

## SECTION 6.0: CUMULATIVE IMPACTS

Section 15355 of the State CEQA Guidelines describes *cumulative impacts* as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. These individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

### 6.1 RELATED PROJECTS

Section 15130(b) of the State CEQA Guidelines describes an adequate discussion of cumulative impacts as one which includes either of the following elements:

- a) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
- b) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

For the purposes of the cumulative effects analysis of the impact of the proposed Wal-Mart Supercenter, planned developments in the project area and reasonably foreseeable future developments in the surrounding area have been considered. These related projects have been developed in coordination with the City of Ontario and are presented in Table 6-1, *Related Projects in Ontario*. Figure 6-1, *Related Projects in Ontario*, shows the general location of these planned and ongoing developments in the City of Ontario.

Project	Location	Description	Status
1. PDEV06-021 Brookfield Homes	South of Riverside Dr. bet. Mill Creek Ave & SCE easement	120 attached single-family units	Approved
2. PDEV05-007, PMTT 05-004 (TT 17188) & PZC 05-007 Barry Peter	Francis Street between Sultana and Campus	5 single-family residences	Approved
3. PDEV06-017 Standard Pacific	P3 area of Edenglen Specific Plan	106 single-family units	Approved
4. PDEV05-042, PZC 05-004 & PMTT 05-017 Hunttec Development	1655 & 1673 E. Fourth Street	9 condominium units	Approved
5. PDEV05-046 – Mur-sol Construction	E. Olive St., west of Orange Avenue	10 single-family homes	Approved
6. PDEV05-049 Azar Development	127 W. H Street	5 multi-family dwelling units	Approved
7. PDEV05-051 – Webb Associates	Southeast corner of Cedar St. and Fern Ave.	7 single-family homes	Incomplete
8. PDEV05-054 – M.K. Development Co.	South side of Francis St. between Oaks Ave and Magnolia Ave.	8 single-family homes	Approved
9. PGPA05-003, PZC 05-008 & PMTT 05-025	Southeast corner of Archibald and Oakhill	36 units	Approved

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
Comstock Homes			
10. PMTT06-028, PDEV06-008, PMTT06-029 Toll Bros., Inc.	South side of Via Villagio between Via Asti and Via Alba	382 units and 58,018 sf commercial	Approved
11. PDEV06-009 – JH Snyder Co	Ontario Town Center – Euclid, Lemon, D Street and Holt Blvd	140 townhouses, 160 apartments, 108 condominiums and 32,850 sf retail	Approved
12. PMTT 06-035 (TT 18133) & PDR 06-001	Southeast corner of Philadelphia St. and Cucamonga Ave.	258 residential units	Approved
13. PDEV06-042, PCUP06-023 - Inland Christian Homes	1950 S. Mountain Avenue	26 assisted living units	In Review
14. PDEV06-048 – Neal & Susie Sullivan	1516 Stoneridge Court	2 duplexes - 4 units	In Review
15. PMTT 06-055 Elias Barrios	1840 S. Fern Avenue	5 single-family homes	Resubmit
16. PMTT 06-058 (PM 18381) Ontario Redevelopment Agency	East side of Lemon Avenue between B and C Streets	76-unit, 3 story, senior housing	In Review
17. PMTT 06-064 (TM18373) SKG Pacific Enterprises , Inc.	920 S. Cypress Avenue	19 townhomes	Resubmit
18. PDEV 05-006, PMTT05-003 – Kendrew Development	Northwest corner of Euclid Ave. and Riverside Drive	196 multi-family units	Approved
19. PDEV06-026 Edenglen Ontario LLC	NE corner of Chino Ave & Mill Creek Ave	Fourteen 10-plex buildings, one 7-plex building, and seven 3-plex buildings	Approved
20. PMTT 05-006 Dave Rogers	2015 S. Fern Avenue	7 units	Incomplete
21. PDEV06-043 Meritage Homes	South side of Chino Ave, 662 ft west of Archibald Ave.	97 single-family homes	In Review
22. PCUP05-016 - Uberto Medrano	407 West California Street	1,619 sf automobile upholstery	Approved
23. PMTT 04-033 Meritage Homes	Riverside, Chino, and Archibald Avenues	176 lots	Approved
24. PCUP05-045-Ontario Senior Partners	Fourth St. and Mountain Ave.	Walgreens* and 86 unit senior housing	Resubmit
25. PCUP06-016 – Studio 3 Architects	South side of Ontario Mills Parkway to the west of the I-15 freeway	118 room 4 story hotel	Approved
26. PCUP06-017 - Royal Street Communication	1745 S. Mountain Ave.	telecommunication facility	In Review
27. PCUP06-018 Carl W. Taylor	North west corner of Walnut and Vineyard adjacent to the 60 freeway	12,000 sf pharmacy	In Review
28. PCUP06-020 Royal Street Communication	2425 E. Riverside Drive	telecommunication tower	In Review
29. PCUP06-026 Royal Street Communication	2301 S. Euclid Ave.	telecommunication facility	In Review

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
30. PCUP06-027 Unlimited Quest	1001 North Begonia Avenue	3,482 sf Adult day care facility	Approved
31. PCUP06-036 Ontario Christian Ctr.	1336 N. Baker Ave.	3,800 sf church expansion	In Review
32. PCUP06-037- Dr. Akbar Omar	North of the I-10 Freeway, south of Shelby Street, and west of Haven Ave	130-room 5-story hotel	In Review
33. PCUP06-043- Delpit Family Trust	Southeast corner of Jurupa Street and the I-15 freeway	2,900 sf Burger King restaurant	In Review
34. PCUP06-047 Options for Youth	1802 "G" Street	Independent Study Charter School	In Review
35. PM TT 04-030, PDEV 04-059	607 D Street	10 condominiums	Approved
36. PCUP 07-005 - Century Fast Food	SWC Mountain and I Street	2,200 sf fast food restaurant	In Review
37. PDEV05-019 – R.S. Development	Northwest corner of Holt Blvd. & Corona Ave.	98,276 sf in 5 buildings	Approved
38. PVAR 06-016 – T Mobile USA	1414 Euclid Avenue	Telecommunications tower	In Review
39. PDEV05-024 – RAS Associates	1151 W. Holt Blvd.	1,977 sf car wash	Approved
40. PCUP 07-004 – Ki Speed	SWC Ontario Mills Parkway and Vintage Avenue	80,000 sf kart racing facility	In Review
41. PDEV06-066 – Ontario Industrial, LLC	Francis St. extending from Haven Ave. to Milliken Ave.	1,970,150 sf industrial buildings	In Review
42. PDEV05-029 – Pierce Cooley Architects	North west corner of Inland Empire and Ferrari	74,250 sf retail stores	Approved
43. PDEV05-030 – Mountain Sixth Associates	Corner of Mountain Ave. and Sixth Street	7,000 sf commercial building	In Review
44. PDEV 04-063 CR Carney	NWC Guasti and Sequoia Avenue	78,190 sf industrial buildings	Approved
45. PDEV07-001 Koll Company	North side of California St. from Campus Ave to Taylor Ave, north above Sunkist St	6 new industrial buildings with 176,800 sf	In Review
46. PDEV05-035 – SE Calif Assn of 7	San Antonio Junior Academy Private School	12,500 sf gymnasium	Approved
47. PDEV05-037 Carl Taylor	North west corner of Walnut and Vineyard	99,850 sf shopping center	Approved
48. PDEV07-004 Jimmy Lee	NW corner of 6 <sup>th</sup> St. and Palmetto Ave.	9,180 sf commercial retail building	In Review
49. PDEV07-002 David Hidalgo Architects	1738 S. Euclid Ave.	2,003 sf commercial building	In Review
50. PDEV05-050 – Hogle-Ireland	North side of Inland Empire Blvd. between Archibald and Turner Avenues	51,284 sf office buildings	Approved
51. PDEV05-053 – Michael Murphy	122 N. Mountain Ave.	4,640 sf building expansion	In Review
52. PDEV05-056 - Ontario Redevelopment Agency	Main Street	Construction of "Main Street"	In Review
53. PDEV05-059 – Ware Malcomb	Northwest corner of Via Piemonte and Ontario Center Parkway	125,740 sf 5 story office building	Approved

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
54. PDEV05-061 – Devcon Construction	Inland Empire and Ferrari Lane	426,222 sf furniture store	Approved
55. PDEV05-064 – Philip Martin	501 S. Oaks Ave.	3,046 sf office building	Approved
56. PDEV05-065 – Sievash Barmand	Southeast corner of Inland Empire Blvd. and Archibald Ave.	125,959 sf commercial buildings	Approved
57. PDEV05-066 – Crossroad Partners	Ontario Center Specific Plan (APN 210-194-31)	350,000 sf office buildings	Approved
58. PDEV05-067 – El Pollo Loco	South side of Philadelphia Street	3,154 sf Fast food restaurant	Approved
59. PDEV05-069 - The Bates Company	South side of Ontario Mills Parkway west of the I-15 freeway	225,640 sf office buildings	Approved
60. PDEV05-070 - McDonalds Corp	South side of Philadelphia St., west of Grove Avenue	3,500 sf Fast food restaurant	Approved
61. PDEV05-073 – Panda Restaurant Group	South side of Philadelphia St., west of Grove Avenue	2,664 sf Panda Inn	Approved
62. PDEV05-075 – Western States Engineering	1521 E. Fourth Street	1,550 sf convenience store	Approved
63. PDEV05-076 - Panattoni Development Comp	South side of 4 <sup>th</sup> Street, approximately 600 feet west of Milliken Ave.	254,420 sf shopping center	Approved
64. PDEV06-001 – PGP Partners, Inc.	South side of the 10 freeway just west of Turner	160,517 sf office/ retail	Approved
65. PDEV06-003 – City of Ontario	Northeasterly corner of Concoors St. and Ontario Center Parkway	214,420 sf Multi-purpose community center	Approved
66. PDEV06-005 - Williams Architects, Inc.	South side of Concoors Dr. just east of Mercedes Lane	parking structure	Approved
67. PDEV06-065 – Chase Partners, LTD	Northwest corner of Chablis Ave. and Francis St.	69,873 sf industrial building	In Review
68. PDEV06-022 – WF Construction	South side of “G” Street sand west of Corona Ave	7,260 sf retail buildings	Approved
69. PDEV06-023 – Greenberg-Farrow	Northwest corner of Riverside Dr. and Euclid Ave.	152,009 sf Home Depot	In Review
70. PDEV06-025 – David J. Hidalgo Arch.	1754 & 1750 Euclid Ave.	3,026 sf commercial building	In Review
71. PDEV06-028 – Kaiser Permanente	Northeast corner of State Route 60 and Vineyard Avenue	617,966 medical office and hospital and parking structure	Approved
72. PDEV06-046 – Fazi Bostajani	Southwest corner of Holt Blvd. and Grove Ave.	14,395 sf industrial buildings	In Review
73. PDEV06-041 – Vet West Investments	East side of Cucamonga Ave. south of Acacia St.	73,302 sf industrial buildings	In Review
74. PDEV06-035- Westwood Design	Southeast corner of Sultana Avenue and Belmont Street	11,504 sf industrial building	In Review
75. PDEV06-036 – Carl W. Taylor	North west corner of Walnut and Vineyard adjacent to the 60 freeway	30,500 sf shopping center	In Review
76. PDEV06-037 – Fletcher Development	Located within Ontario Mills	6,553 sf commercial building	In Review
77. PDEV06-031 - Jon Atabek	3825 E. Brentstone St.	telecommunication monopole	In Review

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
78. PDEV06-039 – Amsted Residuals	Southeast corner of Archibald Avenue and Oak Hill Drive	4,500 sf retail	In Review
79. PDEV06-040-Torrey Day Click	Northwest corner of Holt Boulevard and Vineyard Avenue	86,414 sf commercial center	Approved
80. PDEV06-045 – Gil Saenz	East side of Haven Avenue approximately 336 feet north of Philadelphia Street	26,254 sf office buildings	Approved
81. PDEV06-049 – Patrick Conover	West side of Cucamonga Ave., between California St. and Ontario Blvd.	48,615 sf industrial buildings	In Review
82. PDEV06-050 – Blue Sandias Restaurant	Within Exchange Specific Plan	15,500 sf restaurant	Returned
83. PDEV06-051 4100 - Concours Partners	Southwest corner of Concours St. and Ferrari Lane	62,000 sf commercial building	Approved
84. PDEV06-027 – KDW Architecture Engineering	5351 E. Airport Dr.	19,180 sf building addition	In Review
85. PDEV06-074 Omnipoint Communications Inc.	1201 West Fifth Street	Telecommunications Facility	In Review
86. PCUP06-050 T-Mobile USA	1412 S. Euclid Ave.	Telecommunications facility	In Review
87. PDEV06-052 Huaming Chang	SE corner of I-15 Fwy & 4 <sup>th</sup> St.	74-room, 3-story hotel on 1.55 acres	Incomplete
88. PDEV06-072 Rick Coulter	SE corner of Holt Blvd & Cucamonga Ave	15,000 sf office building	In Review
89. PDEV06-073, PCUP 06-051 - Hagop Kofdarali	South side of Fourth St by I-15 Fwy	7,000 sf commercial/retail building	In Review
90. PMTT06-040 – Timothy & Roberta Dennis	Southeast corner of Corona Ave. and Elma Court	13 commercial condominiums on 1.3 acres*	In Review
91. PPRE06-001 – Reliable Properties	Northeast corner of Fourth Street and Grove Avenue	20,145 sf retail buildings	In Review
92. PVAR05-012 – MAF Architects	Northwest corner of Fourth Street & Grove Ave.	3,168 sf retail/ dental building	In Review
93. PSP 05-001 CL Williams Group, LLC	South of Edison Ave, east of Archibald Ave, north of Merrill Ave, west of Haven Ave	Specific Plan for 320 acres in Subarea 23 of New Model Colony	In Review
94. PSP 05-005 - Haven Avenue, LLC	SE corner of Haven Ave & 10 Fwy	Specific Plan for 39.39 acres	Resubmit
95. PSP 05-004 Richland Communities	Bounded by Riverside Dr, Edison Ave, Mill Creek Ave, and Haven Ave	Specific Plan (Rich-Haven) for 510 acres of New Model Colony	Resubmit
96. PSP 05-006 Hillcrest Homes	South of Riverside, north of Chino and east and west of Vineyard	Specific Plan for Subarea 4 of New Model Colony	In Review
97. PCUP06-010 – CA Portland Cement Co.	SWC of State St. and Oaks Ave.	10-acre concrete batch plant	In Review
98. PCUP06-034 – Martin Layman	1215 S. Bon View Avenue	6,214 sf sheet metal manufacturing	In Review
99. PMTT06-066 - Haakma	SE corner of Archibald Ave &	58.83 acres into 229	Resubmit

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
Family Limited Partnership	Schaefer Ave.	residential lots	
100. PMT07-002 Armada Ontario Associates	East side of Turner Ave, 255 ft north of Schaefer Ave	143 residential lots	In Review
101. PCUP06-048 – Mercury Plastics	1745 E. Francis Street	23,493 sf plastic manufacturing	In Review
102. PMTT06-039, TT 18048 - Parkside Holding	West of Archibald Ave & east of Cucamonga Creek Channel	104 acres into 21 lots	Approved
103. PMTT06-059 Richland Communities	Subarea 29 of the New Model Colony	101 residential lots	Resubmit
104. PMTT06-060 Richland Communities	Subarea 29 of New Model Colony	28.8 acres into 91 lots	In Review
105. PMTT06-061 Richland Communities	Subarea 29 of New Model Colony	26.8 acres into 117 lots	Resubmit
106. PDEV05-013 – City of Ontario	Northeast corner of Jurupa St. and Dupont Ave.	2 reservoirs and pump station	Approved
107. PMTT06-034 Richland Communities	Westside of Haven Ave., ~330 ft south of Chino Ave.	151 lots	In Review
108. PDEV05-017 – JHS Investments	536 – 548 E. Belmont Street	26,622 sf industrial buildings	In Review
109. PMTT06-024 - SL Ontario Development Corporation	NE corner of Riverside County Line and Archibald Ave.	62 lots	Approved
110. PMTT06-030 David Puscizna	NW of Fourth St & San Antonio Ave.	1.09-acres into 3 parcels	Resubmit
111. PDEV05-036 – Darrell Butler	South of Ebony Street, east of Ponderosa Ave.	33,427 sf industrial buildings	In Review
112. PMTT06-023 SL Ontario Development Corporation	North of Riverside County Line, east of Archibald Ave, west of Haven Ave., south of Eucalyptus Ave.	71 lots	Approved
113. PDEV05-045 – Jesus Hernandez	543 E. Maltland St.	3,594 sf office and warehouse	In Review
114. PMTT06-022 SL Ontario Development Corporation	North of Riverside County Line, east of Archibald Ave, west of Haven Ave., south of Eucalyptus Ave.	60 lots	Approved
115. PDEV05-055 – Dale Fowler	1650 S. Vineyard Ave.	102, 488 sf industrial buildings	Approved
116. PMTT06-021 SL Ontario Development Corporation	North of Riverside County Line, east of Archibald Ave, west of Haven Ave., south of Eucalyptus Ave.	57 lots	Approved
117. PDEV05-063 – T-Mobile	2301 E. Francis Street	telecommunication facility	In Review
118. PDEV05-079 – Cingular Wireless	615 S. Oaks Ave.	telecommunication facility	Approved
119. PDEV05-081 – Dan Floriani	Southeast corner of Belmont Ave. and Grove Ave.	233,000 sf industrial buildings	Approved
120. PDEV06-002 – Aero Ontario RFP	South of Airport Dr. between West Cucamonga Creek Channel and Vineyard Avenue	1,017,795 sf cargo transfer	In Review
121. PDEV06-004 – Glenn Russell	NEC of Mission Blvd. and Greenwood Ave.	parking lot	Resubmit

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## Cumulative Impacts (continued)

<b>TABLE 6-1</b>			
<b>RELATED PROJECTS IN ONTARIO</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
122. PDEV06-010 – Edgar Garcia	Southwest corner of Ontario Blvd. and Caldwell Avenue	4,864 sf warehouse	In Review
123. PDEV06-011 – Thienes Engineering, Inc.	South east corner of Archibald Ave. and Cedar St.	133,445 sf industrial building	Approved
124. PDEV06-054 – Douglas Franz Architects	Northwest corner of Francis St. and Business Parkway	55,595 sf industrial building	Returned
125. PDEV06-055 Steve Chuang	2055 Baker Ave.	46,556 sf industrial buildings	In Review
126. PDEV06-024 - Oakmont Ontario Greystone	Southwest corner of Greystone Dr. and Stanford Ave.	364,400 sf industrial buildings	In Review
127. PMTT06-004 Armada Ontario Associates	SE intersection of Cleveland (future Mill Creek) & Eucalyptus (future Merrill) Avenues	93 lots	Resubmit
128. PMTT06-005 Armada Ontario Associates	NE intersection of Cleveland (future Mill Creek) & Bellegrave Avenues	91 lots	Resubmit
129. PMTT 06-038, TT 17930 - Armada	NE and SE of Mill Creek and Eucalyptus	335 lots	In Review
130. PMTT06-007 Armada Ontario Associates	North of existing Eucalyptus Ave, east of existing Carpenter Ave, west of Milliken Ave.	46 lots	Resubmit
131. PMTT06-013 Regent-Ontario LLC	NW corner of Milliken Ave & Bellegrave Ave.	61 lots	Resubmit
132. PMTT06-015 SL Ontario Development Corporation	South of Eucalyptus Ave, east of Archibald Ave, west of Haven Ave.	61 lots	Approved
133. PMTT06-016 SL Ontario Development Corporation	South of Eucalyptus Ave, east of Archibald Ave, west of Haven Ave.	63 lots	Approved
134. PMTT06-018 SL Ontario Development Corporation	North of Riverside County Line, east of Archibald Ave, west of Haven Ave.	50 lots	Approved
135. PMTT06-020 SL Ontario Development Corporation	SE corner of Archibald Ave. & Merrill Ave	67 lots	Approved
136. PDEV06-044 Meritage Homes	SW corner of Archibald Ave & Deer Creek Channel	138 single-family homes	In Review
137. PDEV06-069 Armando Moreno	Southeasterly of Sixth St. & Grove Ave.	10 dwelling units	In Review
138. PDEV06-075 De Oro Properties	1006 South Oaks Ave.	16 single-family homes	In Review
139. PMTT05-009 Meritage Homes	North of Deer Creek Channel & east of Lower Cucamonga Basins	18.74 acres into 98 residential lots	Approved
140. PMTT05-010 Meritage Homes	South side of Chino Ave. & east of Lower Cucamonga Basins	16.82 acres into 136 residential lots	Approved
141. PCUP06-054 Vanessa Kersh	1024 South Plum Ave.	Granny Flat	In Review
142. PDEV05-034 Banal Na Pag-Aaral Inc.	7877 E. Riverside Dr.	37,584 sf Multi- Purpose Facility	Approved
*assumes maximum development at a floor area ratio of 0.40 Source: Ontario Development Activity Report, 4th Quarter 2006			

# Ontario Wal-Mart Supercenter



Figure 6-1

Related Projects in Ontario

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Cumulative Impacts (continued)

In addition, several developments are proposed in the cities of Upland and Montclair, which are adjacent to the project site. Table 6-2, *Related Projects in Montclair*, shows these planned and proposed developments in the City of Montclair to the west of the project site. Figure 6-2, *Related Projects in Montclair*, shows the general location of these planned and ongoing developments in the City of Montclair.

