

4 REVISIONS AND CORRECTIONS TO THE DRAFT EIR

4.1 INTRODUCTION

This chapter includes revisions to the text in the Draft EIR following its publication and public review. The changes are presented in the order in which they appear in the original Draft EIR and are identified by Draft EIR page number. The changes shown in this chapter are the result of comments received on the Draft EIR that resulted in text modifications or corrections that occurred after circulation of the Draft EIR for public review and comments. The proposed text modifications do not affect the conclusions in the Draft EIR. Revisions are shown as excerpts from the Draft EIR text, with strikethrough (~~strikethrough~~) text for deletions and underline (underline) text for additions.

4.2 STAFF-INITIATED REVISIONS AND CORRECTIONS TO DRAFT EIR

After release of the Public Draft EIR for the Merced Wal-Mart Distribution Center Project, City staff noted several instances in the document that required minor text revision or clarification. City staff makes the following minor revisions for clarification purposes. These insignificant modifications do not alter the conclusions of the Draft EIR and do not constitute “substantial” new information as defined under Section 15088.5 of the *State CEQA Guidelines*, because these minor clarifications do not deprive the public of a meaningful opportunity to comment upon a substantial adverse environmental effect or a feasible mitigation or avoidance measure. Recirculation of the Draft EIR is therefore not required. (*State CEQA Guidelines* Section 15088[b])

REVISIONS TO SECTION 1 “INTRODUCTION”

Page 1-3 is revised as shown below:

Rather, it would assess the potential environmental impact of businesses leaving the community, because of an inability to financially compete, resulting in vacant buildings. In other words, the financial impact on local business is not an environmental issue that ~~can be addressed in~~ is appropriate for consideration in an environmental impact report. However, if enough local retail businesses were forced to close as a result of a new project, this could lead to vacant buildings. Vacant buildings can have a variety of environmental impacts on a community ~~and would be considered a form of urban decay which is an environmental impact (e.g. blight).~~

Page 1-5 is revised as shown below:

Significant Impact: CEQA Guidelines Section ~~21068~~ 15382 defines a significant impact as one that causes “a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project.” Feasible mitigation measures or alternatives to the project must be considered to reduce the magnitude of significant impacts to less-than-significant levels.

REVISIONS TO SECTION 2 “EXECUTIVE SUMMARY”

Pages 2-2 and 2-5 (as well as all other DEIR references to this project objective including pages 5-2 and 5-40 and Tables 5-2, 5-3, 5-4, 5-5, 5-6, and 5-7 in Section 5 “Alternatives”) are revised as shown below:

- ▶ to construct a distribution/warehouse facility with sufficient space (approximately 1.21 million square feet) to allow operational efficiency and adequate distribution of goods to stores in a broad geographic area in California,

Table 2-1 on page 2-51 is revised as described below:

The significance before mitigation for Impact 4.13-2, “Substantial Degradation of the Visual Character or Quality of the Site and Surroundings” is hereby changed from SU to PS. The significance after mitigation for Mitigation 4.13-2, “Prepare and Submit a Landscaping Plan” is hereby changed from SU to LTS. This change corrects an inconsistency between the conclusions stated in Table 2-1 and the conclusions in Section 4.13 of the DEIR.

REVISIONS TO SECTION 3 “PROJECT DESCRIPTION”

Page 3-11 is revised as shown below:

This environmental impact report (EIR) uses as a reference document the City General Plan EIR (State Clearinghouse Number 95082050), which was adopted in 1997. The 1997 update of the City General Plan was the update that designated the general plan designation of Industrial for the eastern portion (east of the Kibby Road right-of-way) of the project site. This eastern portion of land was annexed as “Heavy Industrial” in 1999. The western portion (west of the Kibby Road right-of-way) was designated for Industrial use at least as far back as the 1981 City General Plan. This portion of land was annexed as “Heavy Industrial” in 1978.

In addition, a portion of the project site was included as part of the Lyon’s Annexation to the City of Merced, which was approved by LAFCO on January 28, 1999, and a Certificate of Completion was recorded on June 11, 1999. The Expanded Initial Study/Mitigated Negative Declaration prepared for the annexation includes several mitigation measures, which apply to any development approved within the annexation area. If approved, the proposed project would be required to comply with these mitigation measures. It should be noted that, because many of the mitigation measures required in the Merced Wal-Mart Distribution Center are more current and more effective than the Lyon’s Annexation mitigation, the City may consider, on a case-by-case basis, whether implementation of individual mitigation measures included in the Merced Wal-Mart Distribution Center EIR would meet the mitigation requirements for similar individual mitigation measures required under the Lyon’s Annexation project. A copy of the Mitigation Monitoring Plan adopted for the Lyon’s Annexation Project is available from the City upon request.

Page 3-13 is revised as shown below:

The distribution center would receive electrical power from either PG&E or Merced Irrigation District facilities. ~~via an overhead line that exists within the Childs Road right-of-way.~~ Gas service, to be provided by PG&E, would be extended to the site from a transmission line in Childs Road, approximately one-half mile east of Tower Road. AT&T would extend telephone service to the site from lines located in the rights-of-way of Childs Avenue and Gerard Avenue.

Page 3-15 is revised as shown below:

- ▶ daylight harvesting system;
- ▶ recycled, recyclable, and low toxicity finishes for interior office spaces;
- ▶ solar power;
- ▶ hydrogen fuel cell forklifts;
- ▶ paperless process for managing freight;
- ▶ waste recycling programs;
- ▶ Material Return Facilities to reduce the amount of waste generated and ensure re-use of shipping materials;
- ▶ “smart systems” that power down warehouse equipment when not in use.

Wal-Mart has indicated its intention to continue to monitor these technologies and incorporate those that are effective, reliable and make business sense.

Page 3-16 is revised as shown below:

- ▶ All corporate fleet vehicles based at the proposed Merced distribution center would be hybrid vehicles (not including the truck fleet). Hybrid vehicles dramatically reduce gasoline consumption and therefore have lower operating emissions.

