

## SECTION 5

### WATER SUPPLY

#### 5-1 Sources of Supply

The City's existing potable water supply consists of imported water from the Water Facilities Authority (WFA) and Chino Basin Desalter Authority (CDA) and the groundwater from Chino Basin, extracted via the City's wells. The City currently owns 32 wells. Four wells are either abandoned or destroyed, five (5) of the wells are inactive, while the other 23 wells are operational. Over the last ten years, the City has imported an average of 12,735 AFY and pumped 30,605 AFY from the groundwater basin. Therefore, about 29 percent of the City's water supply is imported.

#### 5-2 Imported Water Supply

Water is imported into Southern California through two major water supply systems:

1. The Colorado River Aqueduct, constructed and operated by Metropolitan Water District of Southern California (MWD), transports water from the Colorado River to MWD's service area.
2. The State Water Project, owned and operated by the State of California Department of Water Resources (DWR), transports water from the Sacramento-San Joaquin Delta through the California Aqueduct.

<b>Table 5-1</b>						
<b>Imported Water Supply</b>						
<b>Year</b>	<b>WFA Supply</b>		<b>CDA Supply</b>		<b>Total Supply</b>	
	<b>(AFY)</b>	<b>(mgd)</b>	<b>(AFY)</b>	<b>(mgd)</b>	<b>(AFY)</b>	<b>(mgd)</b>
2000	9,258	8.3	-	-	9,258	8.3
2001	8,907	8.0	-	-	8,907	8.0
2002	9,325	8.3	-	-	9,325	8.3
2003	13,207	11.8	-	-	13,207	11.8
2004	15,143	13.5	-	-	15,143	13.5
2005	13,406	12.0	-	-	13,406	12.0
2006	12,256	10.9	2,852	2.5	15,108	13.5
2007	12,826	11.5	5,352	4.8	18,178	16.2
2008	8,747	7.8	7,528	6.7	16,275	14.5
2009	3,494	3.1	5,047	4.5	8,541	7.6
<b>Average</b>	<b>10,657</b>	<b>9.5</b>	<b>5,195</b>	<b>4.6</b>	<b>12,735</b>	<b>13.0</b>
<i>2000-2008 data from City's General Production Reports</i>						
<i>2009 data from Ontario System Operations file</i>						

The City's imported water supply over the last ten years is shown in Table 5-1.

#### 5-2.1 Water Facilities Authority

The Water Facilities Authority (WFA) was formed in 1980 as a Joint Powers Authority by the Cities of Chino, Chino Hills, Ontario and Upland, and the Monte Vista Water District. It was formed to construct and operate water treatment facilities that provide a supplemental supply of potable water to its member agencies. The WFA currently owns and operates the Agua de Lejos Water Treatment Plant located at the Benson Avenue and 18<sup>th</sup> Street, in the City of Upland. It is a conventional surface water treatment facility that treats and disinfects imported water supplies, primarily State Water Project water that is purchased from MWD through IEUA. The current rated capacity of the plant is 81 mgd. The City of Ontario owns 25 mgd or 31.4 percent of the treatment plant capacity.

The water from Agua de Lejos Water Treatment Plant is conveyed to two locations that connect with the City's existing water system. The first turnout (Turnout 1) is located adjacent the 1212-1A and 1212-1B Reservoirs at the northwest corner of Eighth Street and Fern Avenue. It has a 16 mgd capacity. The second turnout (Turnout 2) is located adjacent the 1212-3 Reservoir at the southeast corner of Campus Avenue and A Street. It has a 9 mgd capacity. The maximum volume of water that the City can receive from their WFA connections is therefore 25 mgd.

Based on historical records for 2000 through 2009, the average annual WFA supply has been 10,657 AFY (9.5 mgd), as shown in Table 5-1. The maximum annual supply was 15,143 AFY (13.5 mgd) in 2004. The minimum annual supply was 3,494 AFY (3.1 mgd) in 2009. The peak monthly flow was 1,861 AF (19.6 mgd) in August of 2003. A significant drop in supply from WFA has occurred over the past three years. This is primarily attributable to the addition of several groundwater wells to the City's system.