<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
1. TTM 15897 by Union Pacific Funding, Inc.	Southwest corner of Palo Verde St. & San Antonio Wash	6 single-family detached homes	Building plan check
2. Tract 16345, Ridgewood Homes II by Bade Construction Co., Inc.	5015 - 5091 Rodeo St. 11008 - 11024 Whitewater Street	33 single-family detached homes	24 completed; 9 homes under construction
3. TTM 16697, Fremont Garden by Montclair Investment	5023 - 5093 Saddleback St. 11208 Whitewater Ave.	9 Single-family detached homes	Under Construction
4. TTM 16782 by Silletto Trust/Dennis Silletto	5100 block of Bandera St.; west of Central Ave.	12 condominiums	Building plan check
5. Parcel Map 16465 by Michael Esparza	5475 & 5479 Palo Verde St.	2 single-family homes	Rough grading only
6. TTM 16913 by Central Home	11200 block of Central Avenue	24 Single-family detached homes	Under Construction
7. TTM 16960, Madison South by Crestwood Corp.	11200 block of Central Avenue	25 Single-family detached homes	Under Construction
8. Residence by Iglesia Ni Cristo	4111 Holt Boulevard	1 single-family residence	Building plan check
9. Residence by Martinez Property	4685 Huntington Drive	1 single-family residence	Plan Check Complete
10. Tract 17354 by SoCal Housing Dev. Corp.	10400 block of Pradera Ave	75 multi-family units in four 3-story buildings	Under Construction
11. Affordable Senior Housing by SoCal Housing Dev. Corp.	10300 block of Mills Avenue	100 senior housing units in two 3-story buildings	Pending Submittal for Plan Check
12. TTM 17207, Helena Court by Alder Creek	9610 Helena Avenue	8 single-family detached homes	Under Construction
13. TTM 17422 by Torn Kuo	11211 Fremont Avenue	9 Single-family detached homes	Building design approved November 2006
14. TPM 17142 by Chuck Lam	11303 Monte Vista Avenue	1 single-family residence	Building Permit Issued
15. TTM 17191, Savannah at the Crossings by Crestwood Corp	Southeast corner of Howard St. and Fremont Ave.	39 Single-family detached homes	Under Construction
16. Duplex by Jorge Castaneda	10331 Kimberly Avenue	2 units on vacant lot	Building plan check
17. Duplex by Joel Mendez	10341 Kimberly Avenue	2 units on vacant lot	Building plan check
18. TTM 17472, Savannah West by Crestwood Corp	5017 Howard Street	20 single-family detached homes	Under Construction

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## Cumulative Impacts (continued)

<b>TABLE 6-2</b>			
<b>RELATED PROJECTS IN MONTCLAIR</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
19. Residence by Paul Munoz	5220 Kingsley Street	1 single-family detached home	Building plan check
20. Duplex by Phillip Vo	10374-76 Marion Avenue	2 unit duplex on vacant lot	Building plan check
21. TTM 17498, Bellafina by South Coast Communities	4200 block of Holt Blvd. between Amherst Ave. and San Antonio Wash	106-unit Planned Residential Development	Under Construction
22. TTM 17954, Terrasol Place, by N Star Inc.	4800 block of Mission Blvd.	19 Single-family detached homes	Under Construction
23. Residence by Sergio Torres	5060 Saddleback St. (south of Howard, west of Fremont Ave.)	1 Single-family residence	Under Construction
24. TTM 17925 by Richard Chen	11225-11241 Fremont Ave.	19 Single-family detached homes	Under Preliminary Review
25. TTM 17509 by Grand Avenue Estates	Northeast corner of Pipeline & Phillips Blvd., south of Grand Ave.	37 Single-family detached homes	Under Construction
26. TTM 18213 by M & H Realty Partners V	Northeast corner of Monte Vista Ave. & Moreno St.; south of Arrow Highway	270 condominiums in 38 buildings plus clubhouse	Under Preliminary Review
27. Residence by Salvador Yanez	4594 Benito Street.	1 single-family residence	Building Plan Check
28. TTM 18286 by Laing Urban Homes	4900 block of Arrow Highway, north side of street	332-unit Planned Residential Development in 23 buildings plus clubhouse	Under Review
29. Commercial Building by Southern Fortune / Phil Cheng	11296 Central Ave., north of Phillips Ave	15,237 sf commercial building	Under Preliminary Review
30. Business Condominium Complex by B & L Investment Inc.	Northeast corner of Monte Vista and Mission Blvd.	96,166 sf business condominium complex with 12 buildings	Under Preliminary Review
31. Self-Storage Facility by Storage Specialists	5548 Arrow Highway	113,436 sf self-storage facility in 4 buildings	Building Plan Check
32. Commercial Building by Scripps West Investments	4467 Mission Boulevard	5,873 sf of restaurants	Under Construction
33. Police Department Facility	4870 Arrow Highway (Northwest Corner of Arrow Highway & Monte Vista Ave.)	45,800 sf police Station	Building Plan Check
34. Retail Center by Central Square Properties	Southeast quadrant of Central Ave. & Interstate 10 Freeway	13,952 sf retail center with restaurants	Building Plan Check
35. Chick-fil-A Restaurant by General Growth Properties	9130 Central Avenue (Southwest corner of Central & Moreno)	3,931 sf restaurant (Chick-Fil-A)	Building Plan Check
36. Montclair Plaza Regional Mall Expansion by General Growth Properties	South side of Moreno St., between Central and Monte Vista Avenues	Remodel of Broadway/Macy store	Building Plan Check
37. Office & Retail Building	10950 Central Avenue	10,816 sf office	Building Plan

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Cumulative Impacts (continued)

<b>TABLE 6-2 RELATED PROJECTS IN MONTCLAIR</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
by Sater-Yadgari Group		and retail building	Check
38. Auto Repair Facility and Storage Lot by Allen Olson	8997 Vernon Avenue	5,615 sf auto repair and storage lot	Building Plan Check
39. Street Improvements	Area bounded by Benson Avenue, Central Avenue, I-10 Freeway and San Bernardino Avenue, as well as north of I-10 Freeway, east of San Antonio Channel	Asphalt overlay on residential streets	During 2006-2007 fiscal year

Source: City of Montclair, Residential Development Summary, November 6, 2006; Commercial and Industrial Development Summary, November 7, 2006; and Capital Improvement Program 2006-2010.

Table 6-3, *Related Projects in Upland*, shows these planned and proposed developments in the City of Upland to the north of the site. Figure 6-3, *Related Projects in Upland*, shows the general location of these planned and ongoing developments in the City of Upland.

<b>TABLE 6-3 RELATED PROJECTS IN UPLAND</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
1. Tentative Tract 16206 by Taylor Woodrow	North of E 16 <sup>th</sup> St, south of 19 <sup>th</sup> St, east of Campus Ave, west of Eastgate Ave	55 single family residential lots	Under Construction
2. Tentative Tract 16207 by Taylor Woodrow	North of E 16 <sup>th</sup> St, south of 19 <sup>th</sup> St, east of N Campus Ave, west of Eastgate Ave.	68 single family residential lots	Under Construction
3. Tentative Tract 16209 by Colonies Crossroads	North of E 16 <sup>th</sup> St, south of 19 <sup>th</sup> St, east of N Campus Ave, west of Eastgate Ave	51 single family residential lots	Approved Tentative Tract Map
4. Tentative Tract 16416 by Colonies Crossroads	Immediately north of Highway 210 between N Euclid Ave and N Campus Ave.	10 single family residential lots	Under Review
5. Tentative Tract 16818 by Colonies Crossroads	Immediately northwest of Highway 210 and N Mountain Ave.	9 single family residential lots	Approved Tentative Tract Map
6. Tentative Tract 16989 by Colonies Crossroads	W 20 <sup>th</sup> St between N Palm Ave and N Redding Way SPN. 05-01	14 single family residential lots	Approved Tentative Tract Map
7. Tentative Tract 17298 by MRC Development	South of Highway 210, west of N Benson Ave	8 single family residential lots	Approved Tentative Tract Map
8. Tentative Tract 17474 by Emblem Dev. Corp.	North of E 18 <sup>th</sup> St, south of E Buffington St, between N Euclid Ave and N San Antonio Ave	27 single family residential lots	Proposed
9. Tentative Tract 17293 by The Upland Four LLC	North of W 22 <sup>nd</sup> St, south of Emerson St, between N Euclid Ave and N San Antonio Ave	3 single family residential lots	Approved Tentative Tract Map
10. Tentative Tract 17402 by Beazer Homes	North of W Foothill Blvd, south of W 13 <sup>th</sup> St, between N Mountain Ave and N Benson Ave	72 residential lots	Under Construction
11. Tentative Tract 17721 by Western Pacific	Northeast corner of W Foothill Blvd and N Benson Ave SPN: 05-04	46 Townhomes	Proposed
12. Tentative Tract 18106 by	Southeast corner W 15 <sup>th</sup> St and N	40 residential units	Proposed

## Section 6.0

## Cumulative Impacts (continued)

<b>TABLE 6-3 RELATED PROJECTS IN UPLAND</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
Distinguished Homes	Benson Ave		
13. No project name / Allied Retail Partners	South of Highway 210, north of W 16 <sup>th</sup> St, west of N Benson Ave	400 residential units	Proposed
14. Tentative Tract 17575 by Hutton Development	Southwest corner of W Arrow Hwy and Monte Vista Ave	537 residential lots	Proposed
15. Tentative Tract 18249 by K.B. Home	Southeast corner of W Foothill Blvd and Monte Vista Ave	223 attached condos	Proposed
16. Tentative Tract 17721 by California Pacific Homes	Southeast corner of W Foothill Blvd and Monte Vista Ave	145 residential lots	Proposed
17. City of Upland	Redding Avenue to 2 <sup>nd</sup> Street	Foothill Blvd Vision Plan	Proposed
18. William Lyon Homes	Northeast corner Sultana Ave and 8 <sup>th</sup> St.	115 townhomes	Proposed
19. DPDG Fund XII	S side 20 <sup>th</sup> St. east of Mountain Ave.	15-lot subdivision	Proposed
20. Royal Street Communication	123 E. 9 <sup>th</sup> Street	Wireless antenna	Proposed
21. George Taunton	8 <sup>th</sup> and Sultana Ave. northeast corner	105 live/work units	Proposed
22. Specific Plan review – SP 04-45	Northeast corner of Foothill Blvd and Fifth Avenue (535-583 Foothill Blvd)	17,120 sf retail center	Approved
23. Jin Y. Choi	820 W. Foothill Blvd.	447 sf restaurant addition	Proposed
24. Ninth Street Land Use	Central, Benson, Ninth and Railroad	General Plan and Zone Change	In Review
25. Hutton Rancho Monte Vista Apt. Homes	South side Arrow Route west of Central Ave.	240-unit apt. complex	Proposed
26. Canta Development	1262 E. 9 <sup>th</sup> St.	new SF home in historic district	Proposed
27. Aaron Dudley	160 W. Foothill Blvd.	Citibank remodel	Proposed
28. City of Upland	Alley and T intersection above alley between Palm and Laurel Ave. north of 11 <sup>th</sup> St.	Alley vacations	Proposed
29. CUP-04-14 Site Plan # 06-25	Southwest corner of Campus Avenue and the I-210 Freeway (1949 North Campus Avenue)	4,659 sf restaurant	Approved
30. Tentative Parcel Map TPM-16911	Southwest corner of 19 <sup>th</sup> Street and Campus Avenue (Lot 8 of Colonies at San Antonio Specific Plan Planning Area 17).	96,410 sf commercial development	Approved
31. CUP-04-06 Modification No. 1	Southwest corner of Arrow Route and Monte Vista Avenue	44,500 sf of commercial uses and 537 units	Proposed
32. CUP-05-16	Northeast corner of 19 <sup>th</sup> Street and Colonies Parkway, south of I-210 Freeway.	8,042 sf tire store	Approved
33. CUP-05-19 and Environmental Assessment Report No. EAR-1464	Southeast corner of San Bernardino Road and 13 <sup>th</sup> Avenue.	21,870 sf office building	Approved
34. Upland Crossing Specific Plan - SPR-12	South side of Foothill Blvd. generally bounded by extensions of Dewey Way, 11 <sup>th</sup> Street, and Monte Vista Avenue.	355 homes and a 27,500 sf commercial uses	Approved

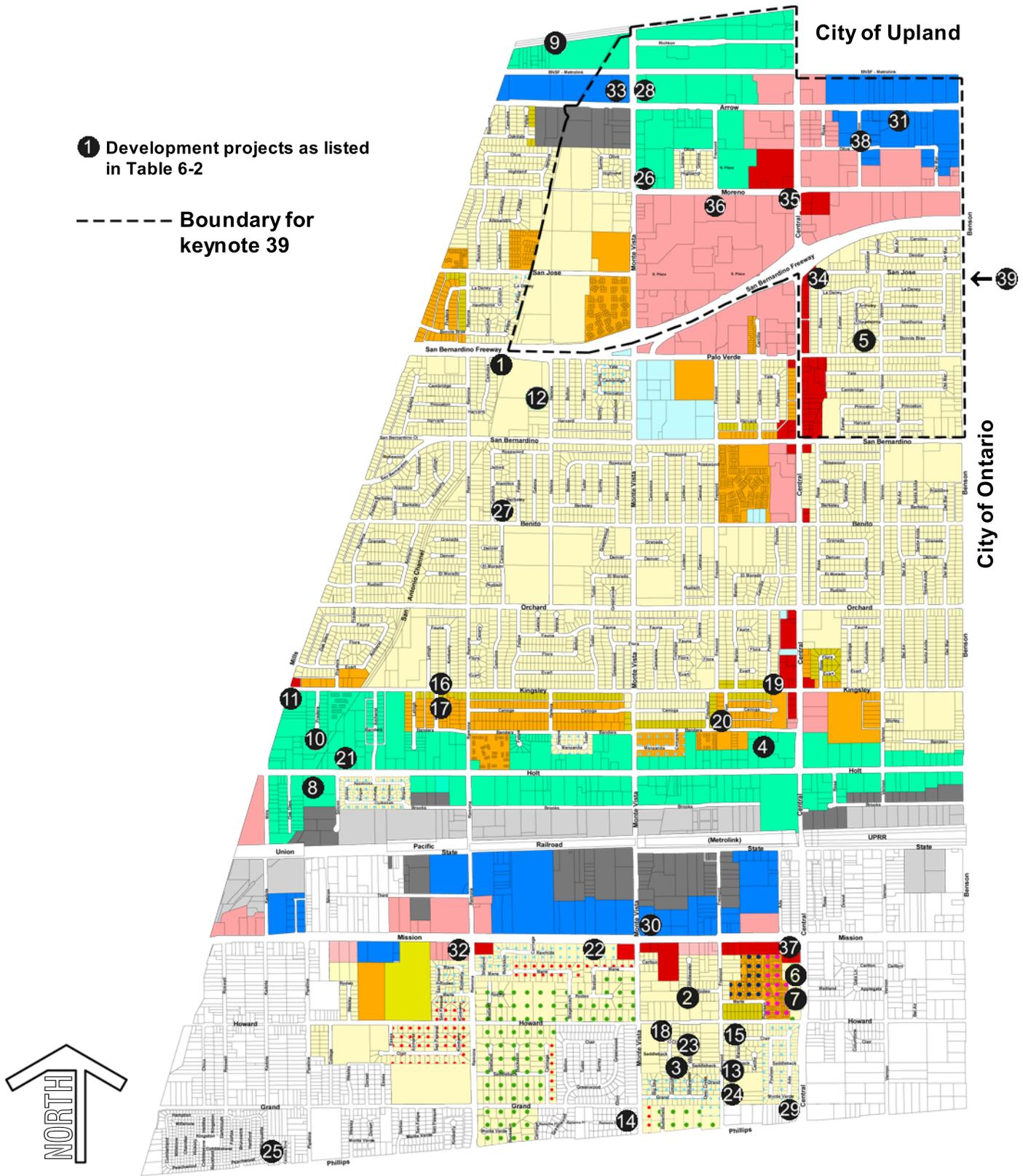
Section 6.0

Cumulative Impacts (continued)

<b>TABLE 6-3 RELATED PROJECTS IN UPLAND</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status</b>
35. CUP-06-01	Northwest side of 19 <sup>th</sup> Street and Colonies Parkway, south of 210 Freeway (1365 East 19 <sup>th</sup> Street).	2,500 sf clinic	Approved
36. TPM-17886	Southwest corner of Arrow Route and Monte Vista Avenue	commercial uses on 5.8 acres*	Approved
37. Specific Plan Review SP-06-21	In ad industrial park on the north side of 9 <sup>th</sup> Street, between Benson and Mountain Avenues (1431 W. 9 <sup>th</sup> Street), in the ML Zone.	6,000 sq. ft. steel building (warehouse)	Approved
38. Specific Plan Review SP-06-07; Conditional Use Permit CUP-06-04	Southeast corner of Arrow Highway and San Antonio Avenue (792 W. Arrow Hwy.), in the I zone.	Reuse of building for offices	Approved
39. San Antonio Community Hospital Expansion	999 San Bernardino Road	162,240 sf four-story building	Under Review
40. Al Gamboa Royal Street Comm.	San Antonio Park	telecommunication antenna	Proposed
41. Bill Callison	Pad 18 PA-17 Campus & 19 <sup>th</sup>	5,588 sf New Bank of America	Construction
42. Colonies Parkway / Phill Burem	PA-20 / College Parkway and Campus Ave.	Auto Gas Station	Under Review
43. John Hewitt	1317 E 19 <sup>th</sup> St.	Parking Lot	
44. Upland Redevelopment Department	Northeast corner of Foothill and San Antonio	Shopping center remodeling	Under Review
45. Ben's Motors	360 N. Central Ave.	Used auto sales lot	Under Review
46. Upland Stor King	107 Campus	3200 sf storage building	Under Review
47. Wesley Okamoto, AIA	795 N. Mountain Ave.	4714 sf dental office	Plan Check
48. San Sai Japanese Public Management Ventura	345 Mountain Ave.	2,270 sf Japanese Restaurant	Plan Check
49. Bruce McDonald Master Development Co.	2022 – 2066 W. 11 <sup>th</sup> St.	181,000 sf Industrial/Office Uses	Under Review
50. Inland Valley Recovery	1260 E. Arrow Hwy	Health Care Facility	Construction
51. Assibi Kantiok Church	382 N. 6 <sup>th</sup> Avenue	Daycare facility	Plan Check
52. Associated Engineers - PM 16716 (TPM-17886)	Southwest corner Arrow Rte. / Monte Vista	44,000 sf commercial uses	
53. Cingular Wireless	1667 N. Mountain Ave.	telecommunication facility	Plan Check
54. San Antonio Hospital	685 N. 13 <sup>th</sup> Ave.	642 sf office building addition	Construction
<p>*assumes maximum development at a floor area ratio of 0.40            Source: City of Upland Planning Log, December 2006; Administrative Committee Agenda, 2004-2006; Rosalie Staudenmayer, pers. comm. 4/18/2007; Pomona College website, accessed 4/18/2007; College Park Specific Plan, July 2005 p. 2-1; John Atwater, pers. comm. 4/18/2007; Jose Vargas, pers. comm. 4/30/2007.</p>			

As listed in Tables 6-1, 6-2 and 6-3, several residential, commercial and industrial developments are proposed and under construction near the project site. These include approximately 4,596 dwelling units in Ontario, 1,157 units in Montclair and 3,076 units in Upland, for a total of 8,829 new dwelling units. In addition, at

# Ontario Wal-Mart Supercenter

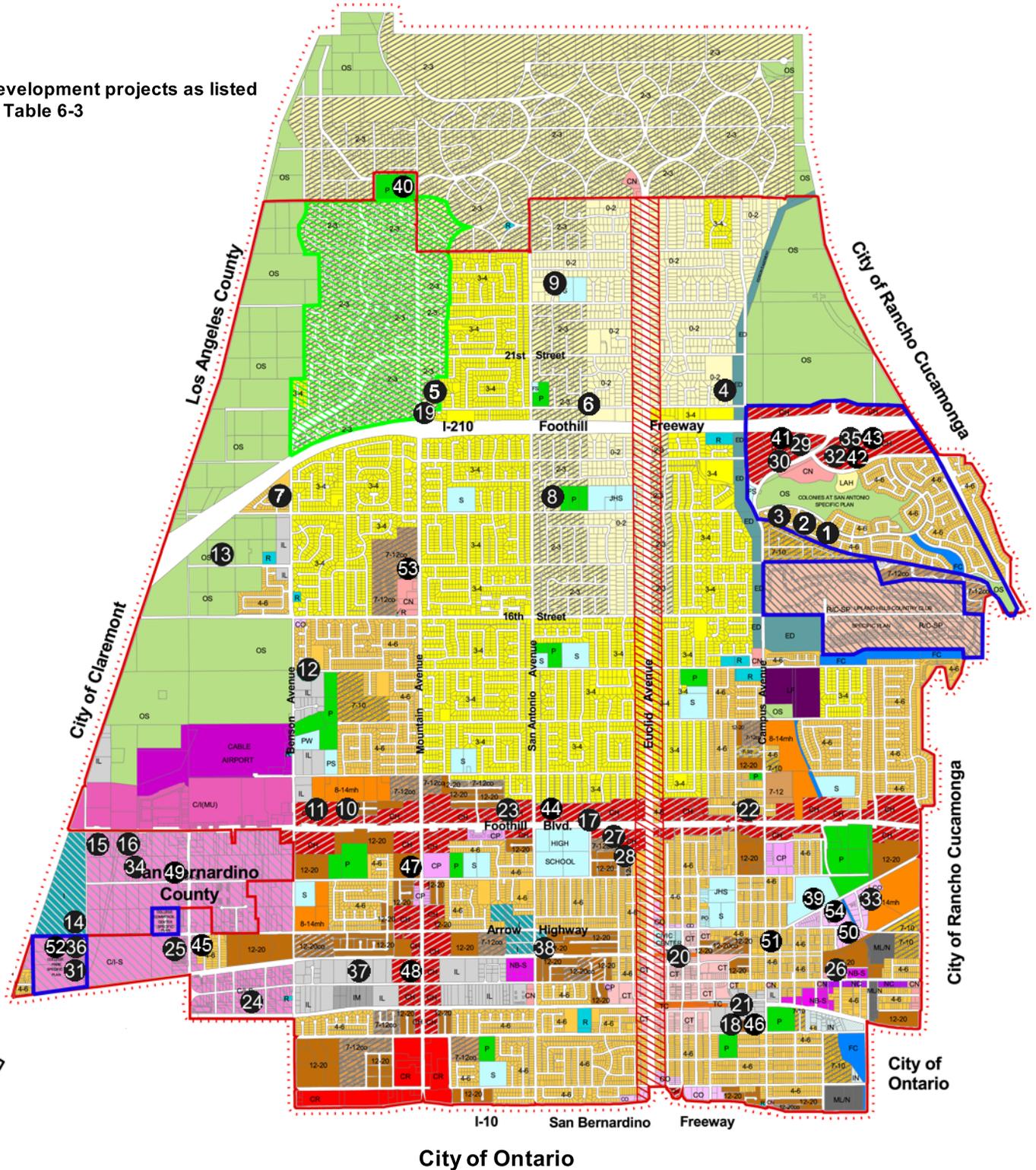


Source: City of Montclair, 2006

**Figure 6-2 Related Projects in Montclair**

# Ontario Wal-Mart Supercenter

1 Development projects as listed in Table 6-3



Source: City of Upland, 2007

## Figure 6-3

## Related Projects in Upland

least approximately 3.65 million square feet of commercial developments are proposed in Ontario, 0.26 million square feet in Montclair and 0.55 million square feet in Upland, for a total of 4.46 million square feet of commercial development in the surrounding area.

