Airport
- Business Park
- General Commercial
- High Density Residential
- Hospitality
- Industrial
- Low Density Residential
- Land Fill
- Low Medium Density Residential
- Medium Density Residential
- Mixed Use
- Neighborhood Commercial
- Office Commercial
- Open Space - Non-Recreational
- Open Space - Recreational
- Open Space - Water
- Public Facility
- Public School
- Rural Residential
- Rail

- Mixed Use Area**
- 1 Downtown
- 2 Euclid & Francis
- 3 Holt
- 4 Meredith
- 5 Hospitality
- 6 Ontario Festival
- 7 Guasti
- 8 Ontario Center
- 9 Mills
- 10 NMC South
- 11 NMC East
- 12 SR-60 & Haven



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Ultimate Land Use Map

Figure 3-5

**Table 3-3  
Future Buildout**

Land Use	Acres	Assumed Density/ Intensity	Units	Population	Non-Residential Square Feet
<b>Residential</b>					
Rural	453	2 du/ac	906	3,621	
Low Density	7,466	4.0 du/ac (OMC) 4.5 du/ac (NMC)	31,443	125,678	
Low-Medium Density	800	8.5 du/ac	6,803	27,193	
Medium Density	1,955	18.0 du/ac (OMC) 22.0 du/ace (NMC)	39,418	139,515	
High Density	241	35 du/ac	8,421	28,185	
<b>Subtotal</b>	<b>10,915</b>		<b>86,991</b>	<b>324,192</b>	
<b>Mixed Use</b>					
Downtown	109	60% of the area at 35 du/ac 40% of the area at 0.80 FAR for office and retail	2,279	4,557	1,512,403
East Holt Boulevard	55	25% of the area at 30 du/ac 50% of the area at 1.0 FAR office 25% of the area at 0.80 FAR retail	412	824	1,674,011
Meredith	246	30% of the area at 40 du/ac 70% at 1.0 FAR for office and retail uses	2,957	5,914	7,513,229
Transit Center	76	10% of the area at 60 du/ac 90% of the area at 1.0 FAR office and retail	457	914	2,987,345
Inland Empire Corridor	37	50% of the area at 20 du/ac 30% of the area at 0.50 FAR office 20% of the area at 0.35 FAR retail	368	736	352,662
Guasti	83	20% of the area at 30 du/ac 30% of the area at 1.0 FAR retail 50% of the area at 0.70 FAR office	500	1,001	2,361,388
Ontario Center	345	30% of the area at 40 du/ac 50% of the area at 1.0 FAR office 20% of the area at 0.5 FAR retail	4,139	8,278	9,014,306
Ontario Mills	240	5% of the area at 40 du/ac 20% of the area at 0.75 FAR office 75% of the area at 0.5 FAR retail	479	958	5,477,126
NMC east	264	30% of the area at 25 du/ac 30% of the area at 0.35 FAR for office 40% of the area at 0.3 FAR for retail uses	1,978	3,956	2,584,524
NMC west	316	30% of the area at 35 du/ac 70% of the area at 0.7 FAR office and retail	3,315	6,630	6,738,427
Euclid / Francis	10	50% of the area at 30 du/ac 50% of area at 0.8 FAR retail	156	312	181,210
SR-60 / Haven	41	65% of the area at 0.3 FAR retail 35% of the area at 0.5 FAR office			662,417
<b>Subtotal</b>	<b>1,822</b>		<b>17,039</b>	<b>34,078</b>	<b>41,059,046</b>
<b>Retail/Service</b>					
Neighborhood Commercial	277	0.30 FAR			3,621,143
General Commercial	552	0.30 FAR			7,209,616
Office/Commercial	526	0.75 FAR			17,171,352
Hospitality	145	1.00 FAR			6,311,844
<b>Subtotal</b>	<b>1,499</b>				<b>34,313,954</b>



**Table 3-3 (Continued)  
Future Buildout**

Land Use	Acres	Assumed Density/ Intensity	Units	Population	Non-Residential Square Feet
<b>Employment</b>					
Business Park	1,357	0.40 FAR			23,642,626
Industrial	6,747	0.55 FAR			161,632,647
<b>Subtotal</b>	<b>8,103</b>				<b>185,275,273</b>
<b>Other</b>					
Open Space – Non-Recreation	1,243	Not applicable			
Open Space – Recreation	991	Not applicable			
Open Space - Water	59	Not applicable			
Public Facility	99	Not applicable			
Public School	627	Not applicable			
Los Angeles/Ontario International Airport (LAONT)	1,422	Not applicable			
Landfill	137	Not applicable			
Railroad	247	Not applicable			
Roadways	4,794	Not applicable			
<b>Subtotal</b>	<b>9,619</b>				
<b>TOTAL</b>	<b>31,958</b>		<b>104,030</b>	<b>358,270</b>	<b>260,648,273</b>