REVISIONS TO SECTION 4.1 “AGRICULTURAL RESOURCES”

Page 4.1-1 is revised as shown below:

The majority of the soils on the project site are Wyman loam soils, totaling approximately ~~58%~~ 62%. The three types of Wyman soils span from the northwest corner of the project area, along Childs Avenue on the north boundary of the project area, then southerly through the mid-eastern region of the site, eventually spanning to the eastern and western boundaries in the southern region of the project site. The Wyman series consists of deep, well-drained soils that formed in alluvium from andesitic and basaltic rocks. Wyman soils are on terraces and alluvial fans that range from nearly level to strongly sloping and have slopes of 0 to 15%. The Wyman series is used extensively for orchard and truck crops, but some areas are used for vineyards, grain, alfalfa, and clover.

Page 4.1-4 is revised as shown below:

WILLIAMSON ACT PROGRAM

The Williamson Act establishes a mechanism for contracts between local governments and private landowners, restricting parcels of land to agricultural or related open space use and offering reduced property tax assessments as an incentive for the restrictions on land use. These contracts are valid for ten years and subject to renewal. Cancellation and/or breach of Williamson Act contracts carries stiff penalties. If a property owner decides not to renew, the annual tax assessment gradually increases until the end of the nonrenewal period, when the contract is terminated. However, development of the project site will not necessarily lead to increased property assessments on adjacent parcels—properties are only reassessed at the time of sale. Landowners are taxed on the capitalization of the income from the land rather than the fair market value, and local governments receive an annual subvention of forgone property tax revenues from the state via the Open Space Subvention Act of 1971. In return, the landowner retains their land in open space or agricultural use for at least 10 years. Land can be withdrawn from a Williamson Act contract through a 10-year process beginning with a nonrenewal filing, during which taxes gradually increase to full levies. In extraordinary, unforeseen situations, immediate termination is sometimes granted. No Williamson Act contract currently applies to the project site, but, as can be seen in Exhibit 4.1-2, a Williamson Act property is adjacent to the site to the east.

REVISIONS TO SECTION 4.2 “AIR QUALITY”

Please refer to Section 4.4, which includes the entire revised Air Quality section.

REVISIONS TO SECTION 4.3 “BIOLOGICAL RESOURCES”

Page 4.3-8 is revised as shown below:

1.1.b: Urban development should occur away from identified sensitive species habitat unless specific provisions to ensure adequate protection and monitoring exist.

Page 4.3-10 and Table 2-1 on page 2-22 are revised as shown below:

Mitigation Measure 4.3-2: Implement Measures to Minimize Potential Project Effects on Swainson’s Hawk and Burrowing Owl. To minimize potential project effects on Swainson’s hawk and burrowing owl, the planning

director shall ensure that project applicant shall do the following prior to issuance of grading permits and during construction, as applicable:

(The remainder of the mitigation measure remains unchanged)

REVISIONS TO SECTION 4.4 “CULTURAL RESOURCES”

Page 4.4-5 and Table 2-1 on page 2-22 are revised as shown below:

Mitigation Measure 4.4-1: Contact Cultural Resources Specialist for Potential Cultural Finds during Project-Related Ground-Disturbing Activities. If unrecorded cultural resources are encountered during project-related ground-disturbing activities, the contractor and/or the project proponent shall contact a qualified professional cultural resources specialist ~~shall be contacted~~ to assess the potential significance of the find.

(The remainder of the mitigation measure remains unchanged)

REVISIONS TO SECTION 4.5 “GEOLOGY, MINERALS, SOILS, AND PALEONTOLOGICAL RESOURCES”

Page 4.5-7 is revised as shown below:

Holocene Alluvium

By definition, to be considered a fossil, an object must be more than 10,000 years old; therefore, project-related activities in this rock formation, which is no greater than 10,000 years old, would have no effect on paleontological resources.

Page 4.5-15 is revised as shown below:

- Based on Appendix G of the State CEQA Guidelines, viewed in light of the professional paleontological standards described above (SVP [1995]), significant adverse environmental impacts on paleontological resources would result if the proposed project would directly or indirectly destroy a unique paleontological resource or site. For the purposes of this DEIR, an individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

REVISIONS TO SECTION 4.6 “HYDROLOGY AND WATER QUALITY”

Pages 4.6-10 and Table 2-1 on pages 2-32 are revised as shown below:

Mitigation Measure 4.6-2. Develop and Implement a BMP and Water Quality Maintenance and Monitoring Plan.

Design standards for water quality treatment are being formulated that would meet or exceed City of Merced Storm Drain Master Plan and Standard Design requirements. The applicant shall submit the completed design standards, when completed, will to the City’s Development Services Department. Prior to issuance of grading permits, the City Engineer shall ensure that the design standards incorporate the adopted City of Merced Master Storm Drain Plan and Design guidance (City of Merced 2002):

(The remainder of the mitigation measure remains unchanged)

REVISIONS TO SECTION 4.7 “LAND USE”

Page 4.7-1 is revised as shown below:

Land east of the site is primarily agricultural and outside of the Merced city limits (which is located just beyond the east property line). To the north and south of the project site are industrially zoned parcels primarily used for agricultural purposes with a few industrial facilities located north of Childs Road. West of the site is a ~~developing~~ newly developed single-family residential area with some areas still under construction. Farther west and northwest is central Merced, with historic residential areas and downtown commercial areas. The center of the City is bisected by SR 99, which runs in a northwest-southeast course through the City. Industrial areas are located west of central Merced, with suburban-style residential and commercial neighborhoods located north of central Merced. At the far northeast corner of the City’s planning area is the recently opened University of California at Merced campus.

REVISIONS TO SECTION 4.8 “NOISE”

Page 4.8-16 is revised as shown below:

Groundborne vibration impacts were ~~qualitatively~~ assessed based on existing documentation (e.g., vibration levels produced by specific construction equipment) and the distance of sensitive receptors from the given vibration source. Attenuation of groundborne vibration levels at receptors were calculated according to formulas and methodologies established by the Federal Transit Administration (FTA) (2006).