Proposed industrial projects in Ontario have over 4.49 million square feet of floor area, with 0.19 million square feet of industrial development in Upland for a total of 4.68 million square feet. Other proposed development projects in the area include a gas station, commercial remodeling, mall expansion, parking lots and structures, health care and day care facilities, multi-purpose center, used auto lot, police station, school, churches, gymnasium, concrete batch plant, water reservoirs and pumping station, telecommunication towers, street improvement projects, and a general plan amendment/zone change. Several specific plans for the development of a mix of industrial, residential, and commercial land uses are also proposed in the southern section of the City of Ontario. These related projects are expected to be developed in the surrounding area as part of approved and proposed developments in Ontario, Montclair, and Upland. A summary of the expected environmental effects resulting from these projects and the anticipated development under the proposed project on a cumulative level is addressed in this section.

While the extent of environmental changes that would occur with these individual developments may not be significant, the sum of the impacts of these related projects and future development on the project site may be cumulatively considerable, as defined in Section 15065 (c) of the CEQA Guidelines.

## **6.2 CUMULATIVE IMPACT ANALYSIS**

The analysis of the potential cumulative environmental impacts of these related projects, together with the impacts of the proposed project, is provided by issue area below.

### **6.2.1 Land Use and Planning**

The proposed project, as well as construction of the related projects, would mean changes in existing land uses in the project area. These projects would lead to new development on vacant areas and underutilized lots, leading to an intensification of housing development and commercial and industrial land uses throughout the project area.

The related projects would increase the City of Ontario's housing stock by approximately 4,596 housing units and would add 1,157 housing units to Montclair's housing stock and 3,076 units to Upland's housing stock. In addition, approximately 4.46 million square feet of commercial uses and 4.68 million square feet of industrial uses would be developed, along with other public, institutional, and infrastructure projects.

Increasing urbanization and development in the project area are indicative of the ongoing developments in the City of Ontario and the Inland Empire, as the project area develops and vacant lands are replaced with more urban land uses.

Based on the analysis provided in Section 4.2, *Land Use and Planning*, the proposed project would not result in the introduction of incompatible uses in the area, provided compliance with the City's development standards and applicable regulations. New development is generally evaluated for consistency with the local jurisdiction's land use policies, including the General Plan and Zoning Code. Future development has been anticipated in the General Plans for these cities and is not expected to result in adverse land use impacts. For projects that would not be in compliance with the relevant City's General Plan, the necessary General Plan Amendments would need to show consistency with the goals of the applicable General Plan and, thus, are not expected to lead to land use incompatibilities or conflicts.

The cumulative land use impacts of new developments in Ontario, Montclair, and Upland would be considered less than significant. Development of the project site would not result in any cumulative land use impacts as other projects are constructed in the area, since the cities of Ontario, Montclair, and Upland have adopted development standards that promote land use compatibility. Compliance with applicable development standards would prevent any land use conflict from future developments. Commensurate public and infrastructure improvements would also be provided with each development, as required by the cities.

Each proposed development project would be subject to the city's jurisdictional development review process and, if discretionary actions are needed, will be subject to evaluation for potential environmental impacts as required by CEQA. This review process would address potential land use compatibility issues and planning policy conflicts. Future development in the City of Ontario and the surrounding area would proceed in accordance with applicable General Plans and Zoning Ordinances. As part of permit processing, the development plan review processes for new development would analyze a project for conformity to applicable land use plans and policies, and within the context of existing and planned developments relative to the environmental goals, objectives, and policies of the applicable General Plan. Projects requiring General Plan Amendments or Zone Changes/Variations would need to show consistency with the goals of the applicable General Plan and purposes of the Zoning Code, and thus, are not expected to lead to land use incompatibilities or conflicts.

A number of infrastructure and public facilities are proposed to implement the General Plans and infrastructure master plans for the area, as well as to provide the necessary facilities and services to existing and planned developments. Thus, these related projects would complement the private development projects planned for the area.

The development of vacant land and development trends in the surrounding area are not expected to result in cumulative, significant adverse land use impacts, provided compliance with applicable land use controls is made. No significant cumulative adverse impacts on land use and planning are expected from the proposed project and related projects.

### **6.2.2 Population and Housing**

The related projects would lead to development of 4,596 dwelling units in Ontario, 1,157 units in Montclair and 3,076 units in Upland, for a total of 8,829 new dwelling units. These new housing units would result in approximately 17,433 new residents in Ontario (based on Ontario's 2007 average of 3.793 persons per household), 4,489 residents in Montclair (based on Montclair's 2007 average of 3.88 persons per household), and 8,942 new residents in Upland (based on Upland's 2007 average of 2.907 persons per household) for a total increase of 30,864 new residents in the project area. This utilizes the 2007 average household size for the corresponding cities, based on information provided by the California Department of Finance (Table 2: E-5 City/County Population and Housing Estimates, 1/1/2007).

In addition, a number of employment positions would also be created by the proposed commercial and industrial land uses, which would help reduce unemployment rates in the community and in the region. Assuming an average of one employee per 500 square feet of commercial uses, about 8,920 commercial employees are expected from the related projects. In addition, another 6,240 jobs would be created by industrial projects, assuming one job per 750 square feet of floor area. Infrastructure projects would not increase population, housing stock or long-term employment in the project area. Approximately 15,610 jobs would be generated by the proposed project and the related projects.

The cities of Ontario, Upland, and Montclair are anticipated to experience growth and development between the years 2005 and 2030, as projected by SCAG and summarized in Table 6-4, *Projected Growth*.

Area	2005-2030 Growth*			Related Project Growth		
	Population	Households	Employment	Population	Households	Employment
Ontario	134,355	45,043	62,249	17,433	4,596	13,737
Montclair	628	1,188	11,747	4,489	1,157	520
Upland	14,442	10,502	15,073	8,942	3,076	1,353
County	793,934	330,567	509,862			

\* SCAG RTP Growth Forecasts, 2004 (SCAG website, accessed 3/8/2007)

The increase in housing, employment, and population associated with the proposed project and related projects are expected to be within regional growth projections for Ontario and Upland. However, household and population growth from the related projects would exceed projections for the City of Montclair. This may be partly due to developments proposed outside the city boundaries and as part of annexation proposals.

In the larger region, San Bernardino County is expected to grow by 793,934 residents, 330,567 households, and 509,862 employees during the corresponding period. The proposed project and the related projects would represent approximately 4.0 percent of the resident population growth, 2.7 percent of the housing stock growth, and 3.1 percent of the employment growth predicted for the County during this period. Thus, the increase in housing, population, and employment generated by the proposed project and related projects are within predicted levels of growth accounted for in the County, as provided by SCAG projections and used in regional planning efforts.

Regional population, housing, and employment projections would not be exceeded by planned projects in Ontario and Upland. Significant population growth in Montclair is expected and would exceed projections. The proposed project would not drive development in Montclair or directly lead to the population and housing growth in Montclair. Rather, it would accommodate some demand for commercial goods and services that may be generated by future population growth in Montclair. Public services and infrastructure that would be needed by the proposed developments in Montclair would be provided by the City of Montclair and not by the City of Ontario. The City of Montclair is aware of these planned projects and would be providing the needed infrastructure and services to accommodate these developments. Thus, future growth in Montclair would not lead to adverse impacts in the City of Ontario. Cumulative impacts on population and housing that are expected from the proposed project and related projects would be less than significant.

### 6.2.3 Transportation and Circulation

New residential, commercial, industrial, institutional, and public developments resulting from future development on the site and construction of the related projects would increase the number of vehicle trips to, through, and from the surrounding area.

The proposed Wal-Mart Supercenter would be located in a project area that contains older developments and is largely built out. There is limited vacant land available for new development in the surrounding area. Also, the City does not anticipate, nor does it have pending, any large projects for the surrounding area, as shown in Figure 6-1 and listed in Table 6-1, above. Thus, the cumulative traffic impacts analysis assumed a growth rate in the area of 2 percent to accommodate growth among the City's existing

population and new vehicle trips that would be generated by planned developments or related projects occurring in the surrounding area.

Future traffic volumes and levels of service are discussed in Section 4.4, *Transportation and Circulation*. The analysis in this section includes projected levels of service (LOS) on area intersections due to growth and development in the project area and the addition of project-generated traffic.

New vehicle trips from the project and from new developments in adjacent areas would add to traffic volumes on local streets, intersections and the I-10 Freeway. Some vehicle trips would be confined to the area (short trips), while others would travel outside the project area to surrounding cities and urban centers and would affect the regional transportation system.

Adverse impacts to the circulation network would occur if the needed roadway improvements and trip reduction measures and programs are not implemented. In accordance with City regulations, each development would be required to implement the needed roadway improvements along its site boundaries and pay its fair share for needed improvements at off-site locations. Payment of the City's traffic impact fees would allow the City to fund signalization, roadway widening and other transportation programs and improvements necessary to maintain acceptable levels of service at local intersections. The San Bernardino County Congestion Management Program (CMP) also calls for improvements to the designated CMP roadway network, to maintain levels of service at LOS E or better. This is monitored through an enhanced transportation management program.

The projection of intersection operations with the 2 percent growth and the vehicle trips from the project is provided in Section 4.4, *Transportation and Circulation*. The analysis shows that three intersections operate at LOS E or F during the peak hours under existing conditions and would continue to operate at LOS E or F in 2008 with or without the project. These intersections include:

- ◆ Mountain Avenue and Eighth Street – PM peak hour
- ◆ Mountain Avenue and Sixth Street – AM and PM peak hours
- ◆ Mountain Avenue and Holt Boulevard – PM peak hour (TIS, 2007 p. 4-3)

Thus, cumulative traffic impacts are expected from the related projects and the proposed project. Improvements to the roadway system needed to maintain acceptable LOS are also addressed in Section 4.4.3. These include the need for protected traffic signal phasing in all directions at the intersection of Mountain Avenue and Eighth Street; an additional northbound through lane at the intersection of Mountain Avenue and Sixth Street; and additional left turn lanes in all directions and additional northbound and southbound through lanes at the intersection of Mountain Avenue and Holt Boulevard (TIS, 2007 pp. 7-1 to 7-2). [However, the City of Upland has indicated that no significant adverse impact or mitigation is needed for the Mountain Avenue-Eighth Street intersection \(Alex Qishta, pers. comm. 8/2/2007 and Deepak Ubhayakar, pers. comm. 8/21/2007\).](#)

The build-out of the City's General Plan and various community and sub regional plans, and General Plans of the adjacent cities have been assumed in the travel forecasts for the Southern California Association of Governments' Regional Transportation Plan (SCAG, 2004) and SANBAG's San Bernardino County Congestion Management Program. Both planning documents rely on Regional Growth Forecasts and Regional Transportation Forecasts to develop a circulation system capable of meeting anticipated future travel demand.

As approved by SANBAG, the City's DIF program collects fair share fees from new developments for funding roadway improvement projects that would relieve congestion at intersections and roadways in

and near the City. Payment of fair share fees by individual developments would provide the funding needed to implement roadway improvements needed to reduce traffic congestion and maintain traffic safety. In accordance with the Development Mitigation Nexus Study by SANBAG, future traffic volumes have also [been](#) projected and specific improvements to the regional transportation system identified. Funding for these regional projects have been incorporated into the DIF programs of individual cities, to allow for collection of adequate funding for these future transportation projects.

While existing and projected LOS at the intersections of Mountain Avenue with Eighth Street, Sixth Street, and Holt Boulevard are expected to be LOS F, the City's DIF programs includes improvements on Mountain Avenue from Brooks Street to Sixth Street (Mountain Avenue Reconstruction) and the widening of Holt Boulevard from Benson Avenue to Convention Center Way (Holt Boulevard Reconstruction). In addition, the County's Nexus Program also includes improvements on Holt Boulevard.

The traffic impacts associated with increases in traffic volumes due to new developments in the project area can be reduced or avoided through payment of fair-share development impact fees, the City's roadway infrastructure projects, and project-level roadway improvements. These programs would maintain acceptable roadway operations and prevent cumulatively significant adverse impacts in terms of traffic and circulation. While increases in traffic volumes on the regional roadway network could be expected in the future, these increases are considered and accounted for SANBAG's Nexus Study and CMP. Therefore, no conflict with regional transportation plans is expected from the proposed project and related projects. Also, the City's development impact fees would fund needed transportation projects, including regional traffic infrastructure, and account for any potential cumulative impacts to regional traffic. Planned roadway widening and improvement projects would also help improve the transportation system and traffic circulation in the area. However, due to the lag between the completion of development projects (and their associated increase in traffic) and the implementation of roadway improvements, cumulative impacts are expected to remain significant and unavoidable.

#### **6.2.4 Air Quality**

The proposed project and the related projects would increase air pollutant emissions in the South Coast Air Basin. New developments would result in pollutant emissions which could add to poor air quality in the region. Developments proposed in the project area would potentially impact air quality through short-term and localized fugitive emissions from demolition and construction activities and the generation of new vehicle trips and associated mobile source emissions generated by residents, employees, patrons, and visitors, coupled with on-site stationary emissions and off-site power and gas plant operations.

Any single project does not in itself create emissions in sufficient quantity to threaten air quality standards. Rather, the emissions from individual projects would be added to the emissions of similar projects throughout Southern California. While the individual impact of any single project is incrementally small, the cumulative impact of all such sources ultimately adds to the basin's inability to meet clean air standards. At the same time, planned roadway improvement projects would improve traffic circulation in the area and reduce traffic congestion and associated increases in mobile source emissions.

Based on the analysis provided in Section 4.5, *Air Quality*, the potential air quality impacts for the proposed project will not exceed significance thresholds during the construction phase, with the implementation of mitigation measures. However, the impacts from basin-wide construction activities are considered cumulatively significant, given the non-attainment status of the SCAB for smog and fugitive dust (PM<sub>10</sub>). Construction emissions typically occur in close proximity to the surface disturbance area. There may,

however, be some spill-over into the surrounding community. On and off-site vehicle movements have the potential to disperse fugitive 'dust' emissions over a larger geographic area and congestion effects due to construction phase traffic alterations have the potential to concentrate fugitive vehicular emissions. The episodic nature of these emission events makes it difficult to quantify, but their incremental addition to the basin pollution burden makes it that much more difficult for the South Coast Air Basin to achieve clean air in the near future.

Control of construction related air quality stressors requires diligent application and monitoring of best available control technologies for fugitive dust and on-site equipment emissions. Techniques including construction sequencing, minimal disturbance, access control and vehicle management, soil wetting, adverse condition stand down, and construction/demolition controls can all be effective in managing off site impacts from construction operations. The SCAQMD has established minimum requirements for the management of fugitive emissions from construction activities. Compliance with these regulations would minimize construction-related air pollution.

During operations, the vehicle trips that would be generated by the proposed project and related projects would be added to surrounding roadways and may potentially create micro-scale impacts to sensitive receptors adjacent to traveled roadways. Continued local and regional growth not only contributes vehicular emissions of itself, but often creates a slowing of all other cars to less pollution-efficient speeds as roadways reach their capacity. In addition to automobiles as the primary source of growth-related air emissions, a number of small secondary sources may also contribute pollutants to the regional burden. Such sources include temporary construction activity emissions, off-site or non-basin emissions from power plants supplying electricity, natural gas combustion, fireplaces, or the use of gas-powered landscape utility equipment. The imprecise or poorly defined nature of many of these miscellaneous sources makes it difficult to accurately inventory all of them, but their incremental addition to the basin pollution burden makes it that much more difficult for the South Coast Air Basin to achieve clean air in the near future.

Effective reduction of mobile source emissions would require a unified transportation system management (TSM) approach where a wide variety of transportation control measures (TCMs) are integrated into a comprehensive system of procedures and goals for cleaner cars. The City of Ontario is cooperating with SCAQMD in the implementation of regional air quality management programs and strategies. SANBAG is also working on the development of additional park and ride facilities in the County. The Ontario General Plan contains a Natural Resources Element, which addresses air quality issues and concerns and outlines the City's goals and policies for reducing pollution levels in the City and contributing to the attainment of clean air standards in the region. The General Plan also has an Aesthetic, Cultural, Open Space, and Recreational Resources Element that shows existing and proposed bike paths and bike routes throughout the City.

Omnitrans also provides bus transit in the County to discourage reliance on the private automobile and encourage public transportation use. With the development of the planned 5,149 new housing units and approximately 13,957 new jobs, the use of public transit services may increase. The proposed developments on-site and in the surrounding area would also provide opportunities for residents to walk to commercial areas and allow commercial employees to find nearby housing. Comprehensive land use planning for the area would allow the cities of Ontario, Montclair, and Upland to work towards reductions in air pollution from stationary and mobile sources.

Air quality impacts of project implementation, when considered in concert with other existing, approved and planned and not yet built projects, would therefore, result in an incremental contribution to the degradation of regional air quality.

The SCAQMD has recently adopted the Air 2007 Quality Management Plan (AQMP) for the South Coast Air Basin. This plan responds to recent changes in growth, development, and air quality in the region. The 2007 AQMP includes strategies for ultimately meeting the federal 8-hour ozone standard by 2023, the PM<sub>2.5</sub> annual standard by 2014, and the PM<sub>2.5</sub> 24-hour standard by 2020 (Draft Final 2007 AQMP, 2007 p. ES-1).

The AQMP takes into consideration future regional growth and increases in vehicle trips throughout the region, such as those that would be created by the project and the related projects. New technology and improvements to products and equipment would represent offsets to the net increase in air pollution in the region. In addition, compliance with the rules and programs of the SCAQMD, as part of the implementation of the AQMP, are expected to result in further improvements to regional air quality.

The proposed project and the related projects would comply with applicable measures and programs of the AQMP, and with the regulations the SCAQMD is implementing in compliance with the AQMP. Future developments would implement measures in accordance with SCAQMD Rule 403, Fugitive Dust Control, and other applicable rules for non-residential uses and equipment use or other SCAQMD-regulated activities. The proposed project would also implement measures designed to reduce vehicle trips, through the provision of bike racks, preferential carpool/vanpool parking, loading areas, energy conservation features, and design features that encourage trip elimination or diversion. Similarly, the related projects would comply with applicable SCAQMD rules, energy conservation design, and/or trip reduction measures. The SCAQMD rules have been developed to implement the AQMP and full implementation of the AQMP would improve regional air quality and prevent adverse air quality impacts from new developments in the air basin. The ultimate success of AQMP programs and measures on the region-wide level would result in successful reductions of cumulatively significant air quality impacts and clean air in the basin.

Future developments in the region would need to comply with relevant SCAQMD rules and regulations that are intended to reduce pollutant and toxic emissions; prevent nuisance emissions from construction activities; promote ridesharing and decreased use of single-occupant vehicles; and decrease emissions from equipment and commercial and industrial activities. Compliance by individual development projects with pertinent air quality regulations would reduce future contributions to regional air pollution and allow the South Coast Air Basin to meet clean air standards.