### **5-2.2 Chino Basin Desalter Authority**

The City of Ontario is a member of the Chino Basin Desalter Authority (CDA), a joint powers agency created on September 25, 2001. Other members of the CDA include Jurupa Community Services District (JCSD), Santa Ana River Water Company (SARWC), IEUA, Western Municipal Water District (WMWD) and the Cities of Chino, Chino Hills, and Norco. The CDA purifies brackish groundwater extracted from the lower Chino Basin with the Chino 1 and Chino 2 Desalter facilities and distributes drinking water to member agencies. Each of the member agencies has "take or pay" contracts to purchase water produced by the CDA.

CDA owns and operates the two groundwater treatment desalination systems, Chino Desalter 1 (CDA I) and Chino Desalter 2 (CDA II). Both facilities include groundwater extraction wells, pumps and pipelines that provide water to advanced treatment facilities that include processes for pretreatment, filtration, air stripping of volatile organic compounds, ion exchange for removal of nitrates, and reverse osmosis for removal of salts. The treated water is then blended and disinfected to produce high quality drinking water that is delivered to member agencies through pipelines, pumps, and reservoirs.

CDA I is located in the City of Chino south of Kimball Avenue, west of Euclid Avenue. There are 14 supply wells feeding the desalter facilities. CDA I produces 14.2 mgd or 15,900 AFY of high-quality drinking water. The City receives about 1,500 AFY of water from the CDA I facility. The point of connection from CDA's facilities to the City's domestic water system (Zone 1010) is located near the intersection of Archibald Avenue and the extension of Schaeffer Avenue.

CDA II is located at 11202 Harrel Street in Mira Loma, California. There are 8 supply wells feeding the desalter facilities. CDA II produces 9.3 mgd or 10,400 AFY of high quality drinking water. The City receives about 3,500 AFY of water from the CDA II facility. The point of connection from CDA's facilities to the City's domestic water system is located near the intersection of Philadelphia Street and Milliken Avenue.

### 5-3 Groundwater Supply

The City extracts groundwater from the Chino Groundwater Basin (Chino Basin or Basin), which is one of the largest groundwater basins in the Southern California area with storage capacity estimated at five to seven million acre-feet. It collects roughly 140,000 acre-feet of water each year. Chino Basin encompasses about 235 square miles of the upper Santa Ana River watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. The location of the groundwater basin is illustrated in Figure 5-1.

#### 5-3.1 Chino Basin Judgement

The Chino Basin Judgement (Judgement) was entered by the California State Superior Court for San Bernardino County on January 27, 1978. The Judgement adjudicates water rights in the Chino Basin and establishes the Watermaster to account for and implement the management of the basin. The Judgement declared that the initial operation safe yield of the Chino Basin is 145,000 AFY. There are three pools of water users: agricultural, non-agricultural (industrial users), and appropriative (water municipalities and other government entities). The safe yield is allocated at 82,800 AFY to the agricultural pool, 7,366 AFY to the non-agricultural pool, and 54,834 AFY to the appropriative pool. The Judgement was expanded in 2000 and 2007 with the addition of Peace Agreements I and II, respectively, which further clarified the Watermaster's operations.

Per the Judgement, the City of Ontario has appropriative rights to 16,337.40 AFY and its share of the initial operating safe yield is 11,373.82 AFY or 20.74 percent.