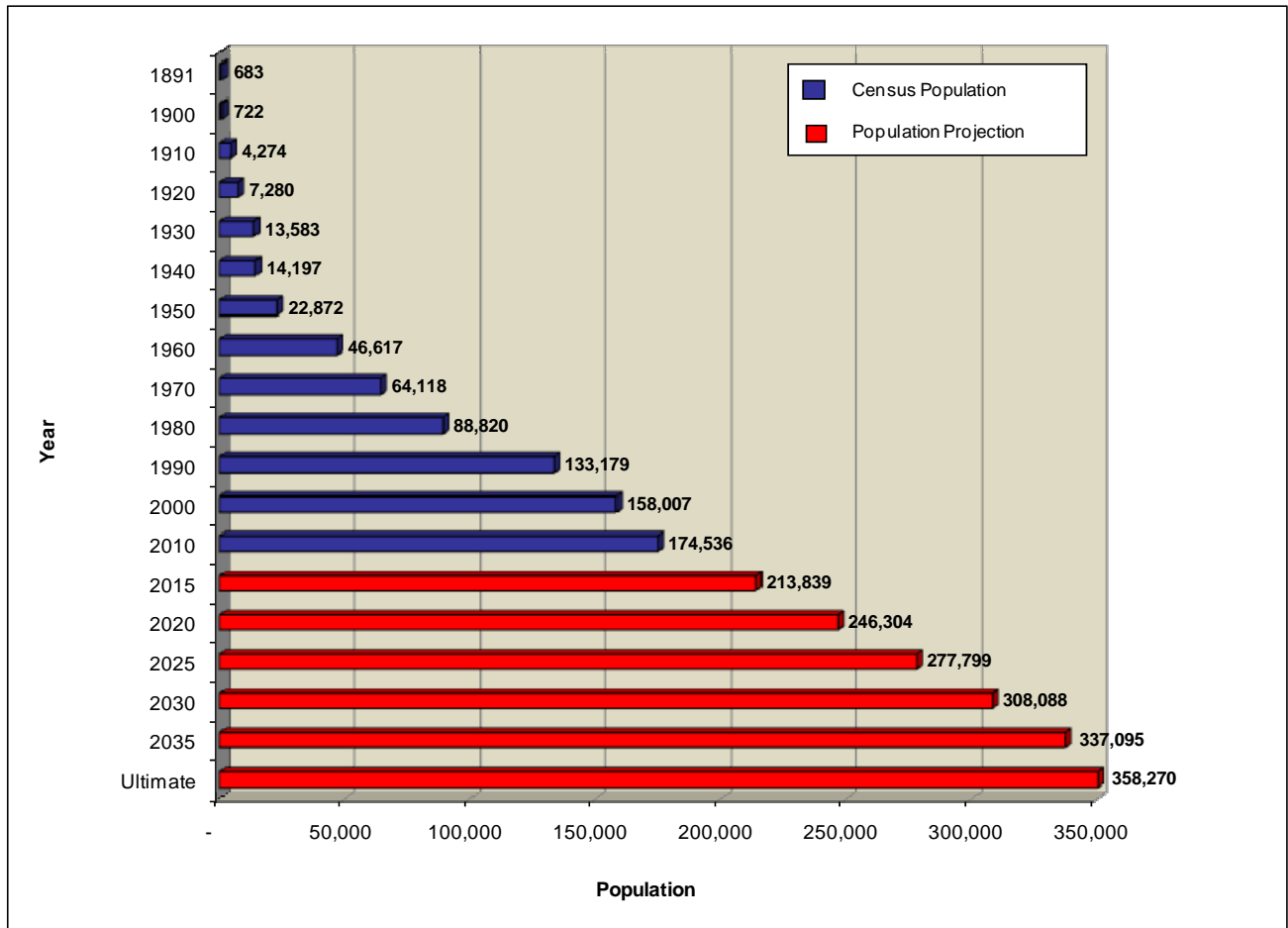
### 3-6 Population

Since its incorporation in 1890, the City of Ontario has grown from a population of 683 to approximately 174,536 in 2010 (*Ref: California Department of Finance, Table E-5, 2010*). The historical population increase from 1890 to 2010, as well as future projections are depicted on Figure 3-6.

It should be noted that the estimates shown on Figure 3-6 for the year 2000 through 2035 includes New Model Colony, which was annexed by the City in 1999. The City of Ontario Planning Department estimated the population in New Model Colony in 1999 to be about 1,500 persons (*Ref: Sphere of Influence General Plan Amendment Digest*). The population shown includes the 628 acres of land (5,770 persons) within the City of Ontario's Old Model Colony, but served water by the Cucamonga Valley Water District.

The ultimate population in New Model Colony is expected to be approximately 162,518 (*Ref: 2010 General Plan Approved Landuse Buildout Estimate Table*). The ultimate population in Old Model Colony is estimated at 195,752. The total ultimate population is estimated at 358,270 which will more than double the existing population. The service area population will be 352,500.

**Figure 3-6  
City of Ontario Population History and Projections**



Reference: Historical population data from California State Department of Finance.

Population projections from SCAG Adopted 2008 Regional Transportation Plan Growth Forecast