Page 4.8-17 is revised as shown below:

- **Land Use Compatibility with On-site Noise Levels.** Development of the proposed land uses would have a significant impact if predicted on-site ambient noise levels under existing or future cumulative conditions would exceed the “normally acceptable” land use compatibility standard established by the City of Merced Noise Compatibility Guidelines (Table 4.8-5) and pursuant to Policy N-1.4c of the *Merced Vision 2015 General Plan* Noise Element. As a light industrial land use the “normally acceptable” noise standard would be 70~~75~~ dBA for the proposed Wal-Mart distribution facility.

Page 4.8-20 is revised as shown below:

Mitigation Measure 4.8-1: Regulate Short-Term Construction Noise. ~~Regulate Construction before Approval of Implementation Plans.~~ ~~Prior to approval of Implementation Plans and subsequent projects, t~~The City shall require the applicant to regulate construction noise by implementing the measures listed below. ~~as follows: These measures shall be clearly indicated on all grading and improvement plans, and the project contractor shall be responsible for ensuring implementation of all measures.~~

(The remainder of the mitigation measure remains unchanged)

Pages 4.8-24 and 4.8-25 are revised as shown below:

Mitigation Measure 4.8-3: Implement Measures to Reduce Exposure to Traffic Noise from Project. Prior to initiating site preparation, ~~t~~The project applicant shall implement the following measures to reduce the exposure of existing sensitive receptors to project-generated traffic noise levels:

- ▶ The applicant shall offer the owners of the two affected residences on the east side of Tower Road between SR 140 and Gerard Avenue and the single residence located on the south side of Gerard Avenue between Campus Parkway and the project site entrances the installation of a sound barrier along the property line of their affected residential properties. The sound barriers must be constructed of solid material (e.g., wood,

brick, adobe, an earthen berm, or combination thereof). All barriers shall blend into the overall landscape and have an aesthetically pleasing appearance that agrees with the color and rural character of the houses and the general area, and not become the dominant visual element of the community. Relocation of the driveway at each residence may be necessary in order to preclude having gaps in the sound barrier. Relocation of landscaping may also be necessary to achieve an aesthetically pleasing appearance. The owners of the affected properties may choose to refuse this offer; however, the offer shall not be made available to subsequent owners of the property. If an existing owner refuses these measures a deed notice must be included with any future sale of the property to comply with California state real estate law, which requires that sellers of real property disclose “any fact materially affecting the value and desirability of the property” (California Civil Code, Section 1102.1[a]) ~~and shall indicate that the applicant agrees to install a sound barrier, as described above.~~ The applicant shall be responsible for all costs incurred by the implementation of this mitigation measure.

- To ensure compliance with applicable noise standards, a site-specific noise study shall be conducted by the City or its approved consultant to determine specific noise barrier design. The study shall contain noise levels prior to and after noise barrier installation at all affected sensitive receptors and shall require the full disclosure of the effectiveness of the sound barrier. The applicant shall be responsible for all costs incurred by the implementation of this mitigation measure.

(The remainder of the mitigation measure remains unchanged)

Table 4.8-11 on Page 4.8-25 is revised as shown below:

**Table 4.8-11
Summary of Modeled Traffic Noise Levels Along Area Roads**

#	Roadway	From	To	L _{dn} (dBA) 100 ft from Centerline of Near Travel Lane ¹					
				2010 No Project	2010 + Project	Increase ⁴	2030 No Project	2030 + Project	Increase ⁴
1	SR 140	SR 99	Parsons Avenue	63.2	63.5	0.3	63.6	63.9	0.3
2	SR 140	Parsons Avenue	Santa Fe Avenue	62.3	62.6	0.3	64.7	64.9	0.3
3	SR 140 ²	Santa Fe Avenue	Kibby Road	64.9	65.1	0.2	65.1	65.2	0.1
4	SR 140	Kibby Road	Tower Road	62.6	63.1	0.6	64.4	64.6	0.2
5	Childs Avenue	SR 99	Parsons Avenue	63.1	63.2	0.1	64.1	64.2	0.1
6	Childs Avenue	Parsons Avenue	Coffee Street	62.3	62.5	0.2	62.3	62.5	0.2
7	Childs Avenue	Coffee Street	Campus Parkway ³	63.6	63.7	0.1	61.6	61.8	0.2
8	Childs Avenue	Campus Parkway ³	Kibby Road	61.9	61.9	0.0	62.8	62.8	0.0
10	Childs Avenue	Kibby Road	Tower Road	60.0	60.0	0.0	62.7	62.7	0.0
11	Gerard Avenue	Parsons Avenue	Coffee Street	54.2	54.2	0.0	54.0	54.1	0.1
12	Gerard Avenue	Coffee Street	Campus Parkway ³	56.5	57.3	0.8	61.3	61.3	0.1
13	Gerard Avenue	Campus Parkway ³	Site Entrance	56.5	66.9	10.5	59.8	65.5	5.7
14	Gerard Avenue	Site Entrance	Tower	45.5	55.9	10.4	51.5	55.2	3.7
16	Mission Ave	SR 99	Coffee Street	60.5	64.2	3.7	65.3	66.8	1.5
17	Campus Parkway ³	Coffee Street	Gerard Avenue	59.2	63.8	4.6	64.8	66.4	1.7
18	Campus Parkway ³	Gerard Avenue	Childs Avenue	53.0	53.5	0.5	61.0	61.6	0.6
19	Parson Avenue	Gerard Avenue	Childs Avenue	58.8	58.8	0.0	60.3	60.3	0.0
20	Parson Avenue	Childs Avenue	SR 140	60.6	60.7	0.1	60.0	60.0	0.0
21	Coffee Street	Mission Avenue	Parsons Avenue	60.6	60.6	0.0	58.8	58.8	0.0
22	Coffee Street	Gerard Avenue	Childs Avenue	60.4	60.6	0.2	58.5	58.7	0.2
23	Coffee Street	Childs Avenue	Baker Drive	58.2	58.3	0.1	52.3	52.3	0.0
24	Kibby Road	Childs Avenue	SR 140	60.0	60.0	0.0	54.5	54.5	0.0
25	Baker Drive	SR 140	Coffee Street	58.3	58.4	0.1	53.8	53.8	0.0
26	Tower Road	Gerard Avenue	Childs Avenue	45.5	57.2	11.8	45.5	53.2	7.7
27	Tower Road	Childs Avenue	SR 140	45.5	53.6	8.1	45.5	52.9	7.4