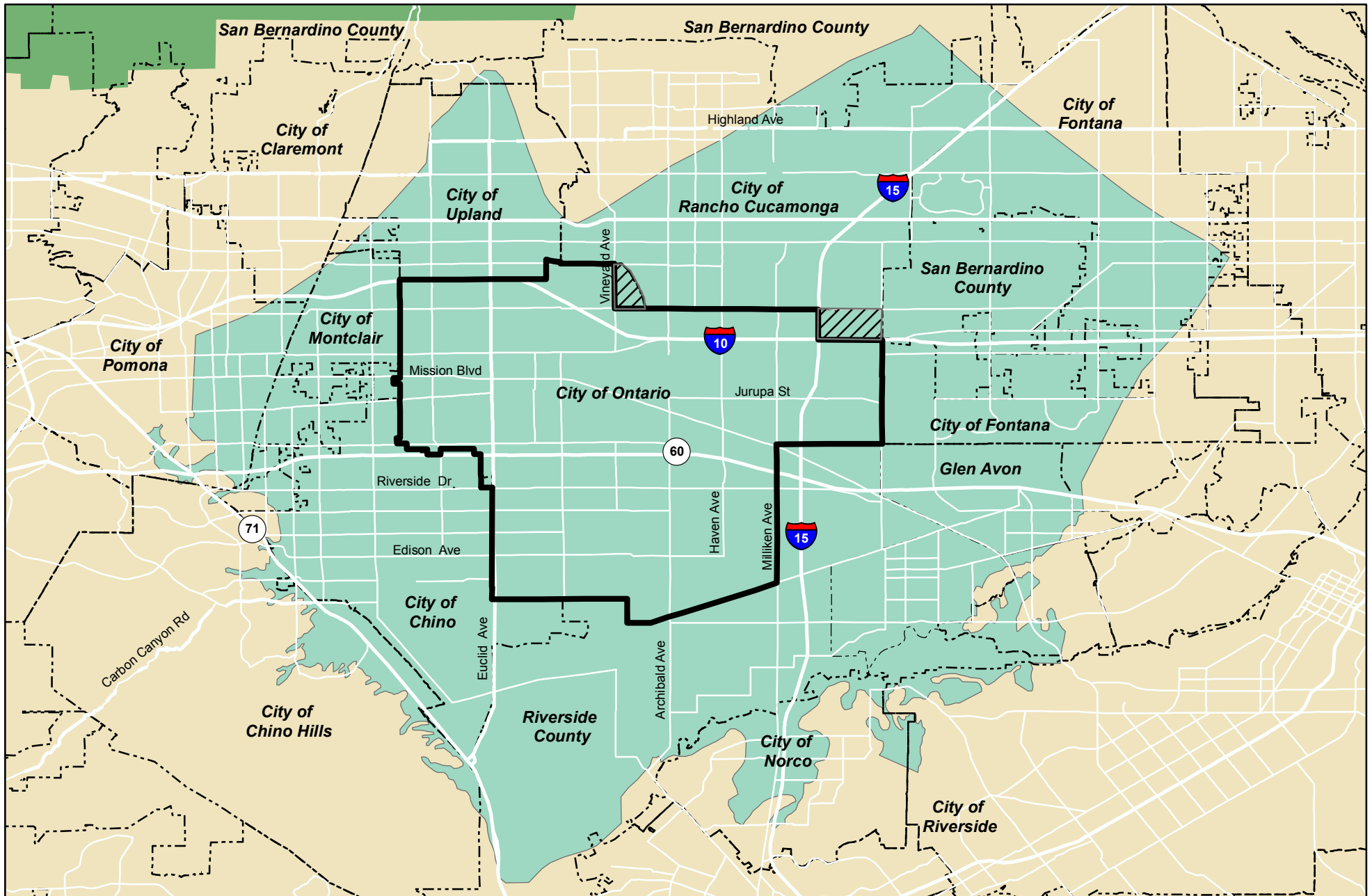
#### 5-3.2 Watermaster



The Chino Basin Watermaster (Watermaster) is a governmental body responsible for managing water use and supplies within Chino Basin. The Watermaster's primary responsibilities include the following:

- Maintain and increase the water supply
- Sustain and improve water quality
- Ensure that water will be fairly shared
- Provide cooperative leadership
- Study and increase understanding of the basin


The Watermaster is comprised of three stakeholder groups based on how they use water obtained from the basin. The groups are called Pools and are represented by Pool Committees:

- Overlying Agricultural Pool Committee, representing dairymen, farmers, and the State of California;
- Overlying Non-Agricultural Pool Committee, representing area industries;
- Appropriative Pool Committee, representing local cities, public water districts, and private water companies.