The proposed project represents only a very small percentage of future development that is expected in the region. Thus, the project's air quality impacts would be minimal when compared to existing emissions in the air basin. However, the project and related projects would contribute to existing violations of clean air standards in the South Coast Air Basin and would incrementally hinder the attainment of clean air in the basin. Thus, the combined emissions from the project and the related projects are considered a cumulatively significant regional air quality impact.

Aside from criteria pollutants, the proposed project and related projects would also generate greenhouse gases (GHG) that have the potential to affect global climate change. A discussion of this issue is provided at the end of this section (Section 6.2.16, *Global Climate Change and Greenhouse Gases*).

#### **6.2.5 Noise**

Construction of the project, when considered in concert with related projects in the area, would result in short-term noise impacts that would accompany the construction phases of each project. Since these projects would not occur simultaneously, construction noise impacts would be short-term and incremental; would occur at scattered locations; and can be mitigated to below a level of significance with controls on

construction time periods and equipment use. Thus, such impacts would not be regarded as cumulatively significant.

Impacts associated with vehicles coming to and leaving individual developments would lead to increases in noise levels along roadways throughout the project area. This would affect land uses along major streets and could be adverse for noise-sensitive land uses such as residences, hospitals, libraries, schools, nursing homes, rehabilitation centers, and other areas with sensitive receptors that may be present or constructed along these streets. Stationary noise impacts would also occur as they relate to large crowds and outdoor activities. Noise levels are expected to increase throughout the project area, as new development occurs. The cities of Ontario, Montclair, and Upland require that new development not generate noise levels in excess of established standards and residential areas be designed to control noise from traffic on abutting roadways. Thus, individual projects would provide noise control to meet noise standards and individual project mitigation would serve to reduce cumulative noise impacts to less than significant levels.

Noise from new developments would not result in significant cumulative adverse impacts with the provision of noise control measures at the project-level, as required by the individual cities. Specifically, the Ontario General Plan provides noise standards that call for an exterior noise level of 65 dBA CNEL and an interior noise level of 45 dBA CNEL for residential uses. The interior noise standard for commercial uses is 55 dBA CNEL and there is no exterior standard.

In addition, the Ontario Development Code (Title 9, Section 9-1.3305) establishes an exterior noise standard of 45 dBA for single-family residential areas, 50 dBA for multi-family residential areas, and 60 dBA for commercial areas from 10 PM to 7 AM and an exterior noise standard of 65 dBA CNEL for residential and commercial uses from 7 AM to 10 PM. Interior noise standards for multi-family uses are also restricted to 35 dBA at any time; 40 dBA for 1 minute for every hour; and 35 dBA for 5 minutes for every hour from 10 PM to 7 AM. Standards are 45 dBA at any time; 50 dBA for 1 minute for every hour; and 45 dBA for 5 minutes for every hour from 7 AM to 10 PM.

All new developments are generally required to provide noise studies that identify future noise levels that the development would be exposed to and the needed acoustical measures to attain acceptable interior and exterior noise levels, along with features to prevent the generation of excessive noise. Thus, related projects and the proposed project would implement measures to reduce noise impacts on adjacent land uses, as well as measures to prevent noise impacts on any proposed noise-sensitive land use.

Compliance with these regulations would reduce the exposure of existing and future land uses to excessive and unwanted noise levels. However, there are existing noise-sensitive land uses located on major roads and freeways that are exposed to noise levels in excess of City standards. Future development would add vehicle traffic on these roadways and exacerbate existing violations. Due to the mobile nature of vehicles and the presence of older developments that have experienced cumulative increase in traffic noise over time, traffic noise impacts from the project and related projects are expected to contribute to existing violations and impacts would be significant. Thus, significant cumulative roadway noise impacts are expected from the proposed project and related projects.

#### **6.2.6 Geology and Soils**

The proposed project and the related projects would involve grading and excavation activities on individual sites, which would result in changes to the existing topography of the area. Development sites, which are relatively flat, would remain flat while the areas with rolling terrain may be graded to provide gradual slopes. While there would be changes in the topography of the area due to grading and earth-moving activities, the adverse impacts would be limited to areas with steep slopes and areas where manufactured

slopes would need to be developed. Hillside development presents the greatest impact on geology due to the potential alteration of landform and the presence of geologic hazards (landslides, soil erosion, and slope stability) in these areas. Standard geotechnical engineering practices would reduce geologic hazards to new development.

The San Jose and Cucamonga faults are located nearest the project site, and earthquake events on these faults could lead to peak ground acceleration at the site of 0.62 gravity (g). This acceleration has a 10 percent chance of being exceeded in 50 years. Other nearby earthquake faults include the San Andreas, San Jacinto, Sierra Madre, Indian Hill, Chino, and Whittier-Elsinore faults. Related projects proposed near these faults would be subject to surface rupture hazards. Critical facilities and residences are not allowed within the fault zone and surface rupture hazards would not represent cumulative adverse impacts.

Groundshaking hazards associated with regional earthquakes may also occur in the project area. While measures to prepare for an earthquake can be augmented, the actual impact of an earthquake event cannot be predicted. Should a major earthquake occur along the San Jose or Cucamonga fault or other nearby faults, structural damage to the project area could be sustained. Developments located near the fault would generally suffer more damage than those farther away from the fault, depending on local soil conditions. Compliance with seismic design criteria in the Uniform Building Code would limit damage to proposed structures and infrastructure. Earthquake impacts can also be reduced by emergency preparedness programs. Seismic risks associated with the project site, when considered with the related projects, would not be regarded as cumulatively significant.

Impacts on geology by new development are not expected to be significant, with compliance with engineering practices related to seismic and geologic hazard reduction and structural integrity.

### **6.2.7 Hydrology and Water Quality**

The project and the related projects would increase the resident population and intensity of development in the area. This translates to a greater demand for water and increased pumping of the groundwater basin, as well as greater use of imported water sources. The Ontario Utilities Department, Cucamonga Valley Water District Upland Water Department, the Monte Vista Water District, and other water purveyors in the Chino basin provide water services to the cities of Ontario, Upland and Montclair and areas where the related projects are located. These water service agencies utilize water from groundwater resources, surface water from Lytle Creek, and imported sources through the Metropolitan Water District of Southern California. Individual developments will coordinate with the water agencies to ensure that they can be provided water service in a timely and adequate manner.

New developments would increase impermeable surfaces and decrease water percolation areas. Future open space areas, parks, and pockets of vacant land serve as recharge areas, as they provide for the natural recharge of local groundwater resources. Increase in impervious surfaces would reduce recharge but since individual project sites are not designated as groundwater recharge areas, no significant adverse impacts are expected.

The increase in runoff volumes would also increase stormwater volumes and rates in local and regional drainage channels. Implementation of a Water Quality Management Plan for individual projects would reduce runoff volumes, rates and duration from individual projects, and would prevent erosion, sedimentation or other hydrologic conditions of concern. The regional channels have been designed to accommodate runoff from the entire watershed and new developments are required to provide on-site improvements and other storm drain system upgrades to ensure no net increase in runoff over the pre-development condition and prevent the creation of flood hazards at downstream areas.

The City requires new development to provide the needed storm drain infrastructure systems to serve individual developments and the elimination of existing on-site flood hazards prior to development. With each new development, the area-wide storm water infrastructure would become more established and flood hazards would be eliminated or prevented. Thus, no cumulative adverse impacts related to flood hazards or inadequate storm drainage are expected.

New development in the project area would also bring new sources for urban pollutants, which could impact stormwater quality. The project site and related projects are located within the Upper Santa Ana River watershed. Major surface and ground water features in this region include Chino Creek, San Antonio Creek, Lytle Creek, Cucamonga Creek, Day Creek, Etiwanda Creek, the Chino groundwater basin and Prado flood control basin, where waters join the Santa Ana River. These resource areas form part of the greater Santa Ana River Basin, encompassing parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County.

Regional water quality objectives for receiving waters in the basin are set forth in the Water Quality Control Plan (Basin Plan) adopted by the Santa Ana Regional Water Quality Control Board (SARWQCB, 1995). The Basin Plan is reviewed triennially, with the current (2006) review underway. Key water quality parameters set forth in the Basin Plan objectives are Total Dissolved Solids (TDS), Sodium (Na), Chloride (Cl), Total Inorganic Nitrogen (TIN), Sulfate (SO<sub>4</sub>), and Chemical Oxygen Demand (COD). A number of surface water bodies in the project vicinity have also been listed as impaired water bodies under Section 303(d) of the Federal Clean Water Act, requiring States to publish a list of those waters not meeting the water quality standards established for them. Those water bodies listed include Chino Creek, Lytle Creek, Cucamonga Creek, and Prado Park Lake. The non-attainment parameters recorded for these waters are pathogens and nutrients.

San Bernardino County has developed Model provisions for Water Quality Management Plans for new development and significant re-development (County of San Bernardino, 2005). The provisions identify potential stormwater pollutants, such as pathogens, metals, nutrients, pesticides, sediments, trash and debris, oxygen demanding substances, and oil and grease, that may be expected or that could potentially be generated by various developments and which may pose hydrologic pollutants of concern in the region. This information provides a general overview of the range of pollutants typically found in urban stormwater; however, each project would be required to be assessed individually to accurately determine the likely pollutant contribution.

Construction activities regulated under the NPDES and RWQCB's General Permit for Construction Activities and the Water Quality Management Plans for individual developments would reduce urban runoff pollution. New developments that generate pollutants with the potential to degrade stormwater quality would be required to implement on-site treatment of runoff prior to off-site discharge. The project and the related projects would have to comply with these mandates through the appropriate implementation of both source control and treatment control BMPs for stormwater quality protection. Therefore, no cumulative adverse impacts on hydrology and water quality are expected from the proposed project and related projects.

#### **6.2.8 Biological Resources**

The cumulative impacts on biological resources due to the proposed project and the related projects include greater urbanization and removal of existing vegetation, which could affect existing plant and animal life in the area. Development on disturbed lands and developed areas, which are likely to support non-native species or disturbed habitats, would not have adverse impacts on sensitive plant species. However, new development in vacant areas can disrupt sensitive biological communities. Sensitive plant and animal species

and their habitats, which may exist in these areas would be disturbed and destroyed with the introduction of urban land uses.

The loss of open space that would result from increased urbanization of the project area would be accompanied by losses of ecological systems and wildlife habitats. Removal of existing trees and open fields would lead to loss of nesting and foraging areas for migratory birds. Sensitive habitats, such as wetland areas, streams and channels, and scrub communities that are present in the area could be disturbed or destroyed by new developments. The loss of these habitats would lead to the disturbance of sensitive plant and animal species, as well as the loss of biological diversity in the project area. Cumulative impacts on the loss of plant communities and animal habitats would occur.

Future developments in the project area would be required to conduct biological surveys for sensitive animal species. The disturbance or destruction of these species on a site would require a Section 10 or Section 7 consultation and coordination with the U. S. Fish and Wildlife Service, the California Department of Fish and Game, RWQCB, and other resource agencies and would require on-site preservation or off-site mitigation, as required by existing regulations. In addition, sensitive habitats such as wetland areas, streams and channels, coastal sage scrub and other habitats would also need to be preserved through on-site or off-site mitigation. These biological surveys and requisite mitigation would be made in coordination with the cities of Ontario, Montclair and Upland, the California Department of Fish and Game, the U. S. Fish and Wildlife Service, the U. S. Army Corps of Engineers, and the Regional Water Quality Control Board, as necessary.

While changes in the biological diversity of the area would occur with future developments proposed in the project area, programs and regulations are in place which would reduce cumulative impacts to sensitive biological resources. These include on-site or off-site mitigation, fees, permits, agreements, and coordination with resource agencies.

### **6.2.9 Mineral Resources**

The project area does not contain aggregate resource, except for the southeast section of the City of Ontario and the northwestern section of the City of Upland. Based on the Ontario General Plan, the City does not seek to preserve aggregate resources in Ontario since the areas where gravel resources are present are developed or proposed for development. Aggregate extraction would be an interim use provided it is compatible with existing and proposed uses in adjacent areas. Goal 3.0 of the Ontario General Plan Natural Resources Element provides “for future land use compatibility of aggregate resource sectors with adjacent urbanizing areas”. This goal was established to ensure that land use conflicts are not created by future mining activities on existing and planned urban land uses.

The Upland General Plan designates these areas as open space for the conservation of mineral resources or future beneficial uses. The proposed project and related projects would preclude mining on the individual project sites but resources are present in other areas where mining is occurring, in open space areas, and in other undeveloped sites in the area. Thus, impacts associated with access to mineral resources would not be cumulatively significant.

The project and the related projects would create a demand for energy and mineral resources in the area. Construction activities would require the use of sand, gravel, water, lumber, and other natural resources for buildings and infrastructure. These resources are likely to come from local resources in the San Gabriel, Claremont-Upland, San Bernardino, and Temescal Valley regions. The cumulative demand for aggregate resources by future developments in the cities of Ontario, Montclair, and Upland may be significant, but they would occur incrementally over time. Energy for use and occupancy of the developments under the proposed project and the related projects would also be needed during the long-

term use of these structures. These demands are not expected to be significant when compared to available resources or the existing demands in the entire Southern California region.

Cumulative impacts are expected to be insignificant when compared to available resources in the State and the extent of demand from ongoing construction activities in the cities of Ontario, Montclair, and Upland and the Southern California region.

#### **6.2.10 Public Services**

The proposed project, when considered with the related projects in the area, would cumulatively contribute to an increased demand for fire, police, school, parks, medical, and library services. New development and other related projects would add to the cumulative demand for such services through the introduction of new residents, employees, visitors, vehicles, and structures in the project area.

**Police Protection Services** – The proposed project and the related projects would increase the demand for police protection and law enforcement services in the area. Due to the range of factors that affect the need for police services, the number of police personnel or facilities needed to serve the project and the related projects cannot be easily quantified. However, an increase in the resident and daytime population translates to an increase in demand for police services, requiring an increase in police personnel and equipment to serve the public safety needs of residents and businesses. The Ontario, Montclair, and Upland Police Departments would require additional staff and equipment to serve the increase in population associated with future developments in the area. The City of Ontario reviews its police services annually to determine the appropriate level of service and budget to provide for adequate police services in the City. Thus, impacts of future developments in Ontario on the Ontario Police Department are expected to be addressed through City policies and programs.

The City of Ontario Police Department has commissioned an Optimum Staffing Study to provide unbiased empirical data and make staffing recommendations based on proven best practices in the field of public safety, particularly in the deployment and management of personnel within the Police Department. The goal of the study is to provide the City with a clear description for levels of staffing that are tied to response times, time for proactive patrol, time to work with the community on problems, and officer safety (City of Ontario Council Agenda website, 5/11/2007).

Evaluation of key service indicators would allow the cities of Ontario, Montclair, and Upland to continually monitor the adequacy of police protection services and identify appropriate funding levels and needed resources. Individual developments are subject to development fees, which help finance public facilities, including police services, fire services, and library facilities. Payment of these development fees provides the funding for police services.

Annual evaluation of police services by the cities of Ontario, Montclair, and Upland would ensure that acceptable service levels for public safety are maintained. This evaluation and funding are expected to provide the necessary police services to the project area and prevent any significant cumulative adverse impacts on the existing level of police protection and law enforcement services.

**Fire Protection Services** – The proposed project and the related projects would increase the demand for fire protection and emergency services in the area. The demand for fire protection services cannot be easily quantified in terms of new fire stations, firefighters, or equipment. However, the introduction of occupied structures and population translates to an increase in demand for fire protection services, requiring service expansions from the Ontario, Montclair, and Upland Fire Departments. New fire fighters, fire stations and other resources and facilities may be needed to adequately serve existing and planned developments.

Individual developments are required to comply with pertinent provisions of the Uniform Fire Code to prevent the creation of fire hazards, to promote fire safety, and to facilitate emergency response. The cities of Ontario, Montclair, and Upland also regularly review fire services in the area and the needed increases in staffing, fire stations, and equipment as necessary to keep response times reasonable and to adequately serve the project area. Regular review of projects coming on-line by the Fire Departments would ensure that no fire safety hazards are created by new development; that fire prevention measures are incorporated into new developments; and that fire emergency response is facilitated by provision of adequate access and fire alarm systems. Implementation of these measures would avoid potential significant cumulative adverse impacts on fire protection services. Individual developments are also subject to development fees, which help finance public facilities, such as police services, fire services, and library facilities. Payment of these development fees and yearly evaluation of fire service provision are expected to provide the necessary fire services to the area and prevent any significant cumulative adverse impacts on fire protection services.

**School Services** - The increase in housing development in the area would lead to increases in the student population. Using the Ontario-Montclair School District's student generation factor of 0.406 K-8<sup>th</sup> grade student per housing unit and the Chaffey Joint Union High School District's student generation factor of 0.2622 9-12<sup>th</sup> grade student per unit, the 5,149 new housing units expected in the project area would lead to a student population increase of approximately 3,440 new students from the proposed project and the related projects. Non-residential developments may also indirectly add to the student population, as employees are allowed to request school transfers by place of employment.

Payment of mandated school impact fees is intended to provide funds to allow the school districts to adequately serve the potential student population increases. Payment of these fees would mitigate any significant cumulative impacts on school services.

**Library Services** - The increase in the resident population in the project area that would occur with the related projects and the proposed project would result in the increase in patrons at the Ontario Main Library, Montclair Branch Library, Upland Public Library, and other libraries within the area. Future development would increase demand for library space and book materials.

The Division of Library Development Services of the State of California recommends an average of 0.4 to 0.5 square feet per capita and 2.0 books per capita. The 17,547 new residents of the area would require 8,774 square feet of library space and 35,094 books. Expansion of library facilities and resources would be needed to serve this demand.

Payment of developer fees would help fund library services and facility improvements. The increase in demand for public services that is brought on by new developments will be mitigated by payment of developer fees and assessments imposed primarily to finance these public services. Thus, no significant cumulative adverse impacts on library services are expected.

**Medical Services** – Increase in the resident population and employment base in the project area would lead to an increase in demand for medical services in the area. There are several medical facilities near the site and in the region that would provide emergency services to the patrons and employees of the project, depending on the type of emergency. These include the Doctors Hospital Medical Center of Montclair, the San Antonio Hospital in Upland, Pomona Valley Hospital and Medical Center, the Kaiser Permanente of Southern California Hospital in Fontana, Chino Community Hospital, Arrowhead Regional Medical Center, Loma Linda Community Medical Center, Loma Linda University Medical Center, Riverside Community Hospital, Redlands Community Hospital, Saint Bernadine Medical Center,

and Pettis Veterans Affairs Medical Center. Any of these facilities or other hospitals may serve the residents or employees of the project and the related projects.

The proposed project and related projects would be required to comply with pertinent public health and safety regulations to prevent the creation of hazards to the health and safety of residents, employees and patrons at individual sites. Since no hazardous conditions are expected to be created by the proposed project and related projects, available services in the area are expected to serve the emergency medical needs. No cumulative adverse impacts are expected.

***Parks and Recreation*** - The related projects identified in this section, including the proposed project, would contribute to the cumulative need for more recreational open space and park facilities in the area. Typically, open space requirements are a function of expected demand and are typically related to the number of residential dwelling units created by projects. Pursuant to Section 66477 of the California Government Code (or Quimby Act), the Ontario Development Code requires payment of a fee, the dedication of land for park and recreation facilities or a combination of both for the provision of parks and recreational facilities for new residential developments. Ancillary demands for recreational resources created by the development of commercial and industrial land uses are not subject to Quimby fees (Section 9-2.1500 of the Ontario Development Code). The cities of Montclair and Upland have similar development guidelines requiring parkland dedication/provision for residential developments. Section 3.44.020 of the Upland Municipal Code requires payment of a Park Acquisition and Development Impact Fee by all developments and Quimby fees for subdivisions. Section 11.38.080 of the Montclair Municipal Code requires the payment of park land dedication or park fees by residential projects for the development of parks in the City.

The proposed project has been designed in conformity with the policies in the Ontario General Plan and the Mountain Village Specific Plan, by providing pedestrian walkways and coordinated bicycle access throughout the site.

Consistent with relevant City park requirements, individual projects would pay park fees or dedicate open space lands to meet the demand for parks and recreational facilities generated by each development. Monitoring of open space, park, and recreational needs would remain the responsibility of individual cities and would ensure that the available resources remain adequate to meet demand.

Since individual development projects would mitigate their incremental impact on recreational needs, no significant cumulative impacts would result from project implementation.

### ***6.2.11 Utilities***

The project, along with other approved and planned projects in the immediate area, would result in the need for additional water supplies, sewage treatment capacity, landfill capacity, and energy resources. New developments in the project area would be required to provide the utility connections to individual sites. Coordination with the utility companies would allow for the extension of utility lines and timely service to serve individual developments.

Cumulative impacts on utilities anticipated to result from future development are subject to connection and service fees, to assist agencies in facility expansion and service improvements to support increase in demands. Also, utility agencies provide services on demand and would not experience significant cumulative impacts from growth and new development in the area. Water and energy conservation measures, as well as waste recycling programs are also expected to reduce long-term demands for water, power, gas, sewer, and solid waste disposal services. Project-specific and cumulative utility service

impacts are considered less than significant. An expanded discussion of cumulative impacts to utilities is provided below.

**Water Service** - The increased demand for water from future development projects within the project area would result in increases in water consumption. Based on the City of Ontario's Urban Water Management Plan (UWMP), as discussed in Section 4.12, *Utilities*, the City of Ontario has sufficient water supplies to meet its projected demands up to the 2030 planning year. Other water providers in the region, including the Monte Vista Water District (MVWD) and the City of Upland Water Division, also confirm the status of their existing and future supplies (MVWD Facilities Master Plan website, 5/11/2007 and City of Upland UWMP, 2005) based on current planning projections for the region.