Notes: SR = State Route

¹ Traffic noise levels were predicted using the FHWA Traffic Noise Model RD77-108 based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by DKS Associates used to prepare the traffic section for this DEIR. Modeled estimates assume no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Refer to Appendix D for modeling input assumptions and output results.

² It is anticipated that SR 140 between Santa Fe Avenue and Kibby Road will be widened from two lanes to four lanes before year 2030, as stated in the traffic report (DKS 2008).

³ The exact timing of the development of the planned Campus Parkway extension is not known at this time. The new road is projected to be completed after full buildout of the proposed project and before the year 2030.

⁴ Increases may not exactly reflect the difference between “no project” and “plus project” conditions due to rounding

Source: Modeling performed by EDAW in 2008

Page 4.8-30 is revised as shown below:

IMPACT 4.8-6 **Land Use Compatibility of Proposed Project with On-Site Noise Levels.** *As a light industrial land use, the proposed project would not be considered a noise sensitive receptor and existing and future projected noise levels are not expected to exceed the City's "normally acceptable" noise standard of ~~75~~70 L_{dn} for industrial land uses. Therefore, exposure of proposed facility to noise generated at surrounding land uses would be a **less-than-significant** impact.*

The proposed project would not be considered a noise-sensitive land use and would be located near other light industrial land uses (i.e., Central Valley Processing and McLane Pacific Grocery Distribution Center) to the north across Childs Avenue, agricultural land uses to the east and south, and residential neighborhoods located over 1,200 feet to the west. These nearby land uses are not expected to generate noise levels that would exceed the City's "normally acceptable" noise standard of ~~75~~70 L_{dn} for industrial land uses. In addition, future projected traffic noise levels on nearby roads are not expected to exceed ~~75~~70 L_{dn} at the project site, as shown in Table 4.8-11. Furthermore, the proposed project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The closest airport, Merced Municipal Airport, is located more than 4 miles away. Therefore, the development of a distribution facility at the proposed project site would be noise-compatible with surrounding land uses. As a result, this impact would be **less than significant**.

Mitigation Measure

No mitigation is required.

REVISIONS TO SECTION 4.9 "POPULATION AND HOUSING"

Page 4.9-8 is revised as shown below:

As described in Section 4.12, public water and wastewater infrastructure is in close proximity to the project site. For example, there are 16-inch diameter water lines in Childs Avenue and in Kibby Road, and a 16-inch line exists within the Kibby Road right-of-way that transects the site. With regard to wastewater infrastructure, there is a 12-inch line in Childs, a 36-inch line in Gerard Avenue, and a 30-inch line in Kibby. Like the water line, the wastewater line transects the site within the Kibby Road right-of-way. Other critical utility infrastructure, such as electricity, natural gas, and telecommunication are in place near the site. This existing infrastructure would have the ability to serve other development in the vicinity of the project site; no new major infrastructure is required to serve the project. The extent to which ~~this~~ the limited project infrastructure may induce growth in the area is discussed in Chapter 6 under "Growth Inducement."

REVISIONS TO SECTION 4.10 "PUBLIC HEALTH AND HAZARDS"

Page 4.10-15 is revised as shown below:

Mitigation Measure

Implementation of Mitigation Measure 4.11-2a**b** would reduce significant impacts associated with the exposure of students to hazardous materials resulting from transportation accidents to a **less-than-significant** level by requiring a traffic safety plan during construction of the project and by designating specific truck routes during operation of the project.

REVISIONS TO SECTION 4.11 “TRAFFIC AND TRANSPORTATION”

Page 4.11-1 is revised as shown below:

This section establishes the relevant setting and describes the transportation impacts of the proposed Wal-Mart Distribution Center. This section outlines assumptions, methodology, and analysis conducted to determine the traffic impacts of the proposed project, as well as any impacts to transit, bicycle, and pedestrian facilities. Note that cumulative traffic impacts are addressed in Section 6 “Cumulative and Growth Inducing Impacts.”

Page 4.11-2 is revised as shown below:

2010 Background Condition

During the AM peak hour, one intersection, SR 140 at Baker Drive, would operate at LOS E. The intersections of Childs Avenue at SR 99 northbound off-ramp would operate at LOS F. The other intersections would continue to operate at acceptable LOS (LOS D or better). During the PM peak hour, ~~three~~ four intersections, SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp ~~and Childs Avenue at Parsons Avenue~~ would operate at deficient LOS (LOS F). All other intersections would continue to operate at acceptable LOS (LOS D or better). All study roadway segments would continue to operate at an acceptable LOS under 2010 Background Conditions during the AM and PM peak hours.

2030 Cumulative Condition

During the AM peak hour, ~~five~~ six intersections, SR 140 at Parsons Avenue, SR 140 at Baker Drive, SR 140 at Kibby Road, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp, ~~and Mission Avenue at Coffee Street~~ would operate at LOS F. Childs Avenue and Parsons Avenue would operate at LOS E while all other intersections would continue to operate at acceptable LOS (LOS D or better). During the PM peak hour, ~~four~~ five intersections, SR 140 at Baker Drive, SR 140 at Kibby Road, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp, ~~and Mission Avenue and Coffee Street~~ would all operate at LOS F. ~~One~~ Two intersections, Childs Avenue and Parsons Avenue ~~and Mission Avenue at SR 99 southbound off-ramp~~, would operate at LOS E. All other intersections would continue to operate at acceptable LOS (LOS D or better). The roadway segment of SR 140 between Santa Fe Avenue and Kibby Road would deteriorate from LOS D under 2010 Background Conditions to operate at LOS E under the 2030 Cumulative Conditions during the AM peak hour, but would continue to operate at acceptable LOS (LOS D) during the PM peak hour.