- Legend**
-  Service Area Boundary
  -  Chino Groundwater Basin



 Miles  
0 0.5 1 2



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**CITY OF ONTARIO  
WATER MASTER PLAN**

**Chino Groundwater Basin**

Figure 5-1

Representatives from the three Pools form an Advisory Committee to oversee the regular activities of the Watermaster. The Pool Committees handle business affecting their own members and then make recommendations to the Advisory Committee. The Advisory Committee, in turn makes recommendations to the Watermaster Board of Directors, consisting of nine members appointed by the San Bernardino County Superior Court.

### **5-3.3 Optimum Basin Management Program**

The Optimum Basin Management Program (OBMP) was adopted by the Watermaster after a 1998 court decree required the development of a detailed plan outlining issues facing Chino Basin and solutions to resolve them. The program was supposed to address water quality problems within the Chino groundwater basin and increase and improve the water supply available from this source. The OBMP identifies groundwater recovery in the southern portion of the basin as a way to improve basin water supplies.

The OBMP and the specific actions contained within it, has guided the Watermaster's activities ever since its adoption. The OBMP includes nine major tasks:

1. Comprehensive monitoring program for documenting changes in water level, quality, and flow by testing at wells within the Basin
2. Comprehensive recharge program
3. Water supply plan for the impaired areas of the Basin to improve water quality and supply
4. Regional supplemental water program
5. Comprehensive groundwater management plan for monitoring zone 1 to stop land subsidence
6. Cooperative programs with the Regional Board and other agencies to improve Basin management
7. Salt management program
8. Groundwater storage management program
9. Conjunctive use programs

### **5-3.4 Dry Year Yield Storage Program**

The Dry Year Yield (DYY) Storage Program is a cooperative conjunctive use program involving MWD, IEUA, CBWM, Three Valleys Municipal Water District (TVMWD) and Chino Basin groundwater producers. Under the DYY Program, MWD is allowed to store up to 100,000 AFY of water in the Chino Basin when surplus water is available during wet years and to produce 33,000 AFY in dry, drought, or emergency periods.

The City of Ontario authorized execution of an agreement with IEUA to participate in the DYY program in 2003. Participation means that the City agrees to reduce its use of imported water compared to the previous year by a fixed amount, known as their "shift obligation". The City's shift obligation is 8,076 AFY. This means that during years when MWD calls for extraction, the City's

WFA production would be reduced by 8,076 AFY compared to the previous year and it would extract this amount from the designated DYY wells.

DYY funds were recently used for the construction of three groundwater wells (Wells 45, 46, and 47) and an ion-exchange facility located at John Galvin Park to treat water extracted from Well 44 and Well 52. When MWD calls for stored water delivery, the City will operate these facilities, to meet its shift obligation. MWD would pay for the cost of operations and the City would pay MWD (through IEUA) the full service water rate. The City can use the DYY facilities to meet its normal water demands during other periods but is responsible for the O&M costs.

This program allows the City to be less reliant upon imported water supplies. The additional groundwater capacity allows the City to increase the percentage of groundwater supply used to meet peak demands.

#### **5-4 Water Quality**

Imported water quality and local groundwater quality per the City's 2009 Water Quality Report is shown in Table 5-2.

Imported water is generally of good quality with nitrate and total dissolved solid concentrations well below the established maximum contaminant levels.

Groundwater quality in Chino Basin is generally good with better quality in the northern portion of the basin where recharge occurs. Salinity (TDS) and nitrate-nitrogen concentrations increase in the southern portion of the basin. Areas of high nitrate concentrations are shown in Figure 5-2. The City of Ontario has inactivated or abandoned several wells (Well 3, 4, 9, 15, and 50) due to high nitrate and perchlorate concentrations detected above the maximum contaminant levels (MCL).