Also, the Metropolitan Water District of Southern California (MWD) reports that regional water supplies from the MWD would provide a reliable source of water for the Southern California region member agencies (including Ontario, Montclair Vista, and Upland through the IEUA) for the next 20 years based on existing growth and land use forecasts (MWD Regional UWMP, 2005 p II-11).

Coordination with the Ontario Utilities Department, Upland Water Division, and the Monte Vista Water District and payment of connection and service fees would be needed to ensure water service to future developments and the continued availability of imported water supplies and groundwater resources. Water conservation measures would help to reduce water consumption levels. Extension of water lines to serve individual lots and building pads would need to be made in coordination with the affected water company. No significant cumulative impacts to water services are anticipated.

**Sewer Service** – Future development projects would generate additional sewage volume. Coordination with the cities of Ontario, Montclair and Upland and the Inland Empire Utilities Agency, along with payment of service and facilities fees would be needed to ensure sewer service to future developments. These fees are used to fund operation and maintenance of the treatment plants and sewer mains, as well as for expansion of the needed facilities. Existing and planned sewer infrastructure and treatment plant capacities are available to serve future developments. Extension of sewer lines would be made in coordination with the cities of Ontario, Montclair, and Upland. No long-term impacts to sewer service have been identified; thus, no significant cumulative impacts are anticipated.

**Storm Drainage** - The related projects and the proposed project would increase paved surfaces and limit natural recharge of the groundwater. They would also increase stormwater runoff volumes from the project area. However, major storm drain lines have been constructed in the area to accommodate stormwater from the entire watershed. Regional storm drains (San Antonio Creek Channel, Chino Creek, Prado Dam, and the Santa Ana River) are available to serve the project area. Individual developments are also required to provide on-site facilities and storm drain facilities on public roadways to convey runoff into the drainage system. No cumulative impacts to storm drainage facilities are anticipated.

**Solid Waste Disposal** – Related projects and the proposed project would generate solid wastes which would require waste collection services. Burrtec and the cities of Ontario and Upland provide trash collection services on demand. Future developments would also create a demand for solid waste disposal and landfill capacity. There is capacity at the Mid-Valley Landfill and El Sobrante Landfill to serve future developments in the area for the next 20 years or more. Recycling and waste reduction measures that are being implemented in accordance with AB 939 would also reduce solid waste volume and the demand for landfill capacity. No significant cumulative impacts are anticipated.

**Power and Gas Services** – A cumulative increase in demand for power and gas services would occur with the related projects and the proposed project. Because there is a wide variety of energy sources used for

power generation, it is anticipated that the project and the related projects would present no adverse impacts on SCE services or existing energy sources. SCG also provides natural gas service on demand, and no adverse impact on their services is anticipated with future development projects in the project area. Extension of power and gas lines to serve individual projects would be made in coordination with SCG and SCE. Energy conservation measures incorporated into new developments would also reduce energy demands.

**Telephone and Cable Services** - Cumulative demand for telephone and cable services would occur with the related projects and the project. Verizon and Time Warner provide service on demand, and no adverse impact on their services is anticipated with future developments in the project area. Extension of telephone and cable lines to serve individual projects would be made in coordination with Verizon and Time Warner.

### **6.2.12 Human Health and Hazards**

The cumulative impacts of future development projects on human health include increases in population and development, which may result in the creation of risks to public health and safety. There are existing regulations on a variety of activities and uses relating to health and safety at all levels of government. Compliance of individual projects with pertinent regulations would preserve public health and safety. Thus, new developments in the project area are not expected to present significant risks to public health and safety.

The proposed project and the related projects would require emergency planning for natural or manmade disasters that may occur in the planning area. Hazardous material explosions or contamination may potentially occur with proposed commercial and industrial developments that would handle these materials in large quantities. State and federal regulatory agencies are responsible for regulating hazardous materials use. Monitoring by the cities, the Fire Departments, San Bernardino County Health Services, and other local agencies would ensure compliance with the regulations of these agencies. Evacuation and emergency routes can be blocked by proposed roadway projects and construction activities that extend into the street. As required, compliance with the Standard Specifications for Public Works Construction (Greenbook) would ensure access to individual parcels is maintained at all times, detours are established, and temporary traffic controls are implemented. Impacts would be temporary and insignificant.

Compliance with existing health and safety regulations would prevent the creation of health risks and public safety hazards from new developments in the project area.

### **6.2.13 Visual Quality and Aesthetics**

More intense urban development in the project area can be expected as vacant land is utilized by new developments. Future developments on the site and the related projects would change the visual quality of the landscape through the introduction of structures in presently unimproved areas and the redevelopment of older structures or large lots for higher density uses. Future developments would contribute to the cumulative loss of undeveloped land in the cities of Ontario, Montclair, and Upland. Since visual quality and aesthetics is highly subjective, the loss of open space itself cannot generally be regarded as a significant impact.

The project, as well as the related projects, would result in transformations of the visual environment. This transition from vacant land and lower density development to urban structures reflects the urbanizing trend that is occurring in Ontario and in the surrounding communities. As vacant land is developed and replaced with urban land uses, views of the area would change from an area with undeveloped land to one that is fully built out. These changes would include the introduction of buildings, parking lots,

landscaped areas, parks, outdoor signs, and other infrastructure improvements, creating an overall higher development intensity and urbanized setting for the area. These visual changes are not necessarily considered significant adverse impacts.

Development and design review of individual development projects by the cities of Ontario, Montclair, and Upland would prevent the potential for adverse view impacts or negative aesthetic impacts to be created by new development. Compliance with applicable design standards by individual development projects would be in keeping with the aesthetic preferences of the applicable city and would avoid or mitigate visual impacts so that aesthetic impacts do not become cumulatively significant.

New sources of light and glare would also be created as new developments occur in the area. This would include exterior lighting for buildings, parking areas, walkways, play fields, as well as interior lighting from residential units and buildings that are in use during the nighttime hours. An overall increase in lighting levels throughout the project area can be experienced at completion of all related projects and the proposed project. Similarly, new structures would potentially create additional sources of glare in the area.

Compliance with City lighting standards would prevent light spillover and adverse impacts on adjacent residences, care facilities, and other light-sensitive uses. Glare impacts would be directly related to the amount of glazing and mirror surfaces used on building facades and vehicle lights which are directed into adjacent structures. Setbacks, landscaping, and development standards relating to lighting are expected to prevent substantial light intrusion and spillover. Changes to the visual quality of the landscape are not expected to be cumulatively significant or adverse, with compliance with lighting standards and design guidelines of the cities of Ontario, Montclair, and Upland.

#### **6.2.14 Socio-Economic Conditions**

New development in the project area would result in increases in construction employment, as well as create permanent jobs for the local labor force. Redevelopment of underutilized or vacant buildings would result in the return of employment and goods or services to those sites. Development on vacant lots would bring in new jobs and new services and goods to the project area. While beneficial impacts on socio-economic conditions are expected with proposed developments, an over-supply of goods and services could lead to market competition that results in the closure of less-competitive stores and services.

Closure of stores are expected to be temporary in the short-term, as replacement tenants are sought by building and property owners and as population growth occurs in the area. This market competition will occur continuously as the balance between supply and demand shifts through time and area. Significant cumulative adverse impacts are not expected.

#### **6.2.15 Cultural Resources**

The cities of Ontario, Montclair, and Upland contain cultural and historical resources associated with developments during the 1900's. Thus, cultural resources are present on scattered sites throughout the project area. These include historic structures, the Pacific Electric Railway, the mule car, historical trails, and other sites associated with significant events in the past.

The proposed project and the related projects would lead to ground disturbance, which may affect in-situ cultural resources in the area. Due to the site-specific nature of cultural resources, it is difficult to determine if significant cumulative impacts to cultural resources would occur. Archaeological resources have been found in various locations and native soils are present at the San Gabriel and San Bernardino

Mountains. Thus, development on sites with native soils and where no previous developments have occurred has the potential to yield archaeological and paleontological resources. The extent or significance of these resources cannot be determined until discovery during surveys and evaluation.

Historic structures that may be demolished as part of the related projects may affect the cultural significance of the site or the structure. Vacant areas where archaeological resources exist may be subject to grading and excavation that could damage cultural resources. Surveys that are conducted prior to development would allow the early identification of on-site cultural resources and the preservation of significant resources. Large developments are generally subject to cultural resource surveys prior to development, to allow for the preservation of important cultural resources. Other projects are checked against the City's list of historic structures to determine if they would affect important historic resources or are located in culturally sensitive areas.

Cultural resources are site-specific and no cumulative significant adverse impacts are expected from new developments, with implementation of site-level surveys, compliance with the applicable City Historic Preservation Ordinance and mitigation outlined as part of cultural studies for individual development projects.

### ***6.2.16 Global Climate Change and Greenhouse Gases***

#### **ENVIRONMENTAL SETTING**

##### ***Global Climate Change***

The earth's environment is in a state of continuous change. The climate, for example, is highly variable, with conditions changing significantly over the span of seasons, from year to year, and over longer timescales. Fluctuations in the amount of energy emitted by the sun, slight deviations in the earth's orbit, volcanic injections of gases and particles into the atmosphere, and natural variations in ocean temperatures and currents, all cause variability and changes in climate conditions. Many scientific observations indicate that the earth may be undergoing a period of relatively rapid change on timescales of decades to centuries, when compared to historical rates of change on similar timescales. Most of the scientific evidence indicates that these changes are likely the result of a complex interplay of several natural and human-related forces (U.S. Climate Change Research Initiative [CCRI] *Our Changing Planet*, 2003 p.2).

In an effort to distill the driving mechanisms behind global climate change, the Intergovernmental Panel on Climate Change (IPCC), and others (i.e., National Research Council – NRC and U.S. Environmental Protection Agency - EPA), have adopted the term “radiative forcing” to describe any externally imposed change in the radiative energy budget of the earth's climate. Such changes can be brought about by variations in the concentrations of radiatively active species (e.g., carbon dioxide [CO<sub>2</sub>] and aerosols), changes in the solar irradiance incident upon the planet, or other changes that affect the radiative energy absorbed by the earth's surface (e.g., changes in surface reflection properties). This imbalance in the radiation budget has the potential to lead to changes in climate parameters and, thus, result in a new equilibrium state of the climate system (IPCC *Climate Change 2001 – The Scientific Basis*, 2001 p. 353).

The role that human activities play in influencing global climate change remains hotly debated. However, the general scientific consensus accepts that human activities, in particular those involving the combustion of fossil fuels for industrial or domestic usage, and biomass burning produce greenhouse gases (GHGs) and aerosols that affect the composition of the atmosphere. The emission of chlorofluorocarbons (CFCs) and other chlorine and bromine compounds has not only an impact on the

radiative forcing, but has also led to the depletion of the stratospheric ozone layer. Land use changes, due to urbanisation (*sic*) and human forestry and agricultural practices, affect the physical and biological properties of the earth's surface. Such effects change the radiative forcing and have a potential impact on regional and global climate (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 92).

Overwhelming scientific evidence suggests that global surface temperatures have increased about 0.6°C (plus or minus 0.2°C) since the late-19th century and about 0.4°F (0.2 to 0.3°C) over the past 25 years. The warming has not been globally uniform. The recent warmth has been greatest over North America and Eurasia between 40 and 70°N. Warming, assisted by the record El Niño of 1997 to 1998, has continued right up to the present, with 2001 being the second warmest year on record after 1998 (U.S. Department of Commerce, National Climatic Data Centre website, accessed 6/6/2007).

In California and throughout western North America, signs of a changing climate are evident. During the last 50 years, winter and spring temperatures have been warmer; spring snow levels in lower- and mid-elevation mountains have dropped; snow pack has been melting one to four weeks earlier; and flowers are blooming one to two weeks earlier. These regional changes are consistent with global trends (California Energy Commission (CEC Our Changing Climate Report, 2006 p.2).

### Greenhouse Gases

“Greenhouse gases” (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change. These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation. The principal greenhouse gases are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Non-gas aerosols are also a major contributor to global climate change and will be included in future GHG discussion within this report. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions (UNFCCC GHG Emissions (2006) Data website, accessed 6/11/2007).

Global Warming Potential (GWP) is commonly used as a simplified index to estimate the potential effect of different gases on the climate in a relative sense and to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWPs are based on the heat-absorbing ability of each gas relative to that of carbon dioxide (CO<sub>2</sub>) and the decay rate of the gas over a 100-year time horizon (U.S. EPA, Climate Change website, accessed 6/7/2007). Another commonly referenced attribute of GHGs is their atmospheric lifetime, which reflects the compound's ability to persist in the atmosphere under prevailing conditions. A summary of atmospheric lifetimes and the GWP of selected greenhouse gases are provided in Table 6-5, *GHG Global Warming Potential and Atmospheric Lifetimes*.

<b>Gas</b>	<b>Atmospheric Lifetime (years)</b>	<b>Global Warming Potential (100-year time horizon)</b>
Carbon Dioxide (CO <sub>2</sub> )	50-200	1
Methane (CH <sub>4</sub> )	12 ± 3	21
Nitrous oxide (N <sub>2</sub> O)	120	310
HFC-23	264	11,700

TABLE 6-5 GHG GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIMES		
Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
HFC-32	5.6	650
HFC-125	32.6	2,800
HFC-134a	14.6	1,300
HFC-143a	48.3	3,800
HFC-152a	1.5	140
HFC-227ea	36.5	2,900
HFC-236fa	209	6,300
HFC-4310mee	17.1	1,300
CF <sub>4</sub>	50,000	6,500
C <sub>2</sub> F <sub>6</sub>	10,000	9,200
C <sub>4</sub> F <sub>10</sub>	2,600	7,000
C <sub>6</sub> F <sub>14</sub>	3,200	7,400
SF <sub>6</sub>	3,200	23,900
HFC – Hydrofluorocarbon compounds      C <sub>#</sub> F <sub>#</sub> – Chlorofluorocarbon compounds      SF <sub>6</sub> - Sulfur hexafluoride		
Source: U.S. EPA Climate Change website, accessed 6/7/2007.		

### Carbon Dioxide

Carbon Dioxide (CO<sub>2</sub>) is an odorless, colorless, natural greenhouse gas.

#### Sources

Carbon dioxide enters the atmosphere through natural and anthropogenic (human) sources. Natural sources of atmospheric carbon dioxide include volcanic outgassing, the combustion of organic matter, and the respiration processes of living aerobic organisms. Anthropogenic sources of carbon dioxide come mainly from the burning of fossil fuels for heating, power generation and transport. In 2004, fossil fuel combustion accounted for 96.2 percent of gross CO<sub>2</sub> emissions. Other CO<sub>2</sub> emissions sources included cement and lime production, limestone and dolomite consumption, soda ash, CO<sub>2</sub> consumption, waste combustion, and finally, changes in land use and forestry operations (CEC California GHG Emission Inventory, 2006 p. 35).

#### Health Effects

Carbon dioxide is a normal characteristic of the earth's atmosphere, with the present composition typically 0.038% by volume or 380 parts per million (ppm). At typical outdoor concentrations, CO<sub>2</sub> levels are not known to be associated with negative health effects. However, at higher concentrations, as can occur in enclosed spaces, CO<sub>2</sub> exposure can lead to debilitating, and sometimes fatal health effects. The permitted exposure level for carbon dioxide, as set forth by the National Institute for Occupational Safety and Health (NIOSH) is 5,000 ppm, averaged over a 10-hour work shift in a 40-hour work week. The short-term reference exposure level is 30,000 ppm averaged over a 15-minute period. Over-exposure may cause rapid breathing, headache, sweating, dizziness paresthesia; dyspnea (breathing difficulty); sweating, malaise (vague feeling of discomfort); increased heart rate, cardiac output, blood pressure; coma; asphyxia; and convulsions (NIOSH, Pocket Guide to Chemical Hazards website, accessed 6/7/2007).

#### Global Warming Potential (GWP)

Using ice-core analysis, research has shown that atmospheric carbon dioxide concentrations increased approximately 31% over the past 200 years from approximately 280 ppm around the year 1800 to approximately 367 ppm in 1999 (IPCC, 2001 p. 187). Presently accepted models predict that continuing along the present trajectory, atmospheric CO<sub>2</sub> concentrations will continue to increase throughout the 21<sup>st</sup> century to an approximate range between 540 to 960 ppm by the year 2100 (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 186).

Carbon dioxide is the reference compound for determining GWP, therefore it has a GWP value of 1. The estimated atmospheric lifetime of CO<sub>2</sub> is 50 to 200 years (variable) (U.S. EPA Climate Change website, accessed 6/7/2007).

### Sinks

Sinks refer to any process, activity, or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 796). Carbon dioxide is typically removed by a number of natural and human induced mechanisms. Natural mechanisms include photosynthesis, where plants use CO<sub>2</sub> from the atmosphere to build carbohydrates; dissolution of CO<sub>2</sub> into ocean water and incorporation into soils and ice deposits (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 197). Induced mechanisms may include geological sequestration, direct injection into deep ocean water, and enhanced terrestrial uptake through forestry and agronomy improvements.

### **Methane**

At room temperature and standard pressure, methane (CH<sub>4</sub>) is an odorless, colorless gas. Methane is the principal component of natural gas, contributing approximately 97% by volume.

### Sources

Methane is emitted from a variety of both anthropogenic and natural sources. Human-related activities include fossil fuel production, livestock management, rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. It is estimated that 60% of global methane emissions are related to anthropogenic activities (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 248). Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires (U.S. EPA Climate Change website, accessed 6/7/2007).

Methane emission levels from a source can vary significantly from one country or region to another, depending on many factors such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes that cause methane emissions in both human-related and natural sources. Also, the implementation of technologies to capture and utilize methane from sources such as landfills, coal mines, and manure management systems affects the emission levels from these sources (U.S. EPA Climate Change website, accessed 6/7/2007).

### Health Effects

Methane is not toxic below the lower explosive limit of 5% (50,000 ppm). However, when methane is present at high concentrations, it acts as an asphyxiant. Asphyxiants displace oxygen in the air and can cause symptoms of oxygen deprivation (asphyxiation). The available oxygen should be a minimum of 18% or harmful consequences effects will result. It is not expected to cause unconsciousness (narcosis) due to central nervous system depression until it reaches much higher concentrations (30% or 30,000

ppm), well above the lower explosive limit and asphyxiating concentrations (Canadian Centre for Occupational Health and Safety website, accessed 6/8/2007).

Methane reacts violently with chlorine dioxide, liquid oxygen and powerful oxidizer compounds such as bromine, chlorine, fluorine, and others. It is also incompatible with halogens or inter-halogens and will react with bromine in light (explosively in direct sunlight) (U.S. Department of Labor – Occupational Safety and Health website, accessed 6/8/2007).

### GWP

Ice-core analysis indicates that the atmospheric abundance of CH<sub>4</sub> has increased by a factor of approximately 2.5 since the pre-industrial era (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 248). Corresponding to an estimated increase from 700 parts per billion (ppb) in 1750 to 1,745 ppb in the year 1998 (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 4.1(a)).

Because of its relative abundance and clean burning capability, methane is heavily used for fuel. Methane has a GWP value of 21 and an estimated atmospheric lifetime of 12 (±3) years (U.S. Environmental Protection Agency, Climate Change website, accessed 6/7/2007).

### Sinks

Atmospheric methane losses are dominated by tropospheric (up to 10 to 15 kilometers [km] above earth's surface) reactions with hydroxide (OH) molecules, accounting for up to 88% of the estimated annual losses (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 4.2). Smaller losses are attributed to soil storage and stratospheric (15 to 50 km above the earth) destruction.

### **Nitrous Oxide**

Nitrous oxide (N<sub>2</sub>O), also known as laughing gas, is used commonly in medical practice. At room temperature, it is a colorless non-flammable gas, with a pleasant, slightly sweet odor and taste.

### Sources

Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, and adipic or nitric acid production. Nitrous oxide is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests (U.S. EPA Climate Change website, accessed 6/7/2007).

Human-related activities are thought to account for between 35 and 50% of total global nitrous oxide emission levels (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 4.4). Current estimates indicate that agricultural activities produce up to 70% of human-related nitrous oxide, while industrial sources account for only about 20% of all anthropogenic sources, and include the production of nylon and nitric acid, and the burning of fossil fuel in internal combustion engines. Natural emissions of N<sub>2</sub>O primarily result from bacterial breakdown of nitrogen in soils and in the earth's oceans (U.S. EPA Climate Change website, accessed 6/7/2007).

### Health Effects

Nitrous oxide is non-toxic and non-irritating. It is a rather weak anesthetic and must be inhaled in high concentrations, mixed with air or oxygen. When inhaled without oxygen, it is a simple asphyxiant. Nitrous oxide has very minimal effects on either the respiratory or the cardiovascular system in normal, healthy people. Although nitrous oxide is inhaled and exhaled with negligible metabolism, it can affect certain enzyme systems and in cases of chronic exposure, cause irreversible changes. The National

Institute for Occupational Safety and Health sets a reference level of 25 ppm for time weighted average exposure to nitrous oxide (NIOSH, Pocket Guide to Chemical Hazards website, accessed 6/7/2007).