Two ~~One~~ intersections, Mission Avenue at SR 99 northbound off-ramps and Mission Avenue at SR 99 southbound off-ramps would experience a significant impact under the 2030 Cumulative with Project scenarios under the PM peak hour. These ~~is~~ impacts would be mitigated by restriping the northbound, southbound and westbound approaches, ~~would~~ restoring the operations to an acceptable LOS of C, fully mitigating this impact resulting no significant impacts for the project.

Page 4.11-5 is revised as shown below:

STUDY AREA AND SCENARIOS

The following intersections and roadway segments were evaluated to determine the traffic conditions during the weekday a.m. and p.m. peak hours. The selection of the study intersections and roadway segments was based on traffic activities around the study area roadway network and the anticipated increase in traffic volumes due to the project, as well as the travel patterns of the project trips. The first phase, from the Mission Avenue interchange to Childs Avenue, of Campus Parkway is anticipated to begin construction in July 2008 and be built by July 2009. It is anticipated this new roadway would connect a new SR 99 interchange at Mission Avenue with Childs Avenue, near the proposed project site. The intersections of Childs Avenue at Campus Parkway and Gerard Avenue at

Campus Parkway were analyzed only under the future scenarios. For more information on the study area scenarios analyzed, and methodology, please refer to Traffic Study, included as Appendix E of this EIR.

Weekends and nights were not considered for the traffic analysis. The weekday AM and PM peak hours were analyzed in order to evaluate potential impacts under the City's significance threshold criteria, and to provide a basis for comparison with other transportation studies that evaluated weekday AM and PM peak hour conditions. Also, the combination of the project's peak hour traffic with the adjacent street network's peak hour traffic provided an analysis of the worst case traffic conditions that are anticipated.

Pages 4.11-29, 4.11-30, and Table 2-1 on page 2-46 are revised as shown below:

Mitigation Measure 4.11-2a: Accommodate All Delivery Truck Parking On-Site. ~~The~~ Prior to issuance of building permits, the Chief Building Official shall verify that project design the final site plan shall incorporate clearly identifies a designated on-site waiting area within the site between Gerard Road and the truck gate that is located further within the site. This area shall be large enough to accommodate at least 20 inbound delivery trucks. It is recommended that the access roadway be designed to have a temporary parking area located between Gerard Avenue and the truck entrance gate. The parking area shall be paved and marked as a designated waiting area for delivery trucks, and shall not impede access to the site. The holding area(s) shall be located in the interior of the project site and be more than 1,000 feet from all off-site residences, which is a distance threshold identified in the Noise Analysis of this EIR. If the waiting area(s) are located closer than 1,000 feet to off-site residences then sound barrier(s) shall be implemented into the design to ensure that on-site truck idling would not result in an exceedence of the nighttime standard of 45 A-weighted decibels energy-equivalent noise level established by the Merced General Plan (Table N-5).

Wal-Mart shall instruct all delivery truck drivers not to park, stand, wait, or stay overnight along local roadways. In order to minimize noise and vehicle emissions, idling in the waiting area shall be limited by Wal-Mart to 5 minutes, as required by 13 CCR Chapter 10, Section 2485.

Pages 4.11-31 and Table 2-1 on page 2-48 are revised as shown below:

Mitigation Measure 4.11-3: Provide Emergency Access Gate and Driveway. ~~±~~Prior to approval of the final site plan, the project applicant shall modify the site plan to show a third point of ingress and egress on Childs Avenue that is gated and available only for emergency purposes. The emergency access driveway on-site shall be indicated on the final site plan at a width and design acceptable to the City Engineer and shall provide unimpeded access to all structures on the site.

Pages 4.11-32 and Table 2-1 on page 2-48 are revised as shown below:

Mitigation Measure 4.11-4: Update Safe Routes to School Plan. ~~±~~Prior to issuance of certificates of occupancy, the City Engineer shall ensure that the Safe Routes to School Plans are appropriately updated such that school bus and pedestrian routes in the vicinity of the Wal-Mart are revised as appropriate to avoid potential conflicts taking into account the project's potential increase in truck traffic and potential truck routes.

REVISIONS TO SECTION 4.12 "UTILITIES AND PUBLIC SERVICES"

Page 4.12-6 is revised as shown below:

The project site is located in Fire District 4, and Station 54 at 1425 East 21st Street currently provides first-response service to the project area (City of Merced 2005b). Personnel at Station 54 are responsible for emergency out-of-town assignments and maintenance of all wildland equipment. Fires Station 54 is approximately ~~3.92~~6 miles northwest of the project site.

Page 4.12-13 is revised as shown below:

For the purpose of this analysis, the following thresholds of significance have been used to determine whether implementation of the proposed project would result in significant utilities and public services impacts. Based on questions included Appendix G of the State CEQA Guidelines (the CEQA checklist), a public services utilities impact is considered significant if implementation of the proposed project under consideration would do any of the following:

- ▶ create a need for the development of new service facilities (e.g., fire, police, schools), the construction of which could result in significant environmental impacts;
- ▶ create circumstances where existing services and facilities could not meet established performance standards (i.e., response times, provider per resident ratios);
- ▶ substantially impede existing services;
- ▶ generate solid waste beyond the capacity of existing landfills;
- ▶ violate federal, state, or local statutes and regulations related to solid waste; or
- ▶ result in inefficient, wasteful, and unnecessary consumption of energy (based on Appendix F of the State CEQA Guidelines).