#### **5-5 Future Imported Water Supply**

In the future, water supply capacity provided from WFA will remain at 25 mgd as described in Subsection 5-2.1.

The City's Chino II 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 about 7,033 AFY. The total supply from CDA I will remain at 1,500 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.

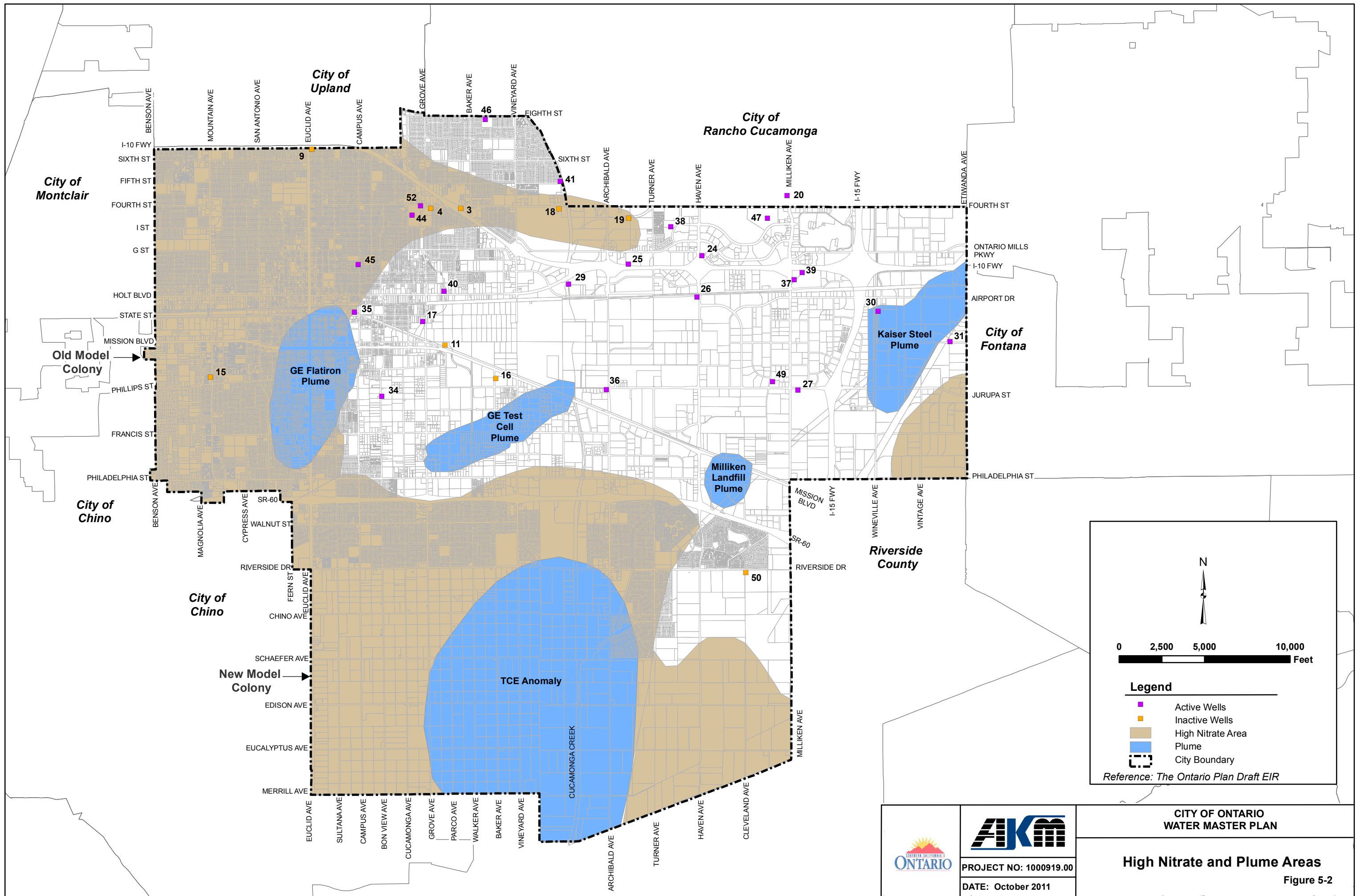
**Table 5-2  
City of Ontario 2009 Water Quality Report**