### GWP

While acting as one of the five primary GHG's, N<sub>2</sub>O also acts in a secondary role to increase global warming by aiding in the destruction of ozone (O<sub>3</sub>) in the stratosphere. This action occurs when nitrous oxide is converted to nitric oxide, which acts as a catalyst in the reactions in which chlorine and bromine from halocarbons (CFC's etc.) destroy ozone (U.S. EPA Ozone Depletion website, accessed 6/7/2007).

Global atmospheric concentrations of N<sub>2</sub>O have increased from about 270 ppb in 1750 to 314 ppb in 1998, which equates to a 16 % increase (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 4.1(a)). In the last 2 decades, atmospheric concentrations of N<sub>2</sub>O continue to increase at a rate of 0.25 % per year (IPCC, 2001 p.253).

Nitrous oxide has a GWP value of 310 and an estimated atmospheric lifetime of 120 years (U.S. EPA Climate Change website, accessed 6/7/2007).

### Sinks

Recognized sinks for N<sub>2</sub>O are photo dissociation and reaction with electronically excited oxygen atoms in the stratosphere. A small uptake of N<sub>2</sub>O occurs in soils, but is typically not included in sink calculations, but rather incorporated into the net emission of N<sub>2</sub>O from soils (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 252).

### **Ozone**

Ozone (O<sub>3</sub>) is a tri-atomic molecule, consisting of three oxygen atoms. Under standard atmospheric conditions it is an odorless, colorless gas.

### Sources

When discussing atmospheric ozone, it is important to make a clear distinction between the functions and implications of the gas from different sources and at differing locations within the earth's atmosphere.

“Natural” ozone, occurring at ground level, is a combination down-mixing from the stratosphere and photochemical reactions of natural precursors from natural sources. At ground level, natural ozone formation by sunlight is weak, and most ozone comes from reactions of ultraviolet radiation with “ozone precursors”, volatile organic compounds (VOCs), and nitrogen oxides (NO<sub>x</sub>). Because ozone is chemically reactive and is quickly destroyed, naturally derived ozone concentrations typically represent a balance between formation (generators) and loss processes (sinks) (CEC Public Health Related Impacts of Climate Change, 2005 p. 22).

Stratospheric (high-altitude) ozone is formed when oxygen atoms ionized by solar ultraviolet (UV) light combine with other oxygen molecules. About 90 percent of earth's ozone is contained in the stratospheric boundary, commonly referred to as the ‘ozone layer’. Here, ozone absorbs a portion of the radiation from the sun, preventing it from reaching the earth's surface. Most importantly, it absorbs the portion of ultraviolet light called UVB, which has been linked to many harmful effects, including various types of skin cancer, cataracts, and harm to some crops, certain materials, and some forms of marine life (U.S. EPA Ozone Depletion website, accessed 6/7/2007). Thus, stratospheric ozone is beneficial for the earth's ecosystem. At any given time, ozone molecules are constantly formed and destroyed in the stratosphere. The total amount, however, remains relatively stable.

Tropospheric (low-altitude) ozone is also created by chemical reactions from automobile, power plant, and other industrial and commercial source emissions in the presence of sunlight. Tropospheric O<sub>3</sub> is a direct greenhouse gas. The past increase in tropospheric O<sub>3</sub> is estimated to provide the third largest increase in direct radiative forcing since the pre-industrial era. In addition, through its chemical impact on OH, it modifies the lifetimes of other greenhouse gases, such as CH<sub>4</sub> (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 260). Ozone abundances in the troposphere typically vary from less than 10 ppb over remote tropical oceans up to about 100 ppb in the upper troposphere, and often exceed 100 ppb downwind of polluted metropolitan regions. This variability, reflecting its rapid chemical turnover, makes it impossible to determine the tropospheric burden from the available surface sites (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 261).

Model estimates of average “natural background” ozone in California are 15 to 35 ppb in coastal areas, with a maximum monthly mean near 40 ppb at low altitude inland sites. At altitudes above 2-kilometer stratospheric intrusions can occasionally push peak “natural background” concentrations to 45 to 50 ppb (CEC Public Health Related Impacts of Climate Change, 2005 p.23).

#### Health Effects

Besides being a greenhouse gas, ozone can also be a harmful air pollutant at ground level, especially for people with respiratory diseases and children and adults who are active outdoors (U.S. EPA Climate Change website, accessed 6/7/2007). Impacts of ozone are discussed in Section 4.5, *Air Quality*.

There is evidence from controlled human and animal exposure studies of the potential for O<sub>3</sub> to cause adverse health effects. Epidemiological studies have also addressed the effects of short and long-term exposures to O<sub>3</sub> (World Health Organization [WHO] Health Aspects of Air Pollution, 2003 p. 30). Studies show that ozone damages lung tissue and causes problems for people with asthma and other lung diseases (CEC Climate Change and Health in California, 2005 p. 20). Ozone exposure may also reduce the rate of lung growth during childhood and accelerate the decline of lung function during adulthood. Exposure to excessive concentrations of O<sub>3</sub> for several hours can lead to respiratory distress in approximately 20% of healthy adults and children. Prolonged exposure can cause irreparable lung damage (CEC Climate Change and Health in California, 2005 p. 21).

#### GWP

Current estimates indicate that tropospheric O<sub>3</sub> has increased by up to 36% since the pre-industrial era, although substantial variations exist for regions and overall trends (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 4.9).

Quantifying the greenhouse gas potential of tropospheric ozone is difficult as it is not present in uniform concentrations across the globe. However, the most recent scientific review on the climate change research (IPCC Climate Change 2001 – The Scientific Basis, 2001 Table 6.11) suggests that the radiative forcing of tropospheric ozone is approximately 24% that of carbon dioxide.

#### **Water Vapor**

Water vapor (H<sub>2</sub>O) is the most abundant greenhouse gas in the atmosphere.

#### Sources

The principal source of water vapor in the atmosphere is evaporation of the earth’s surface waters (oceans, rivers, lakes, etc.). Secondary sources include evaporation from soils, sublimation (change from solid to gas) from sea ice and snow, transpiration from vegetation, and animal respiration (American Geophysical Union [AGU] Water Vapor in the Climate System, 1995 p. 3).

Water vapor is distributed unevenly in the atmosphere, not only horizontally but vertically as well. Water vapor decreases rapidly with height as the atmosphere gets colder. Almost half the total water in the air is between sea level and about 1.5 km above sea level. Less than 5 to 6% of the water is above 5 km, and less than 1% is in the stratosphere, nominally above 12 km. Despite the small amount of water vapor in the upper troposphere (above about 5 km) and stratosphere, recent research has shown that upper tropospheric water vapor is very important to the climate (AGU Water Vapor in the Climate System, 1995 p. 4).

#### Health Effects

There is no recognized negative health effect associated with water vapor. In certain circumstances, water vapor may dissolve other chemical constituents and may then serve as a transport mechanism into, or onto, the human body (i.e., acid rain).

#### GWP

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil) and because the air is warmer, the relative humidity can be higher, leading to more water vapor in the atmosphere. The higher concentration of water vapor is then able to absorb more thermal infra-red energy radiated from the earth, thus, further warming the atmosphere (NOAA Greenhouse Gases FAQ website, accessed 6/7/2007).

The cyclical reinforcement of this system is referred to as a 'positive feedback loop'. However, huge scientific uncertainty exists in defining the extent and importance of this feedback loop. As water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (NOAA Greenhouse FAQ website, accessed 6/7/2007).

#### **Fluorinated Gases (High GWP Gases)**

Hydro-Chlorofluorocarbon compounds (H-CFCs) are haloalkanes with hydrogen, chlorine, and fluorine. Hydrofluorocarbon compounds (HFCs) consists of carbon, hydrogen, and fluorine, but contain no chlorine. Perfluorocarbon compounds (PFCs) are composed of carbon and fluorine. Sulfur hexafluoride (SF<sub>6</sub>) consist of fluorine and sulfur.

#### Sources

H-CFCs were formerly used widely in industry as refrigerants, propellants, and cleaning solvents. Their use has been regularly prohibited by international protocol in 1989; therefore, they are no longer likely to be encountered. HFCs contain no chlorine and are composed entirely of carbon, hydrogen, and fluorine. PFC emissions are byproducts of aluminum production, arising during discrete periods of process inefficiency. Sulfur hexafluoride has been widely used by the magnesium industry for more than 25 years. Magnesium producers, casters, and recycling companies commonly use a cover gas of dilute SF<sub>6</sub> in dry air and/or CO<sub>2</sub> to protect the molten metal from oxidation and potentially violent burning. Without protection, molten magnesium will oxidize in the presence of air and form magnesium oxide (MgO) deposits that greatly reduce the quality and strength of the final product (U.S. EPA Climate Change website, accessed 6/7/2007).

The majority of emissions of high GWP gases are associated with their use as alternatives to ozone-depleting substances, which are being phased out to prevent the depletion of the stratospheric ozone layer. Other important emission sources include a variety of industrial processes, such as aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of H-CFC-22 (U.S. EPA Climate Change website, accessed 6/7/2007).

### Health Effects

Natural and synthetic chemistry has created a multitude of compounds associated with the four categories of gases described above. Not all are considered GHG's, although almost all of the H-CFC's are considered ozone-depleting substances (U.S. EPA Ozone Depletion website, accessed 6/7/2007). Under Section 602 of the Federal Clean Air Act, there are 90 recorded H-CFC gases. HFC and PFC gases are found in 23 additional forms, 16 and 7 respectively, along with sulfur hexafluoride (SF<sub>6</sub>) (U.S. EPA Climate Change website, accessed 6/7/2007).

With exception, most high GWP gases have no recorded ambient air health effects associated with them. However, it must be assumed that over exposure to any chemical substance can have the potential for deleterious consequences. As an example, research has shown that prolonged exposure to concentrated CFC's can result in deleterious health effects, particularly in enclosed or poorly ventilated environments. Over exposure can result in respiratory depression, broncho-constriction, and death in exposed individuals (NIOSH, 1989). Also, HFC-134 has very low acute inhalation toxicity. Anesthetic-like effects, such as lethargy and in coordination, were observed in rats at very high inhalation concentrations (greater than 200,000 ppm) (Programme for Alternative Fluorocarbon Toxicity Testing website, accessed 6/7/2007). The material data safety sheet (MSDS) for the common PFC tetrafluoromethane (CF<sub>4</sub>) states that inhalation of high concentrations of this vapor is harmful and may cause heart irregularities, unconsciousness, or death. Overexposure by inhalation may include temporary central nervous system depression, including such effects as dizziness, headache, confusion, in coordination, and loss of consciousness (DuPont Tetrafluoromethane (Freon) MSDS, 1997 p. 1).

### GWP

Hydro-chlorofluorocarbons (H-CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) are potent greenhouse gases, and some persist in the environment for thousands of years. These gases, referred to as high global warming potential gases (high GWPs), have GWP values 140 to 23,900 times more potent than CO<sub>2</sub> in terms of their capabilities to trap heat in the atmosphere over a 100-year period. Also, because they remain in the atmosphere almost indefinitely, concentrations of these gases will increase as long as emissions continue (U.S. EPA Climate Change website, accessed 6/7/2007).

Estimates indicate that high GWP gases constitute less than 0.4% of the total anthropogenic greenhouse gas emissions annually (U.S. EPA Climate Change website, accessed 6/7/2007). Notwithstanding their acknowledged potency and persistence in the atmosphere, and the highly detrimental role they continue to play in global warming, they are typically found only in trace amounts in the lower troposphere, near the earth's surface (US EPA – Global Greenhouse Gas Data – accessed 6/14/2007).

### **Aerosols**

Aerosols are liquid or solid particles suspended in the air.

### Sources

Aerosols are emitted to the atmosphere through a range of natural and anthropogenic mechanisms. Soil dust is a major contributor to aerosol loading and optical thickness, especially in sub-tropical and tropical regions. Dust source regions are mainly deserts, dry lake beds, and semi-arid desert fringes, but also areas in drier regions where vegetation has been reduced or soil surfaces have been disturbed by human activities (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 296). Sulfate aerosols are emitted when fuel containing sulfur, such as coal and oil, is burned. These aerosols have decreased in concentration in the past two decades resulting from efforts to reduce the coal-fired power plant emissions

of sulfur dioxide in the United States and other countries (U.S. EPA Climate Change website, accessed 6/7/2007).

Carbonaceous aerosols (organic and black carbon) results from the incomplete combustion of fossil fuels and biomass burning (forest fires and land clearing). Although it is thought that global concentrations are likely increasing, there are significant regional differences. In the United States and many other countries, efforts to reduce particulate matter (of which black carbon is a part) are lowering black carbon concentrations (U.S. EPA Climate Change website, accessed 6/7/2007). Sea salt aerosols are generated by various physical processes, especially the bursting of entrained air bubbles during whitecap formation, resulting in a strong dependence on wind speed. This aerosol may be the dominant contributor to both light scattering and cloud nuclei in those regions of the marine atmosphere where wind speeds are high and/or other aerosol sources are weak (IPCC Climate Change 2001 – The Scientific Basis p. 297). Anthropogenic aerosols are emitted from activities such as transportation, coal combustion, cement manufacturing, metallurgy, and waste incineration (IPCC Climate Change 2001 – The Scientific Basis p. 299).

Other smaller sources of atmospheric aerosols include biogenic aerosols from plant debris and material, nitrate aerosols, and episodic contributions from volcanic eruptions and outgassing (IPCC Climate Change 2001 – The Scientific Basis p. 303).

#### Health Effects

Health effects of aerosols are typically associated with the availability and abundance of particulate matter. There are many sources of particulate matter (PM) and the size and chemical composition of particles from different sources varies considerably. Particles smaller than 10 microns in diameter (PM<sub>10</sub>) can be inhaled into the deep lung, and there is particular concern about particles 2.5 microns or less in diameter (PM<sub>2.5</sub>) (CEC Public Health Related Impacts of Climate Change report, 2005 p. 43). The potential health effects associated with particulate matter are discussed in greater detail in Section 4.5, *Air Quality*.

#### GWP

Aerosols have a direct radiative forcing because they scatter and absorb solar and infrared radiation in the atmosphere. Aerosols also alter warm, ice and mixed-phase cloud formation processes by increasing droplet number concentrations and ice particle concentrations. They decrease the precipitation efficiency of warm clouds and thereby cause an indirect radiative forcing associated with these changes in cloud properties. Aerosols have most likely made a significant negative contribution to the overall radiative forcing. An important characteristic of aerosols is that they have short atmospheric lifetimes and, therefore, cannot be considered simply as a long-term offset to the warming influence of greenhouse gases (IPCC Climate Change 2001 – The Scientific Basis p. 291).

#### ***Regulatory Setting***

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by two United Nations organizations: the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The key objectives of the IPCC are to evaluate the risk of anthropogenic climate change, based mainly on peer reviewed and published scientific/technical literature, and assist in the development of strategies to monitor and limit global climate change (IPCC/UNFCCC 10<sup>th</sup> Anniversary brochure). The UN Framework Convention on Climate Change (UNFCCC) was adopted in 1992 and entered into force in 1994. The Convention sets an ultimate objective of stabilizing greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system" (UNFCCC website, accessed 6/7/2007).

In response to growing international concerns over long-standing deterioration of the earth's atmospheric ozone layer, the U.S. became a signatory to the Montreal Protocol in 1987. The protocol, and subsequent amendments, is a binding international treaty agreement designed to halt the production and use of ozone depleting substances and to initiate their accelerated phase out. The treaty is the basis on which Title VI of the Federal Clean Air Act was established. The Montreal Protocol stipulated that the production and consumption of compounds that deplete ozone in the stratosphere - chlorofluorocarbons (CFCs), halons and carbon tetrachloride were to be phased out by 2000 and methyl chloroform –phased out by 2005. Subsequent amendments have adjusted to timeframes for final phase out of certain compounds in both developed and developing countries.

In April 1993, the U.S. Climate Change Action Plan (CCAP) was enacted to meet the twin challenges of responding to the threat of global warming and strengthening the economy. The CCAP sought to return U.S. greenhouse gas emissions to their 1990 levels by the year 2000 and contained over 50 new and expanded federal and voluntary initiatives.

The current U.S. administration is implementing a comprehensive policy that employs near term domestic measures to address climate change; while also making investments in climate change science and technology in the United States and around the world. The policies promote the development and deployment of clean energy technologies and global collaboration to reduce greenhouse gas emissions, improve energy security, and cut air pollution while ensuring continued economic growth. In 2002, the President set an ambitious goal to reduce the greenhouse gas intensity of the U.S. economy by 18% by 2012. The Administration estimates that this will reduce cumulative emissions of carbon dioxide equivalent by more than 1,833 million metric tons by 2012 (U.S. Department of State website, accessed 6/8/2007). The key initiatives of the policy include the implementation of:

- ❖ Ambitious National Goal to Reduce Emissions Intensity
- ❖ Cabinet Committee on Climate Change Science and Technology Integration
- ❖ Federal Climate Science Program
- ❖ Greenhouse Gas Reduction Initiatives
- ❖ Targeted Incentives for Greenhouse Gas Sequestration
- ❖ Proposed Guidelines for Voluntary Reporting of Greenhouse Gas Emissions
- ❖ International Outreach and Partnerships
- ❖ President's Initiative Against Illegal Logging

The State of California is a substantial greenhouse gas generator and is ranked second in the United States, only behind Texas. In 2004, the State produced an estimated 492 million gross metric tons of carbon dioxide equivalent GHG emissions, with transportation and electricity generation being by far the largest proportional contributors (CEC Inventory of California Green House Gas Emissions and Sinks: 1990 – 2004, 2006 pp. 5-7).

Although somewhat unintentionally, the State of California has had legislation addressing global climate change as early as the late 1970's. Starting with the establishment of the State's appliance (Title 20) and new building (Title 24) standards in 1976 and 1978, respectively, and concurrent investments in energy efficiency programs across the State, California has pursued strong energy efficiency programs and policies that have set it apart from the rest of the U.S. California's historical energy efficiency policies have enabled the state to hold per capita electricity use essentially constant, while in the United States as a whole, per capita electricity use increased by nearly 50 percent since the mid-1970s (Chang, et al. Energy Efficiency in California and the United States, 2007 p. 10). California's most recently adopted statewide energy efficiency standards for buildings and appliances (the 2005 updates to the previous 2003

standards) are expected to save 2,800 megawatts (MW) over the next ten years (about five percent of the 60 gigawatts of in-State capacity), effectively avoiding the need to build five 500-MW power plants in the next ten years (Chang, et al. Energy Efficiency in California and the United States, 2007 p. 13).

In subsequent years, the California State legislature and the Office of the Governor have instructed State agencies, including the California Energy Commission, California Air Resources Board, California Department of Transportation, California Environmental Protection Agency, and others to implement a range of initiatives and programs aimed at addressing global climate change and greenhouse gas issues in the State. A summary of significant legislative and administrative responses to global climate change by the State of California is provided in Table 6-6, *California Global Climate Change Initiatives*.

<b>Name</b>	<b>Designation</b>	<b>Year</b>	<b>Intent</b>
AB 4420	Assembly Bill	1988	Directed the Energy Commission, in consultation with the Air Resources Board and other agencies, to “study and report on how global warming trends may affect California’s energy supply and demand, economy, environment, agriculture, and water supplies.” Furthermore, “the study shall include recommendations for avoiding, reducing, and addressing the impacts.”
SB 1771	Senate Bill	2000	Established the California Climate Action Registry and designated the Energy Commission and the Air Resources Board with advisory functions. It also required the Energy Commission to periodically update the State’s greenhouse gas inventory, to “acquire and develop information on global climate change,” to “convene an interagency task force consisting of state agencies with jurisdiction over matters affecting climate change to ensure policy coordination at the state level for those activities,” and to “establish a climate change advisory committee.”
D-16-00	Executive Order	2000	Directed the Secretary for State and Consumer Services to facilitate the incorporation of sustainable building practices into the planning, operations, policymaking, and regulatory functions of State entities. The Integrated Waste Management Board mitigates emissions through actions contained in the “Sustainable Building Implementation Plan.”
SB 527	Senate Bill	2001	Authorized administrative penalties for certain violations of air pollution laws and clarified and added language to SB 1771.
SB 1170	Senate Bill	2001	Cited global warming as one of the “public health and environmental problems” associated with petroleum use. Specifically, the bill mentioned “air pollution, acid rain, global warming, and the degradation of California’s marine environment and fisheries.” To mitigate such effects, the bill required the Energy Commission, the Air Resources Board, and the Department of General Services to develop and adopt fuel-efficiency specifications governing the purchase by the state of motor vehicles and replacement tires.
AB 1493	Assembly Bill	2002	Required that the State Air Resources Board “develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gases from motor vehicles”. In the bill the Legislature declared that “global warming is a matter of increasing concern for public health and the environment in the state” and that “the control and reduction of emissions of greenhouse gases are critical to slow the effects of global warming”. The bill also directed the California Climate Action Registry to adopt protocols for reporting “reductions in greenhouse gas emissions from mobile sources.”
SB 812	Senate Bill	2002	Instructed the California Climate Action Registry to include forest management practices as a mechanism to achieve emission reductions and “to adopt procedures and protocols for the reporting and certification of greenhouse gas emission reductions resulting from a project” and for “the monitoring,

TABLE 6-6 CALIFORNIA GLOBAL CLIMATE CHANGE INITIATIVES			
Name	Designation	Year	Intent
			estimating, calculating, reporting, and certifying of carbon stores and carbon dioxide emissions resulting from the conservation and conservation-based management of native forest reservoirs in California.”
SB 1078	Senate Bill	2002	Established the California Renewable Portfolio Standard Program. In the bill, the Legislature found that “the development of renewable energy resources may ameliorate air quality problems throughout the State and improve health by reducing the burning of fossil fuels and the associated environmental impacts.”
SB 1389	Senate Bill	2002	Required that the Energy Commission compile and “adopt an integrated energy policy report” every two years. In the report, the Commission shall develop public interest energy strategies that include “reducing statewide greenhouse gas emissions and addressing the impacts of climate change on California.”
S-7-04	Executive Order (EO)	2004	Acknowledged that hydrogen, a non-carbon energy carrier, is ideally suited to address global, regional, and local energy and environmental challenges. The EO designated California’s 21 interstate freeways as the “California Hydrogen Highway Network”. The EO directed the California Environmental Protection Agency, in concert with the State Legislature, and in consultation with the California Energy Commission and other relevant state and local agencies, to develop the California Hydrogen Economy Blueprint Plan for the rapid transition to a hydrogen economy.