A utilities public services impact is considered significant if implementation of the proposed project under consideration would do any of the following:

- ▶ create demand beyond available service or permit capacity;
- ▶ create demand for electrical or natural gas service that is substantial in relation to the existing demands;
- ▶ exceed wastewater treatment requirements of the Central Valley RWQCB;
- ▶ require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- ▶ have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements.

Page 4.12-18 and 4.12-19 are revised as shown below:

The proposed electrical utility improvements would be required to comply with all existing City, PG&E or MID, and CPUC requirements, and applicable Uniform Building Code and Building Energy Efficiency Standards (Title 24 of the California Code of Regulations) requirements. The City of Merced has identified the need to reduce energy demands in new development. To meet this goal, the proposed project would be required to implement additional energy efficiency measures, which is also consistent with the recommendations included in Appendix F of the CEQA Guidelines “Energy Conservation”; therefore, this impact would be **potentially significant**. It should also be noted that additional energy conservation measures, which further reduce the project’s energy consumption are identified in Section 3 “Project Description” under Subsection 2.7.6 “Proposed Sustainability and Energy Conservation Measures.” Furthermore, Section 4.2 “Air Quality” requires implementation of Mitigation Measures 4.2-2a through 4.2-2e, which would result in energy conservation both on-site and off-site (reduced vehicular fuel consumption off-site).

Pages 4.12-19 and Table 2-1 on page 2-49 are revised as shown below:

Mitigation Measure 4.12-4: Incorporated Energy Efficiency Features into Project Designs

~~¶Prior to the issuance of building permits, the project applicant shall prepare and submit a sustainability plan, to for review and approval of the City’s Planning Director, which shall incorporate the following energy efficiency features in project designs:~~

(The remainder of the mitigation measure remains unchanged)

REVISIONS TO SECTION 4.13 “VISUAL RESOURCES”

Pages 4.13-13 and Table 2-1 on page 2-51 are revised as shown below:

Mitigation Measure 4.13-2. Prepare and Submit a Landscaping Plan. ~~¶Prior to the issuance of building permits, the applicant shall prepare and submit a landscaping plan to the satisfaction of the City Planning Manager in consultation with the Public Works Director that includes the following features and accomplishes the following objectives on the site~~

(The remainder of the mitigation measure remains unchanged)

Pages 4.13-14 and Table 2-1 on page 2-52 are revised as shown below:

Mitigation Measure 4.13-3. Prepare and Submit a Lighting Plan. ~~¶Prior to the issuance of building permits, the applicant shall prepare a lighting plan for review and approval by the City of Merced Planning Director. The lighting plan shall identify the design and placement, orientation, and illumination level (in watts) of all light fixtures. The lighting plan shall be designed so that illumination is focused downward upon targeted horizontal surfaces. Illumination of vertical surfaces shall be minimized. The lighting plan shall specify that no illumination source (including light bulb and reflector) shall be visible at a point 100 feet or greater from the outside of the property line. The exception to this performance standard is at driveway intersections with public streets.~~

Page 4.13-15 is revised as shown below:

The City General Plan includes multiple goals and policies adopted to protect visual resources within the City of Merced and in the area of the project. Applicable City General Plan goals and policies are listed previously under Section 4.13.2 “Regulatory Setting”. Table 4.13-1 below outlines each of the applicable General Plan goals and policies and provides a brief evaluation regarding the project’s consistency with those goals and policies.

Table 4.13-1		
Project Consistency with City’s General Plan Goals and Policies Related to Visual Resources		
<u>Goal/Policy #</u>	<u>Goal Policy Text</u>	<u>Discussion of Project Consistency</u>
<u>GOAL UD-2</u>	<u>Overall Community Appearance</u> <u>A Unique Community Image</u> <u>Attractive Neighborhoods and Districts</u>	<u>The proposed project would place a new distribution center with landscaping within an area that includes several other major warehouses and on a site that is designated and zoned for industrial use.</u>
<u>GOAL OS-1</u>	<u>Open Space for the Preservation of Natural Resources</u> <u>Preservation of Scenic Corridors and Resources</u>	<u>The project site is not located within a scenic corridor and does not include natural resources.</u>
<u>Policy L-2.5.</u>	<u>Maintain attractive industrial areas.</u>	<u>The proposed project would place a new distribution center with landscaping within an area that includes several other major warehouses and on a site that is designated and zoned for industrial</u>

Table 4.13-1
Project Consistency with City's General Plan Goals and Policies Related to Visual Resources

<u>Goal/Policy #</u>	<u>Goal Policy Text</u>	<u>Discussion of Project Consistency</u>
		<u>use.</u>
	<u>2.5.a Continue to require Site Plan Review of new industrial development and the application of standards regarding landscaping, appearance, circulation, access, and parking.</u>	<u>Site Plan Review is one of the entitlements required for the proposed project. The project is required to submit a landscape plan, and the proposed project would be required to comply with City standards related to circulation, access, and parking.</u>
	<u>2.5.b Consider requiring the planting of parking lot trees in industrial areas, perhaps at reduced standard instead of the one tree for each six parking spaces required in other areas, to provide shade, reduce glare, and reduce reflective heat.</u>	<u>The project applicant is required to submit a landscape plan, which requires shade trees in employee parking areas, but not in truck parking areas, consistent with City Municipal Code requirements.</u>
	<u>2.5.c Require the removal or screening of all rubbish, abandoned buildings, processing wastes, old equipment, or other forms of blight in industrial areas.</u>	<u>The project applicant is required to submit a landscape plan, which requires planting of trees no further than 30 feet apart along the perimeter roads surrounding the project site. This would substantially screen views of the site. Furthermore, the proposed project includes development of the site with a new distribution center and would not result in processing waste, abandoned buildings, or old equipment.</u>
	<u>2.5.d Investigate the possibility of regulating industrial development on the basis of or in combination with performance standards instead of strictly by definition of specific uses as in the Zoning Ordinance.</u>	<u>Not applicable. The proposed project is consistent with the Zoning for the site.</u>
<u>Policy UD-2.2</u>	<u>Maintain and enhance the unique community appearance of Merced.</u>	<u>The proposed project would place a new distribution center with landscaping within an area that includes several other major warehouses and on a site that is designated and zoned for industrial use. The proposed use is consistent with the surrounding uses and the City's planned use of the site.</u>
	<u>2.2.b Encourage the design of buildings that are in scale with adjacent development and harmonize with the character of the area or neighborhood.</u>	<u>The proposed distribution center is located within the vicinity of other major warehouse facilities.</u>
	<u>2.2.c Discourage the visual monotony along major streets created by designs which use uninterrupted walls or fences with little or no landscaping.</u>	<u>The project applicant is required to submit a landscape plan, which requires planting of trees no further than 30 feet apart along the perimeter roads surrounding the project site. The plan also requires planting of shade trees in the employee parking areas, but not in truck parking areas, consistent with the City Municipal Code requirements.</u>
	<u>2.2.d Encourage the development of methods to require acceptable levels of landscaping for new development and for effective maintenance in highly visible areas of the</u>	<u>The project applicant is required to submit a landscape plan, which requires planting of trees no further than 30 feet apart along the perimeter roads surrounding the project site. The plan also requires</u>