Substance (Units)	MCL (AL) [MRDL]	PHG (MCLG) [MRDLG]	Local Ground Water		Imported Water, WFA		Purchased Water, JCSD					
			Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	CDA1		CDA2		IXP	
							Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)
<b>Primary Drinking Water Standard</b>												
Aluminum (ppm)	1	0.6	ND	ND	0.11	0.071-0.19	NP	NP	NP	NP	NP	NP
Arsenic (ppb)	10	0.0	ND	ND	1.3	ND-2.8	NP	NP	NP	NP	NP	NP
Barium (ppm)	1	2	0.007	ND-0.13	NP	NP	NP	NP	NP	NP	NP	NP
Chlorine, free (ppm)	[4]	[4]	0.63	0-1.89	NP	NP	NP	NP	NP	NP	NP	NP
Chlorine, total (ppm)	[4]	[4]	0.72	0.01-1.99	1.3	0.4-2.7	NP	NP	NP	NP	NP	NP
Chromium, Total (ppb)	50	(100)	8.2	3.6-12	NP	NP	3.9	3.9	3.2	3-6	6	2.6-8.5
Combined Filter Effluent Turbidity (NTU)	TT	NA	NA	NA	0.03	0.03-0.18	NA	NA	NA	NA	NA	NA
Copper (ppm) (measured at consumer's tap)	(1.3)	0.3	90th percentile: 0.22	0 of 50 samples exceeded AL	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloropropane (ppt)	200	1.7	34	58-180	NP	NP	NP	NP	NP	NP	NP	NP
Fluoride (ppm)	2	1	0.2	0.1-0.3	0.15	0.12-0.20	0.2	0.2	ND	ND-0.2	0.1	0.1-0.2
Gross Alpha Particle Activity (pCi/L)	15	(0)	1.19	1-1.37	3.5	ND-6.4	ND	ND	ND	ND	ND	ND-6.7
Gross Beta Particle Activity (pCi/L)	50	(0)	NA	NA	4.2	ND-7.0	NP	NP	NP	NP	NP	NP
Haloacetic Acids [HAA5] (ppb)	60	NA	6	ND-20	10.4	6.2-15.9	NA	NA	ND	ND-7.5	ND	ND
Lead (ppb) (measured at consumer's tap)	(15)	0.2	90th percentile: ND	4 of 59 samples exceeded AL	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate [as nitrate] (ppm)	45	45	13	4-35	NP	NP	14	9.0-20	14	3-22	28	9-34
Nitrate [as nitrogen] (ppm)	10	10	2.8	1.1-6.2	0.46	ND-0.77	NP	NP	NP	NP	NP	NP
Nitrate and Nitrite [as nitrogen] (ppm)	10	10	NA	NA	0.46	ND-0.77	NP	NP	NP	NP	NP	NP
Perchlorate (ppb)	6	6	0.58	ND-4.5	NP	NP	ND	ND	ND	ND	ND	ND-4.7
Tetrachloroethylene [PCE] (µg/L)	5	0.06	ND	ND	NP	NP	ND	ND	ND	ND	ND	ND-0.92
Total Coliforms (% positive samples)	5	0	0.1	0-0.56	0	0	0	0	0	0	0	0
Total Trihalomethanes [TTHM] (ppb)	80	NA	13.1	ND-99	56.6	30.1-72.1	ND	ND	0.8	ND-1	4.5	4.3-4.7
Trichloroethylene [TCE] (ppb)	5	1.7	ND	ND	NP	NP	ND	ND	ND	ND	ND	ND-0.99
Uranium (pCi/L)	20	0.43	NA	NA	2.7	2.4-3.2	NA	NA	ND	ND	ND	ND-5.8