Source: California Air Resources Board, 2004

In 2005, the Governor issued Executive Order S-3-05 recognizing the importance of the natural resources of the State of California and the risks posed to them by potential changes in global climate. The Executive Order requires that the California Environmental Protection Agency coordinate with State agencies to adopt limits and requirements to reduce greenhouse gas emissions to 1990 and pre-1990 levels by set target dates. The targets set forth in Executive Order S-3-05 are:

- ❖ 2010 - Reduce greenhouse gas emissions to Year 2000 levels
- ❖ 2020 - Reduce greenhouse gas emissions to Year 1990 levels
- ❖ 2050 - Reduce greenhouse gas emissions to 80 percent below Year 1990 levels

Subsequently, the California State Legislature followed with the adoption of the California Global Warming Solutions Act of 2006 (California Assembly Bill No. 32). California Assembly Bill No. 32 requires the California Air Resources Board (CARB) to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to Statewide levels in 1990 by the target Year 2020. Although the Year 1990 baseline levels are yet to be defined, it is believed the CARB will be required to reduce existing emissions, from all sources, between 5 and 13 percent to achieve the 1990 target levels (AEP White Paper on Global Climate Change, 2007 p. 6).

The South Coast Air Quality Management District (SCAQMD) recently adopted the 2007 Air Quality Management Plan (AQMP) for the South Coast Air Basin. The 2007 AQMP makes reference to emission reduction targets set forth in AB 32 and “proposes to quantify the concurrent emission reductions associated with Statewide GHG programs targeted at stationary and mobile sources in the Basin working with various state agencies” (SCAQMD AQMP, 2007 p. 10-8). Emission reductions from these programs will be applied toward the long-term reduction targets proposed in the 2007 AQMP for meeting the federal ozone standard by 2021 (or 2024). Any GHG impacts from the control strategies contained in the 2007 AQMP will be assessed in the Plan’s CEQA document. The Plan indicates that the “District will continue to collaborate with various local and state agencies in implementing the proposed GHG

strategies and quantifying the concurrent combustion emission reductions” (SCAQMD AQMP, 2007 p. 10-9).

The SCAQMD is not currently developing standards, thresholds, or regulations to address GHG but is waiting for direction from CARB on GHG programs and strategies (Jill Whynot, SCAQMD, pers. comm.. 6/13/2007).

### ***Existing Greenhouse Gas Emissions Inventory***

Data compiled by the United Nations Framework Convention on Climate Change (UNFCCC) from annual inventories submitted by developed (Annex I) countries estimate that global GHG emissions in the most recent data year (2004) were approximately 20,135 Tg CO<sub>2</sub> Eq. (teragrams of CO<sub>2</sub> equivalent or million gross metric tons of CO<sub>2</sub> equivalent) from all sources, not including emissions related to land use, land use change, or forestry (UNFCCC GHG Emissions (2006) Data website, accessed 6/11/2007). This figure represents an approximate increase of only 1.55% above base year (1990) GHG emission levels for those countries. Data for developing (Annex II) countries is not included because of incomplete data availability and the proportionately minor size of their global contributions. Under the convention, precise and regularly updated inventories of greenhouse gas emissions from industrialized countries are required to be submitted on an annual basis. Developing countries also are encouraged to carry out inventories.

Data submitted to the UNFCCC by the U.S. in 2004 indicated total GHG emissions of 7,076 Tg CO<sub>2</sub> Eq., an increase of 15.8% from 1990 levels (UNFCCC GHG Emissions (2006) Data website, accessed 6/11/2007). This figure represents over 35% of global emissions for 2004. Analysis of historical data shows that U.S. annual emissions steadily increased over the recording period 1990-2004.

In 2005, total U.S. GHG was 7,260.4 Tg CO<sub>2</sub> Eq. Overall, total U.S. emissions have risen by 16.3 percent from 1990 to 2005, while the U.S. gross domestic product has increased by 55 percent over the same period. Emissions rose from 2004 to 2005, increasing by 0.8 percent (56.7 Tg CO<sub>2</sub> Eq.). The following factors were primary contributors to this increase: (1) strong economic growth in 2005, leading to increased demand for electricity and (2) an increase in the demand for electricity due to warmer summer conditions (U.S. EPA U.S. GHG Emission Inventory, 2007 p. ES-4).

The State of California is a substantial GHG generator and is ranked second in the United States, only behind Texas. In 2004, the State produced an estimated 492 Tg CO<sub>2</sub> Eq. GHG emissions, with transportation and electricity generation being by far the largest end-user contributors (CEC California GHG Emission Inventory, 2006 pp. 5-7). California’s greenhouse gas emissions are also large in a world-scale context and continue to grow over time. If California was considered an independent country, its emissions would rank sixteenth largest (CEC California GHG Emission Inventory, 2006 Figure 10). The report found that the proportional contributions from all sources of GHG were 81% from fossil fuel combustion, 2.8% from other sources of CO<sub>2</sub>, 5.7% from methane, 6.8% from nitrous oxide, and the remainder from high GWP gases (2.9%) (CEC California GHG Emission Inventory, 2006 p.5).

At the time of writing, there is no known GHG emission data available for the County of San Bernardino or the City of Ontario.

The project site is largely vacant, except for the Hollywood Video store at the northeastern corner. GHG emissions from the video store are expected to include carbon dioxide from vehicle exhaust and natural gas consumption, methane from vehicle emissions and natural gas combustion, nitrous oxide from vehicle

emissions, ozone precursors (reactive organic gases and nitrogen oxides), and HFC from air conditioning equipment.

### THRESHOLDS OF SIGNIFICANCE

Regulatory guidance regarding thresholds for determining impact significance related to global warming and GHG emissions on a nationwide and statewide basis are not yet readily available. Consequently, the significance of the impacts associated with the proposed Wal-Mart Supercenter cannot be easily determined. However, examination of recent judicial activity and other public information indicates that such a requirement will not be far away.

CEQA requires a lead agency to determine whether a potential environmental impact may be significant. While thresholds of significance may assist a lead agency in making that determination, no State or relevant local agency, including the City of Ontario, has adopted any threshold related to potential global warming impacts.

Existing CEQA principles provide guidance on how to address a project's potential impact on global climate change, with respect to global warming potential and greenhouse gas emissions, finding that:

*“a Lead Agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that the project has possible environmental effects that are individually limited but cumulatively considerable”* (State CEQA Guidelines, § 15065(a)(3)).

Section 15064 of the State CEQA Guidelines also provides that a lead agency's determination of significance must result from *“careful judgment... based to the extent possible on scientific and factual data.”* Further, the State CEQA Guidelines caution that an *“ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting”* (State CEQA Guidelines, Section 15064, subd. (b).)

Considering a review of scientific and factual data, the recent adoption of AB 32, and the requirements of CEQA, it is apparent that an analysis of a development project's incremental contribution to global warming impacts is needed in CEQA documents if they are to be a 'best effort' to analyze a project's potential impacts.

With no clear guidance available to direct global climate change analysis under CEQA, the analysis provided in this EIR represents the Lead Agency's best efforts to assess the potential impacts of the project on global warming and GHG contribution.

Because global warming is a global phenomenon, and not one project would likely effect temperature change on its own, global warming must be analyzed as cumulative impacts. Thus, a project would cause a significant effect if its incremental contribution to global climate change is “cumulatively considerable.” Because the significance of a project's incremental contribution will depend on a number of factors, including the setting and project characteristics, the City considered several indicia of significance in reaching its conclusion. These include:

- Quantity of project emissions compared to State- and nation-wide emissions
- Project emissions compared to what would otherwise be permitted in its General Plan designation and zoning category

- Project's potential to interfere with the State's efforts to comply with AB 32

Please note that these indicia are relevant to the project analyzed in this document, but may not be relevant to other City projects. Thus, the analysis in this Subsequent EIR may or may not inform the global warming analysis of other unrelated projects in the City.

The analysis of potential cumulative climate change impacts associated with the proposed project will focus on a comparative analysis of GHGs from the project with state- and nation-wide emissions and consistency with land use regulations, along with a qualitative assessment of the project's compliance with various adopted strategies for implementing GHG reduction programs, measures available to reduce GHG emissions from the project, and project-specific features that would comply with existing strategies.

### IMPACTS ON GLOBAL CLIMATE CHANGE

The proposed Wal-Mart Supercenter will generate vehicle trips and require energy that may result in actual and potential greenhouse gas emissions. Their generation may be a direct result of on-site project related activity, such as construction equipment emissions, employee and patron vehicle travel, and operational natural gas consumption, and from off-site activities such as electrical power generation, product processing, and supply transport. GHGs that may be generated by the project include carbon dioxide, methane, nitrous oxide, fluorinated gases, and ozone precursors (NO<sub>x</sub> and ROG). Estimates of primary GHG emissions (carbon dioxide, methane, nitrous oxide,) from the project are provided in Table 6-7, *Estimated Project Related Operational Emission of Primary GHGs*.

Emission Source	Emission Contributions		
	Carbon Dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous Oxide (N <sub>2</sub> O)
Vehicle Exhausts (metric tons/year)	7,620.88	3.56	1.09
Natural Gas Combustion (metric tons/year)	350.53	0.0315	0.0006
Electricity Consumption (metric tons/year)	1,667.59	0.0632	0.0151
Total (metric tons per year)	9,639	3.655	1.106
Total (Tg CO <sub>2</sub> Eq.)	9.64E-03	7.67E-05	3.43E-04
Sources: CARB EMFAC2007 Model (2007 update); US EPA Methane and Nitrous Oxide Emission Factors, 2003; US EPA Indirect Emissions from Purchases/Sales of Electricity and Steam, 2004; US EPA Indirect Emissions from Purchases/Sales of Electricity and Steam, 2004			

As shown, vehicles that would come to and from the site would primarily generate carbon dioxide, with small amounts of methane and nitrous oxide. Similarly, on-site natural gas consumption would lead to the generation of these primary GHGs. Electricity consumption would also result in indirect GHG emissions at off-site power plants.

Water vapor primarily comes from natural cycles and the proposed commercial development is not expected to directly generate water vapor. While estimates of NO<sub>x</sub> and ROG that would be generated by the project have been made in Section 4.5, *Air Quality*, the amount of ozone that these gases would eventually form cannot be determined with accuracy. With the ban on CFCs, the proposed project is not expected to utilize products with CFC or to generate CFC. The project may emit HFC from refrigeration and air conditioning equipment and equipment disposal. However, the project's potential for HFC generation cannot be quantified without more information on specific equipment to be used on-site. PFC and SF<sub>6</sub> are used for industrial applications and would not be generated by the proposed commercial retail

project. These fluorinated gases are also being phased out to prevent the depletion of the stratospheric ozone layer. These GHG gases are not expected to represent any quantifiable amount of GHG emissions from the project, as they currently account for only 1 percent of global GHG emissions (U.S. EPA Climate Change – Global Greenhouse Gas Data website, accessed 6/14/2007).

The project-generated GHGs, along with GHGs from other developments, activities and land uses throughout the City, County, State and the nation, are expected to contribute to global warming. Thus, the proposed project and related projects would cumulatively increase concentrations of greenhouse gases in the earth's atmosphere, increasing the potential for global warming and climate change.

Generally, most human activities, primarily the burning of fossil fuels and changes in land cover associated with new development, are expected to modify the concentration of atmospheric constituents or properties of the earth's surface that absorb or scatter radiant energy. In particular, increases in the concentrations of greenhouse gases and aerosols are strongly implicated as contributors to climatic changes observed during the 20th century and are expected to contribute to further changes in climate in the 21st century and beyond. These changes in atmospheric composition are likely to alter temperatures, precipitation patterns, sea level, extreme events, and other aspects of climate on which the natural environment and human systems depend (IPCC Climate Change 2001 – Impacts, Adaptation, and Vulnerability, 2001 p.77).

The Intergovernmental Panel on Climate Change (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 21) predicts with very high confidence that impacts can be expected in ocean circulation; sea level; the water cycle; carbon and nutrient cycles; air quality; the productivity and structure of natural ecosystems; the productivity of agricultural, grazing, and timber lands; and the geographic distribution, behavior, abundance, and survival of plant and animal species, including vectors and hosts of human disease. Changes in these systems in response to climate change, as well as direct effects of climate change on humans, would affect human welfare, positively and negatively.

Human welfare would be impacted through changes in supplies of and demands for water, food, energy, and other tangible goods that are derived from these systems; changes in opportunities for non-consumptive uses of the environment for recreation and tourism; changes in non-use values of the environment such as cultural and preservation values; changes in incomes; changes in loss of property and lives from extreme climate phenomena; and changes in human health. Climate change impacts will affect the prospects for sustainable development in different parts of the world and may further widen existing inequalities (IPCC Climate Change 2001 – The Scientific Basis, 2001 p. 21).

### **California Focus**

On a cumulative level, the GHG emissions from the proposed project and the related projects are not likely to have major impact on global climate. However, when taken together with all existing sources of GHG and future developments throughout the State, a modified climate will affect virtually every aspect of California's economy and natural resources, with energy supply and demand, water resources, agriculture, vegetation patterns, ecosystems, air quality, public health, and sea level rise among them. The following information is adapted from a California Energy Commission Staff Paper titled "Climate Change Impacts and Adaptation in California" that was prepared in support of the 2005 Integrated Energy Policy Report (CEC Climate Change Impacts and Adaptation in California, 2005 pp. 16-22).

### Energy Supply

Climate change may affect the amount of electricity produced in hydroelectric power plants, which contributes about 20 percent of the electricity generated by California's in-state power plants. California also imports significant amounts of hydropower from the Pacific Northwest. Warmer temperatures will affect the snowpack on which the state depends for a reliable, year-round water supply. Changes in precipitation levels and patterns and timing of snowmelt would alter the amount of electricity that hydroelectric facilities could generate. It would also affect seasonal availability, with less water available for hydroelectric generation in the spring and summer months, when demand is the highest.

In addition, there is a high likelihood that changes in precipitation and runoff patterns would lead to changes in broader water policies and end-use priorities, which could place further limitations on hydroelectric production. The Pacific Gas and Electric Company (PG&E) produces about one-third to one-fourth of the in-state hydroelectric generation in California. PG&E's hydropower generation, on average, originates from the following runoff sources: groundwater aquifers (38 percent); snowmelt (36 percent); and rainfall (25 percent).

The research paper found it important to emphasize that even relatively small changes in in-state hydropower generation could result in substantial extra expenditures for energy generation, because this "free" generation must be purchased from other sources. With the increasing demand for electricity in California and on the West Coast, the relative contribution of hydropower to total generation will diminish with time, even in the absence of climate change. In the distant future, California may not be able to count on large transfers of hydropower from the Pacific Northwest, given the expected increase in local demand in this region and, perhaps, decreased ability to generate electricity in the summer months in the Pacific Northwest.

### Energy Demand

Climate change is also likely to affect energy demand in California. A recent study estimated that by 2020, increases in net energy expenditures for natural gas and electricity in the residential and commercial sectors could be relatively small in a mild warming scenario, or they could be in the order of \$2 billion, in an extreme case. The increase in net energy expenditure results from an increase in summer cooling demand that overrides the decreases in heating demand from warmer winter temperatures. In relative terms, \$2 billion dollars represent about 6 percent of California's current expenditures in energy (natural gas and electricity) for cooling and heating in the residential and commercial sectors, and it would represent an even smaller fraction by 2020.

### Water Resources and Agriculture

Most of California's precipitation falls in the northern part of the state during the winter while the greatest demand for water comes from users in the southern part of the State during the spring and summer. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages (CEC Our Changing Climate Report, 2006 p. 6).

Continued global warming will increase pressure on California's water resources, which are already overstretched by the demands of a growing economy and population. Decreasing snowmelt and spring stream

flows coupled with increasing demand for water resulting from both a growing population and hotter climate could lead to increasing water shortages. By the end of the century, if temperatures rise to the medium warming range and precipitation decreases, late spring stream flow could decline by up to 30 percent. Agricultural areas could be hard hit; with California farmers losing as much as 25 percent of the water supply they need (CEC Our Changing Climate Report, 2006 p. 7).

Water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. In particular, saltwater intrusion would threaten the quality and reliability of the major fresh water supply that is pumped from the southern edge of the Sacramento/San Joaquin River Delta. Coping with the most severe consequences of global warming would require major changes in water management and allocation systems. As more winter precipitation falls as rain instead of snow, water managers will have to balance the need to fill constructed reservoirs for water supply and the need to maintain reservoir space for winter flood control. Some additional storage could be developed; however, the economic and environmental costs would be high (CEC Our Changing Climate Report, 2006 p. 7).

Agriculture, along with forestry, is the sector of the California economy that is most likely to be affected by a change in climate. California agriculture is a \$68 billion industry. California is the largest agricultural producer in the nation and accounts for 13% of all U.S. agricultural sales, including half of the nation's total fruits and vegetables. Regional analyses of climate trends over agricultural regions of California suggest that climate change is already in motion. Over the 50-year period extending from 1951 to 2000, the growing season has lengthened by about a day per decade, and warming temperatures have resulted in an increase of 30 to 70 growing degree days per decade, with much of the increase occurring in the spring. Climate change affects agriculture directly through increasing temperatures and rising CO<sub>2</sub> concentrations, and indirectly through changes in water availability and pests (CEC Possible Scenarios of Climate Change in California, 2005 p. 19).

#### Vegetation Patterns and Ecosystems

California is one of the most climatically and biologically diverse areas in the world, supporting thousands of plant and animal species. The state's burgeoning population and consequent impact on local landscapes is threatening much of this biological wealth. Global warming is expected to intensify this threat by increasing the risk of wildfire and altering the distribution and character of natural vegetation (CEC Our Changing Climate Report, 2006 p. 10).

Fire is an important ecosystem disturbance. It promotes vegetation and wildlife diversity, releases nutrients into the soil, and eliminates heavy accumulation of underbrush that can fuel catastrophic fires. However, if temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. In many regions, wildfire activity will depend critically on future precipitation patterns. For example, if precipitation increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are expected to increase by approximately 30 percent toward the end of the century. This is because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation (CEC Our Changing Climate Report, 2006 p. 11).

Land use and other changes resulting from economic development are altering natural habitats throughout the State. Continued global warming will intensify these pressures on the State's natural ecosystems and biological diversity. In northern California, warmer temperatures are expected to shift dominant forest

species from Douglas and White Fir to madrone and oaks. In inland regions, increases in fire frequency are expected to promote expansion of grasslands into current shrub and woodland areas. Alpine and sub-alpine ecosystems are among the most threatened in the State. Plants suited to these regions have limited opportunity to migrate “up slope” and are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures (CEC Our Changing Climate Report, 2006 p. 11).

Also, forest lands cover approximately 45 percent of the State. Recent projections suggest that continued global warming could adversely affect the health and productivity of California’s forests. If average Statewide temperatures rise to the medium warming range, the productivity of mixed conifer forests is expected to diminish by as much as 18 percent by the end of the century. Yield reductions from pine plantations are expected to be even more severe, with up to a 30 percent decrease by the end of the century (CEC Our Changing Climate Report, 2006 p. 11).

### Air Quality and Public Health

Continued global warming will affect public health by exacerbating air pollution, intensifying heat waves, and expanding the range of infectious diseases. The primary concern is not so much the change in average climate but the projected increase in extreme conditions, which pose the most serious health risks.

Californians currently experience the worst air quality in the nation, with more than 90 percent of the population living in areas that violate the State’s air quality standard for either ground-level ozone or airborne particulate matter. These pollutants can cause or aggravate a wide range of health problems, including asthma and other acute respiratory and cardiovascular diseases, and can decrease lung function in children. Combined, ozone and particulate matter contribute to 8,800 deaths and \$71 billion in health care costs every year. If global background ozone levels increase as projected in some scenarios, it may become impossible to meet local air quality standards. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions (CEC Our Changing Climate Report, 2006 p. 5).

Analyses of various climate change scenarios also suggest that the future will have a greater number of extremely hot days and fewer extremely cold days. Individuals likely to be most affected include the elderly, the already ill, and the economically disadvantaged. Other identified risk factors for temperature-related health effects include social isolation, not leaving the home daily, and for heat-related mortality, living on the upper floors of multi-story buildings. The number of deaths attributed to heat has declined over the past 30 years in the United States, primarily due to the increasing number of households with central air conditioning, which appears to be the strongest protective factor. The U.S. Department of Commerce expects that air conditioning will be universal in the United States by 2050, which will increase demand for electricity for residential cooling, especially on peak demand summer days in the future (CEC Possible Scenarios of Climate Change in California, 2005 pp. 26-27).