Table 4.13-1
Project Consistency with City's General Plan Goals and Policies Related to Visual Resources

<u>Goal/Policy #</u>	<u>Goal Policy Text</u>	<u>Discussion of Project Consistency</u>
	<u>community.</u>	<u>planting of shade trees consistent with the City Municipal Code requirements. Wal-Mart is required to maintain the landscaping.</u>
	<u>2.2.f Expand the city's policies which require architecturally suitable means of screening utility equipment and garbage containers.</u>	<u>Not applicable. This policy requires expansion of city policies.</u>
<u>Policy OS-1.3</u>	<u>Promote the protection and enhancement of designated scenic routes.</u>	<u>Not applicable. The proposed project is not located along a designated scenic route.</u>
	<u>1.3.a Identify, and where appropriate, designate scenic routes within the city's expanded SUDP.</u>	<u>Not applicable. The proposed project is not located along a designated scenic route.</u>
	<u>1.3.b Preserve the nine currently-designated Scenic Corridors.</u>	<u>Not applicable. The proposed project is not located along a designated scenic route.</u>
	<u>1.3.c Utilize established guidelines for the review of projects proposed within a designated Scenic Corridor.</u>	<u>Not applicable. The proposed project is not located along a designated scenic route.</u>
	<u>1.3.d Explore the feasibility of creating some scenic corridors in South Merced through the use of special landscaping standards. (As part of the specific planning process proposed for South Merced, potential scenic corridors can be identified and preliminary policies proposed for adoption.)</u>	<u>Not applicable. The proposed project is not located along a designated scenic route.</u>

Source: EDAW 2009

As indicated by Table 4.13-1, the proposed project is consistent with all applicable City of Merced General Plan Goals and Policies related to visual resources. The proposed project location is within industrial zoned and designated property, which is a planned future buildout area for Merced. Furthermore, the site is adjacent to existing manufacturing- and industrial-type development, and is visually compatible to these existing and future uses. The City General Plan states that due to the historical location of the Valley's urban centers, any growth or population expansion can be expected to impact productive agricultural land. The project would minimize future impacts on scenic resources in planned open space areas and corridors by locating in a planned development area. Therefore, the proposed project would have a ***less-than-significant*** impact.

REVISIONS TO SECTION 5 "ALTERNATIVES TO THE PROPOSED PROJECT"

Page 5-5 is revised as shown below:

In accordance with the City's existing land use regulations, the No Project alternative assumes that the site would be developed with a project that includes approximately 1.1 million square feet of warehouse or industrial use, similar to the proposed project. It is conceivable that another company would view the site as ideally suited for a regional distribution center similar to what is proposed by Wal-Mart. While the floor area ratio of 0.17 square foot per gross acre that is allowed in this zoning district would allow a 1.7-million-square-foot building, 1.1 million square feet, like that proposed, was the assumed size for the purposes of this alternatives analysis. The 1.1 million square feet is assumed to comprise one warehouse or industrial use given the prevalence of large warehouses in

the vicinity and because multiple warehouses or industrial uses on the site would require subdivision of the property, which would be inappropriately speculative for a No Project Alternative.

Page 5-8 is revised as shown below:

Because the No Project alternative assumes the site would be developed with a similar industrial use, impacts on public services under this alternative would be similar to those that would result from implementation of the proposed project. Public services impacts relate most closely to the incremental increase in service demands. Because these factors are the same for the proposed project as with this alternative, the public services impacts are anticipated to be similar. Similarly, because the No Project alternative assumes the site would be developed with a similar industrial use, impacts on utilities and service systems under this alternative would be similar to those that would result from implementation of the proposed project. Utilities and service systems impacts relate most closely to the incremental increase in service demands. Because these factors are the same for the proposed project as with this alternative, the utilities and service systems impacts are anticipated to be similar.

~~The proposed project would have cumulatively considerable impacts on wastewater treatment and disposal. The No Project alternative would not change that conclusion. [Similar]~~

Page 5-10 is revised as shown below:

This alternative assumes that the site would be developed with a revised version of the proposed project. The size and extent of development, the number of employees, and the number of vehicle trips would be the same as the proposed project. As with the proposed project, a majority of the site would be cleared of vegetation and graded to accommodate approximately 1.1 million square feet of building, parking and driveways, and landscaping. Buildings and other proposed features on-site have been shifted to the east under this alternative to provide an increased buffer to residential development to the west, although this would require relocation of the existing electrical transmission lines (note that specific impacts associated with relocating these lines cannot be analyzed without understanding the type, i.e., underground or above ground, or location of the transmission lines, but any environmental impacts would likely be associated with construction, although operational impacts could occur depending on location). This alternative has been identified as a means of reducing certain potential environmental impacts that cannot be sufficiently reduced in the proposed project solely through mitigation measures. This alternative is intended to reduce the following potential impacts on the closest residential communities in Merced: air quality, traffic, and noise. Areas west of the project site are designated for residential development.