**Table 5-2 (continued)**  
**City of Ontario 2009 Water Quality Report**

Substance (Units)	MCL (AL) [MRDL]	PHG (MCLG) [MRDLG]	Local Ground Water		Imported Water, WFA		Purchased Water, JCSD					
			Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	CDA1		CDA2		IXP	
							Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)
<b>Secondary Drinking Water Standards - Sodium and Hardness</b>												
Aluminum (ppb)	200	600	ND	ND	110	71-190	NP	NP	NP	NP	NP	NP
Chloride (ppm)	500	NA	11	3-65	83	73-92	86	86	78	12-120	98	16-170
Color (Color Units)	15	NA	0.01	ND-3	NP	NP	ND	ND	3.4	2.9-5.6	4.5	3.3-5.7
Copper (ppm)	1	NA	0.002	ND-0.18	NP	NP	NP	NP	NP	NP	NP	NP
Total Hardness [CaCO <sub>3</sub> ] (ppm)	NA	NA	149	86-260	113	100-130	190	190	159	91-190	235	150-290
Foaming Agents [MBAS] (ppb)	500	NA	10	ND-90	NP	NP	NP	NP	NP	NP	NP	NP
Odor (T.O.N.)	3	NA	ND	ND	1	1	NP	NP	NP	NP	NP	NP
Sodium (ppm)	NA	NA	20	12-35	69	67-72	32	32	24	16-30	31	23-38
Specific Conductance (µS/cm)	1,600	NA	389	300-670	555	520-610	548	530-595	476	320-600	685	420-1000
Sulfate (ppm)	500	NA	18.8	5-72	49	35-58	10	10	7	ND-17	20	12-36
Total Dissolved Solids (ppm)	1,000	NA	249	160-450	330	300-370	344	284-408	311	160-480	465	240-640
Turbidity (Units) (NTU)	5	NA	0.07	ND-0.9	0.09	0.05-0.33	NP	NP	NP	NP	NP	NP
Substance (Units)	Notification Level	Local Ground Water		Imported Water, WFA		Purchased Water, JCSD						
		Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	CDA1		CDA2		IXP		
						Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	Amount Detected	Range (Low - High)	
<b>Unregulated Contaminants</b>												
Boron (ppb)	1,000	NA	NA	178	130-250	120	120	ND	ND	ND	ND	ND
Chromium VI (ppb)	NA	NA	NA	0.34	0.24-0.58	NA	NA	1	0.7-3.7	4.5	1.3-6.9	
Trichloropropane [1,2,3-TCP] (ppb)	0.005	ND	ND	NP	NP	0.017	0.013-0.021	ND	ND	0.006	ND-0.035	
Vanadium (ppb)	50	NA	NA	6.9	6.2-8.2	NP	NP	NP	NP	NP	NP	
<i>Notes:</i>												
AL: Action Level			NA: Not Applicable				ppb: parts per billion					
CDA: Chino Basin Desalter Authority			ND: Not Detected				ppm: parts per million					
MCL: Maximum Contaminant Level			NL: Notification Level				PDWS: Primary Drinking Water Standard					
MCLG: Maximum Contaminant Level Goal			NP: Not Provided				T.O.N.: threshold odor number					
MRDL: Maximum Residual Disinfection Level			NTU: Nephelometric Turbidity Units				TT: Treatment Technique					
MRDLG: Maximum Residual Disinfection Level Goal			pCl/L: picocuries per liter				µmhos/cm: micromhos per centimeter					
			PHG: Public Health Goal				WFA: Water Facilities Authority					





N

0 2,500 5,000 10,000  
Feet

**Legend**

- Active Wells
- Inactive Wells
- High Nitrate Area
- Plume
- City Boundary

*Reference: The Ontario Plan Draft EIR*



**AKM**

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**CITY OF ONTARIO  
WATER MASTER PLAN**

**High Nitrate and Plume Areas**  
Figure 5-2