### Effects of Sea Level Rise

California’s 1,100 miles of coastline are a major attraction for tourism, recreation, and other economic activity. The coast is also home to unique ecosystems that are among the worlds most imperiled. As global warming continues, California’s coastal regions will be increasingly threatened by rising sea levels, more intense coastal storms, and warmer water temperatures. During the past century, sea levels along California’s coast have risen about seven inches. If heat-trapping emissions continue unabated and temperatures rise into the higher warming range, sea level is expected to rise an additional 22 to 35 inches

by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats (CEC Our Changing Climate Report, 2006 p. 12).

## IMPACT SIGNIFICANCE

### Comparison with State and National Emission Inventories

While the project would contribute to the cumulative inventory of GHG emissions, the type of development (big box retail) and the size of the project (190,803 square feet) render its contribution to be minimal when considered against the extent that GHG emissions could affect climate change. There are no City-wide or County-wide GHG emissions available, but comparison with the State and National inventories show that project contribution would be very minute. Table 6-8, *Comparative Emission Estimates for Primary GHGs*, provides the anticipated emissions from the project and total GHG in California, the nation, and the world.

GHG Gas	Comparative Inventories			
	Wal-Mart Supercenter (2008)	State of California (2004)	United States of America (2005)	Global Budget (2004)
Carbon Dioxide	9.64E-03 (0.00964)	355.9	6,089.5	16,797.1
Methane	7.67E-05 (0.0000767)	27.9	539.3	1,732.7
Nitrous Oxide	3.43E-04 (0.000343)	33.3	468.6	1,285.6
Other GHG	--	74.9	163.0	319.6
Total	1.01E-02(0.0101)	492.0	7,260.4	20,135.0

Sources: CARB EMFAC2007 Model (2007 update); US EPA Methane and Nitrous Oxide Emission Factors, 2004; US EPA Indirect Emissions from Purchases/Sales of Electricity and Steam, 2004; US EPA Indirect Emissions from Purchases/Sales of Electricity and Steam, 2004; UNFCCC GHG Emissions Data, 2006; U.S. EPA U.S. GHG Emission Inventory, 2007; and CEC California GHG Emission Inventory, 2006

As shown, project impacts related to potential increase in State and national GHG inventories would be considered less than significant.

### General Plan and Zoning Consistency

Consistency of the project with the Ontario General Plan and Development Code is discussed in Section 4.2, *Land Use and Planning*, of this SEIR. No conflicts are expected. In addition, potential GHG emissions under the General Plan and Development Code (including the Mountain Village Specific Plan) are discussed below.

The project site is currently designated as General Commercial in the Ontario General Plan Land Use Policy Map (Ontario General Plan Land Use Map, 2007). This land use designation allows commercial retail and service uses with the maximum development intensity set at a floor area ratio (FAR) of 0.40 (Ontario General Plan, 1992 p. 7-24). Future development under the General Commercial land use designation would allow as much as 265,367.5 square feet of commercial development on the 15.23-acre portion of the site (excluding the 1.06-acre area occupied by the Hollywood Video store, which has an FAR of 0.15). Since the proposed project would lead to an approximately 190,803-square-foot building on the site (at an FAR of 0.29), the project would result in less GHG emissions than development allowed under the General Commercial land use designation. The project would represent approximately 72 percent of the allowable development on the site and, since the same commercial retail use is proposed,

would proportionately generate only 72 percent of the GHG anticipated on the site under the General Plan. Impacts are expected to be less than significant.

The site is zoned Specific Plan and the Mountain Village Specific Plan (MVSP) allows the Main Street District to have as much as 388,555 square feet of commercial floor area at a maximum FAR of 0.4, but is anticipated to only have a total of 351,400 square feet (FAR 0.36). This includes 35,500 square feet of new retail uses and 180,000 square feet of existing retail uses on the project site, for a total commercial floor area of 215,500 square feet (MVSP, 1998 p. 116). The Hollywood Video’s floor area of 7,035 square feet and the proposed project’s floor area of 190,803 square feet equal 197,838 square feet, which is less than the anticipated 215,500 square feet. Thus, the project would result in less GHG emissions than the development anticipated on the site under the zoning (Specific Plan) for the site.

The project would represent approximately 92 percent of the anticipated development under the Mountain Village Specific Plan and, since the same commercial retail use is proposed, would proportionately generate only 92 percent of the GHG anticipated under the zoning and applicable Specific General Plan. Impacts are expected to be less than significant.

**AB 32 Compliance**

Statewide efforts to reduce GHG emissions in California are outlined in Climate Action Team Report that was prepared to comply with the California Global Warming Solutions Act of 2006 (or Assembly Bill 32). Although the project’s GHG contributions and potential impact on global climate change are less than significant, the project’s compliance with strategies outlined in the Climate Action Team Report is nonetheless presented in Table 6-9, *Greenhouse Gas Reduction Strategies*, below.

TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES		
Strategy	Description of Strategy	Project Compliance
<b>California Air Resources Board (CARB)</b>		
Vehicle Climate Change Standards	AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the CARB in September 2004.	Vehicles be used by the project and that would come to the site are expected to comply with CARB’s current vehicle emission standards.
Other Light Duty Vehicle Technology	New standards would be adopted to phase in beginning in the 2017 model year	Future vehicles that would be utilized by the project and that would come to the site are expected to comply with CARB’s vehicle emission standards.
Diesel Anti-Idling	In 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	The project shall reduce vehicle idling times to less than 5 minutes, as provided under Mitigation Measure 4.5.3.
Hydrofluorocarbon Reduction	1) Ban retail sale of HFC in small cans; 2) Require that only low GWP refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak-tightness to the pass criteria for vehicular Inspection and Maintenance programs; 5) Enforce federal ban on releasing HFCs.	Consumer products that would be sold at the project would comply with CARB regulations, as they are adopted.

<b>TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES</b>		
<b>Strategy</b>	<b>Description of Strategy</b>	<b>Project Compliance</b>
Transportation Refrigeration Units (TRUs), Off-Road Electrification, Port Electrification	Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	The project shall utilize TRUs. Thus, the project shall provide loading docks with off-road electrification systems for use by TRUs.
Manure Management	Reduce volatile organic compounds from confined animal facilities through implementation of control options.	The project does not include manure management or animal facilities.
Alternative Fuels: Biodiesel Blends	CARB will develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	Future vehicles that would be used by the project and that would come to the site are expected to use fuels that comply with CARB standards.
Alternative Fuels: Ethanol	Increased use of ethanol fuel.	The project shall consider the use flexible fuel vehicles, as feasible.
Heavy-Duty Vehicle Emission Reduction Measures	Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	The vehicles that would be used by the project and that would come to the site are expected to comply with CARB's current vehicle emission standards.
Hydrogen Highway	The California Hydrogen Highway Network (CA H2 Net) is a State initiative to promote the use of hydrogen as a means of diversifying the sources of transportation energy.	The project is not involved in the development of sources of transportation energy.
Achieve 50% Statewide Recycling Goal	Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production, as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	The project would comply with the City requirement for construction and demolition activities to recycle wastes and divert at least 50 percent from landfill disposal. The project would also implement a number of recycling programs on-site, as discussed in Section 4.12.4, <i>Solid Waste Disposal</i> .
Landfill Methane Capture	Install direct gas use or electricity projects at landfills to capture and use emitted methane.	The project is not a landfill operation.
Zero Waste - High Recycling	Additional recycling beyond the State's 50% recycling goal.	The project would implement a number of recycling programs on-site, as discussed in Section 4.12.4, <i>Solid Waste Disposal</i> .
<b>Department of Forestry</b>		
Urban Forestry	A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	The project shall participate in urban forestry programs, such as TreePeople, California ReLeaf, and Tree Musketeers.
Afforestation/Reforestation Projects	Reforestation projects focus on restoring native tree cover on lands	The project would be planting more trees on the site than existing.

<b>TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES</b>		
<b>Strategy</b>	<b>Description of Strategy</b>	<b>Project Compliance</b>
	that were previously forested and are now covered with other vegetative types.	
<b>Department of Water Resources</b>		
Water Use Efficiency	Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use will reduce greenhouse gas emissions.	The project shall comply with Standard Condition 4.12.3 to implement water conservation measures in accordance with the Uniform Plumbing Code and Title 6, Chapter 8 of the Ontario Municipal Code. The project shall comply with Standard Condition 4.12.2 and utilize recycled water for landscape irrigation, when it becomes available, in accordance with Title 6, Chapter 8C, Recycled Water Use, of the Ontario Municipal Code.
<b>California Energy Commission (CEC)</b>		
Building Energy Efficiency Standards in Place and in Progress	Public Resources Code Section 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	The proposed structure shall be built in accordance with the State's building energy efficiency standards.
Appliance Energy Efficiency Standards in Place and in Progress	Public Resources Code Section 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	Appliance and equipment used and sold at the project will be consistent with the State's appliance energy efficiency standards.
Cement Manufacturing	Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	The project is not involved in cement manufacturing.
Municipal Utility Strategies	Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	The project is not a utility agency.
Alternative Fuels: non-Petroleum Fuels	Increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	The project is not involved in fuel generation.
<b>Business Transportation and Housing</b>		
Measures to Improve Transportation Energy Efficiency	Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	The project is not involved in the development of cleaner transportation
Smart Land Use and	Smart land use strategies encourage	The proposed project would provide

<b>TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES</b>		
<b>Strategy</b>	<b>Description of Strategy</b>	<b>Project Compliance</b>
Intelligent Transportation Systems (ITS)	jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. Governor Schwarzenegger is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity, and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	commercial retail and serve uses near residential areas, which would allow area residents to travel shorter distances for these goods and services. Pedestrian walkways and bike racks would be provided onsite to promote walking, biking and the use of alternative transportation (public bus transit).
<b>Department of Food and Agriculture</b>		
Enteric Fermentation	Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	The project would not be involved in cattle raising activities at the site.
<b>State and Consumer Services Agency</b>		
Green Buildings Initiative	Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings.	The project would implement energy conservation measures required under the California Building Code, as discussed in Section 4.12.5, <i>Electrical Power Service</i> . Energy efficiency measures beyond Code requirements shall be implemented by the project, to achieve a 20 percent reduction in energy demand.

<b>TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES</b>		
<b>Strategy</b>	<b>Description of Strategy</b>	<b>Project Compliance</b>
	The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20 percent target.	
<b>Public Utilities Commission (PUC)</b>		
Accelerated Renewable Portfolio Standard (33 percent by 2020)	The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal.	The project is not involved in energy generation.
California Solar Initiative	The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	The project shall explore the utilization of solar-generated systems at the site.
Investor-Owned Utility	This strategy includes energy efficiency programs, combined heat and power initiative, and electricity sector carbon policy for investor owned utility.	The project is not an investor-owned utility agency.
<b>South Coast Air Quality Management District (SCAQMD)</b>		
Low Sulfur Diesel Fuels	SCAQMD Rules 431.1 and 431.2 require the use of low sulfur fuel for stationary construction equipment to reduce CO and NO <sub>x</sub> emissions.	The project shall comply with Standard Condition 4.5.4 and Mitigation Measure 4.5.1a regarding the use of low sulfur fuel in stationary equipment.
Mobile Source Emission Reduction	SCAQMD Rule 2202 applies to employers with 250 or more employees and provides a menu of options to reduce mobile source emissions generated from employee commutes.	The project shall comply with Standard Condition 4.5.6 regarding the implementation of motor vehicle mitigation options to reduce emissions generated by employee commutes.
<b>City of Ontario</b>		
General Plan Natural Resource Element Policy 2.1	Through the Development Code, support mass transit projects whenever possible and require mass transit connections to sizeable new development, residential, commercial and industrial.	The site is served by the Omnitrans bus, running along Fifth Street. The project would provide a bus shelter on Fifth Street, at the existing Omnitrans bus stop.
General Plan Natural Resource Element Policy 2.2	Encourage traffic reduction measures, such as ridesharing and staggered work hours for employers with more than 100 employees.	The project shall comply with Standard Condition 4.5.2 and the City's Trip Reduction Ordinance requirements, through the provision of bike racks, employee carpool parking, pedestrian walkways, and loading

<b>TABLE 6-9 GREENHOUSE GAS REDUCTION STRATEGIES</b>		
<b>Strategy</b>	<b>Description of Strategy</b>	<b>Project Compliance</b>
		areas to encourage the use of alternative modes of transportation. It will also provide staggered work hours for employees to correspond with customer shopping patterns.
General Plan Natural Resource Element Policy 2.11	Encourage landscaping that most effectively aids in reducing air pollutants.	Trees, shrubs, and groundcover are proposed throughout the site to reduce fugitive dust from high winds.
General Plan Infrastructure Element Policy 15.2	Require new development to fund transit facilities, such as bus shelters and turnouts, where feasible.	The project would provide a bus shelter on Fifth Street, at the existing Omnitrans bus stop.
General Plan Infrastructure Element Policy 15.3	Include pedestrian facilities in new developments where possible, especially pedestrian pathways in new residential developments and pedestrian plazas and connections in new employment centers where such plazas and connections can effectively reduce automobile travel.	Pedestrian walkways and sidewalks would be provided on-site, in compliance with the City's Trip Reduction Ordinance.
General Plan Infrastructure Element Policy 15.4	Encourage bicycle riding through provision of a safe and efficient network of bike paths and bike lanes, particularly in newly developing areas.	Pedestrian walkways and sidewalks, which may be used by bicyclists, would be provided on-site, in compliance with the City's Trip Reduction Ordinance.
General Plan Infrastructure Element Policy 15.5	Require provision of an accessible and secure area for bicycle storage at all new commercial and industrial developments.	Bike racks would be provided on site, in compliance with the City's Trip Reduction Ordinance.

The analysis demonstrates that, in the absence of prescribed greenhouse gas reduction threshold values, the proposed Wal-Mart Supercenter project complies with the majority of existing strategies, policies, and regulations to reduce potential GHG emissions. Although impacts are already less than significant, mitigation measures are nonetheless outlined below that would align the project with existing GHG reduction strategies and further reduce its contribution to total GHG in the City, County, State, and nation.

### **Project Features**

The proposed Wal-Mart Supercenter would be implementing a number of features and programs that would help reduce its contribution to GHG emissions through site planning, energy conservation, waste recycling, water conservation, and trip reduction. These include:

#### *Site Planning*

The proposed project would be located near residential neighborhoods and would provide area residents with goods and services that may be obtained by walking or biking to the site, as well as through shorter trips. Thus, reductions in vehicle trips and trip lengths would reduce fuel consumption and associated GHG emissions.

*Trip Reduction*

In compliance with the City's Trip Reduction Ordinance requirements, the project shall provide on-site bike racks, employee carpool parking, pedestrian walkways, and loading areas to encourage the use of alternative modes of transportation. A bus shelter would also be provided at the existing bus stop at Fifth Street. This bus shelter would make the use of bus transit to and from the site a more convenient option for employees and patrons. These project features would encourage walking, biking, and the use of bus transit and reduce vehicle trips to the project and corresponding GHG emissions.

As a standard condition, the project shall also comply with SCAQMD Rule 2202 regarding the implementation of motor vehicle mitigation options to reduce emissions generated by employee commutes. Reduction in employee commutes would reduce GHG from vehicle emissions.

While staggered working hours would reduce the potential for carpooling and vanpooling, it would also reduce peak hour vehicle traffic and congestion that leads to increase fuel consumption and GHG emissions.

*Energy Conservation*

The proposed project shall implement energy conservation measures, as required under Title 24, Part 6, of the California Code of Regulations (California's Energy Efficiency Standards for Residential and Nonresidential Buildings) and the Uniform Building Code. Reductions in energy consumption would indirectly reduce the need for electrical power and natural gas generation at off-site locations, leading to a reduction in GHG from power plant operations.

*Landscaping*

The landscaping plan for the project shows that trees, accent trees, shrubs, perennials, vines, and ground cover would be provided along the site perimeters and within the parking lot. These areas would cover a total of approximately 72,250 square feet or 10 percent of the total site area or 15 percent of the net site area (site area minus Hollywood Video area, street dedications, and building coverage). While existing parkway trees would be removed, replacement street trees would generally be provided at one tree per 30 feet or less along the street frontage, with 21 trees along Mountain Avenue and 28 trees along Fifth Street (Conceptual Landscape Plan, October 2004). Also, the proposed parking lot landscaping would result in large increase in the number of on-site trees over existing conditions.

As a standard condition, the removal or relocation of parkway trees along Mountain Avenue shall require a permit from the Ontario Department of Public Works and the planting of replacement trees, in accordance with Title 10, Chapter 2 (Parkway Trees) of the Ontario Municipal Code. The protection or replacement of mature trees would allow for carbon dioxide sequestration.

*Water Conservation*

The project shall implement water conservation measures in accordance with the Uniform Plumbing Code and Title 6, Chapter 8 of the Ontario Municipal Code. The project shall also utilize recycled water for landscape irrigation when it becomes available, in accordance with Title 6, Chapter 8C, Recycled Water Use, of the Ontario Municipal Code. Reductions in water use would reduce the need for water system infrastructure and conveyance systems and their associated GHG emissions.

*Waste Recycling*

The proposed project shall implement waste reduction, disposal, and recycling measures during project construction and operations in accordance with Title 6, Chapter 3 (Integrated Solid Waste Management) of the City's Municipal Code. This includes the development and implementation of a Construction and Demolition Recycling Plan, during the demolition and construction phase of the project. Reduction in waste generation would reduce vehicle trips to landfills and landfilling activities, with resulting reduction in GHG emissions from fuel consumption by trucks and landfilling equipment, less methane production from landfills; and decreased manufacturing of consumer products and the associated GHG from industrial processes.

In addition to these project features and standard conditions, a number of mitigation measures are recommended in this SEIR, which would also indirectly reduce GHG emissions from the project. These include:

- Mitigation Measure 4.5.2: Construction operations affecting off-site roadways shall be scheduled by implementing traffic hours and shall minimize obstruction of through-traffic lanes.
- Mitigation Measure 4.5.3: Idling trucks or heavy equipment shall turn off their engines if the expected duration of idling exceeds five (5) minutes, as required by law.
- Mitigation Measure 4.5.7: The project shall use energy-efficient street lighting and parking lot lighting for all on-site travel paths to reduce emissions at the power generation facility serving the area.
- Mitigation Measure 4.5.8: (third bullet) Truck routes and schedules for receipt of materials shall be coordinated with City staff. Construction operations shall be scheduled to avoid impacts during peak hours, where feasible.
- Mitigation Measure 4.5.9: Equipment shall be maintained in proper tune; 90-day low-NOx tune-ups shall be required for off-road equipment.
- Mitigation Measure 4.5.10: Lane closures or detours shall require coordination with the City staff. To avoid impacts to local traffic, construction vehicles shall be required to park off traveled roadways, where feasible.
- Mitigation Measure 4.5.11: The contractor shall encourage car pooling for construction workers.

These measures would reduce the number and length of vehicle use and fuel consumption, as well as energy consumption by the project. Thus, the project would be reducing its potential GHG emissions in several ways, albeit in relatively minor amounts.

**MITIGATION MEASURES**

To further reduce the project's already insignificant contribution to GHG emissions and global warming, additional measures and project features that would reduce vehicle emissions and energy consumption by the project may be implemented. However, the potential contribution to the decrease in GHG would be relatively minor. Still, measures that would make the project consistent with current State strategies and that would be imposed on the project include:

Mitigation Measure 6.1a: The project shall provide loading docks with off-road electrification systems for use by [Trailer Refrigeration Units \(TRUs\)](#).

Mitigation Measure 6.1b: The project shall consider the use of flexible fuel vehicles [on the company fleet](#), as [deemed](#) feasible.

Mitigation Measure 6.1c: The project shall explore the utilization of solar-generated systems at the site.

Mitigation Measure 6.1d: The project shall participate in urban forestry programs, such as TreePeople, California ReLeaf, and Tree Musketeers.

Mitigation Measure 6.1e: The project shall implement energy efficiency measures beyond Code requirements to achieve a 20 percent reduction in energy demands. This may include:

- Highly energy-efficient water heaters, freezers, and refrigerated food storage systems.
- Energy efficient light fixtures and systems (automatic lighting on/off controls and energy-efficient lighting)
- Building construction to reduce energy demand (i.e., increased insulation, duct sealing, and window glazing ratings, light-colored roofing materials to deflect heat and conserve energy)
- Building design to reduce energy demand (i.e., window area and shade structures over windows, use of electric service equipment such as forklifts, maximum use of specimen, fast-growing trees in landscaping)

#### **UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS**

Large individual projects, regardless of size, cannot typically generate enough greenhouse gas emissions to influence global climate change. However, every project that directly generates, or encourages the generation of greenhouse gases, participates in this potential impact by its incremental contribution, combined with the cumulative increase of all other sources of greenhouse gases (AEP Draft White Paper on Global Climate Change, 2007 p. 8).

However, the project's contribution of greenhouse gases would be minimal when compared to State and national totals. Also, the project would result in less GHG emissions than development that is otherwise allowed under the Ontario General Plan and Development Code (including the Mountain Village Specific Plan). In addition, implementation of the mitigation measures above would bring the project in compliance with existing State strategies to further reduce GHG emissions. Thus, project impacts related to global climate change and greenhouse gases would be less than significant.