Page 5-15 is revised as shown below:

Although the alternative would require re-routing of utilities including electrical transmission lines, because the redesigned site plan alternative would result in the same size and extent of development as the proposed project, utilities and public service demands would be similar to the proposed project.

~~The proposed project would have cumulatively considerable impacts on wastewater treatment and disposal. The Redesigned Site Plan alternative would not change that conclusion. [Similar]~~

Page 5-17 is revised as shown below:

This alternative assumes that the site would be developed with a reduced version of the proposed project. This alternative has been identified as a means of reducing several of the potential impacts of the proposed project to a greater level than could be achieved solely through mitigation measures. Although Twenty-five percent is an arbitrary reduction level, was selected solely for the purpose of this analysis; a range of percentage reductions – applicable to the size of the facility and/or the operations (i.e., employees and truck trips) – could also have been selected. This alternative is intended to reduce the potential impacts on the closest residential communities in Merced.

Page 5-15 is revised as shown below:

The aesthetic impacts would be similar to those of the proposed project. Both the redesigned site plan and the proposed project would convert the currently open space lot into a built environment that includes an approximately 1.1-million-square-foot building on the project site, with similar amounts of parking spaces, and lighting to be provided. Therefore, impacts would be similar to the project.

Page 5-21 is revised as shown below:

This alternative would contain the same use as the proposed project, with a 25% reduction in size. Because the changes proposed would provide some reduction in overall potential impacts, the significance of impacts on utilities and public services would be less than the proposed project.

~~The proposed project would have cumulatively considerable impacts on wastewater treatment and disposal. The Reduced Site Plan and Operations alternative would not likely change that conclusion. [Less]~~

Page 5-22 is revised as shown below:

The reduced site plan alternative would reduce the size of the building footprint by 25% to 825,000 square feet. The site is in proximity to existing warehousing and electric utilities, and the area is designated for industrial development, as are other vacant adjacent parcels. The reduction in size would not change the overall aesthetic characteristics of the site and surrounding area, which would continue to appear aesthetically as primarily industrial and scattered agriculture. Furthermore, the site is at the fringe of existing development, and contains the same land use as the proposed project. Therefore, the proposed alternative would have a similar impact on the project.

The proposed project would have cumulatively considerable visual impacts. The Reduced Site Plan and Operations alternative would not change that conclusion. [~~Less~~Similar]

Page 5-27 is revised as shown below:

Under this alternative, the size and extent of development would be the same as the proposed project, and utilities and public service demands would be similar to the proposed project. This alternative site is directly adjacent and south of the proposed project site, and utility infrastructure, including water and wastewater conveyance facilities, natural gas pipelines, and electrical and telecommunications transmission lines, is located within existing utility rights-of-way adjacent to the site. Similar to the proposed project, this alternative would connect to extensions of existing off-site utility infrastructure. Under this alternative, the size and extent of development would be the same as the proposed project, and utilities and service system demands would be similar to the proposed project.

~~The proposed project would have cumulatively considerable impacts on wastewater treatment and disposal. The Alternative Site #1 alternative would not change that conclusion. [Similar]~~

Table 5-5 on pages 5-28 and 5-29 is revised as shown below:

Table 5-5 Alternative Site #1 and Project Objectives		
Project Objective	Discussion	Fulfill Objective?
<u>City Objectives</u>		
To develop the industrially zoned area in the City with permitted industrial uses.	This site is zoned Heavy Industrial District.	Yes
To locate industrial projects in areas with good	The site is adjacent to existing and planned major	Yes

**Table 5-5
Alternative Site #1 and Project Objectives**

Project Objective	Discussion	Fulfill Objective?
access to major highway transportation links, and provide opportunities for buffers between industrial and nonindustrial uses.	roadway corridors and two State highways.	
To encourage development of industrial projects that will create jobs, including full-time, nonseasonal employment opportunities for local residents.	It is assumed full-time, year-round employment will be provided.	Yes
To encourage development of projects that will contribute toward improving roadways adjacent to the proposed development site.	Like the proposed project, this alternative would be evaluated relative to traffic impacts and mitigation measures to improve roadways would be required, as necessary.	Yes
To ensure that industrial areas are developed in an attractive manner.	All projects are subject to City review and approval.	Yes
<u>Applicant Objectives</u>		
To develop a project consistent with the City General Plan and zoning ordinance.	This alternative would be consistent with the City's General Plan and zoning ordinance. This site has the same designation as does the project site (Industrial) and the same zoning, <u>although the alternative would require LAFCO approval of annexation into the city.</u>	Yes
To develop a distribution/warehouse facility near other industrial uses.	Areas in the vicinity are also designated for industrial use.	Yes
To construct and operate a distribution/warehouse facility in Merced County to take advantage of the strategic location between large urban centers and smaller urban and rural markets throughout the Central Valley in California.	This alternative would involve a distribution/warehouse facility in Merced County.	Yes
To construct a distribution/warehouse facility on a site sufficiently large (a minimum of 230 acres) to allow necessary building space and parking for trucks and employees.	This alternative would involve a warehouse/distribution facility on a site of approximately 200-250 acres.	Yes
To construct a distribution/warehouse facility with sufficient space (approximately 1.2 million square feet) to allow operational efficiency and adequate distribution of goods to stores in a broad geographic area in California.	This alternative is assumed to develop with a warehouse/distribution facility of roughly the same amount of developed building space as proposed with the project.	Yes
To locate a distribution/warehouse facility with access to a regional roadway network including interstate, state, and regional roads.	This alternative would involve development of a warehouse/distribution facility with access to State Route (SR) 99, Highway 140, and other nearby transportation corridors.	Yes
To locate a distribution/warehouse facility in an area well served by major local thoroughfares to minimize truck traffic traveling through residential neighborhoods.	This alternative would involve development of a warehouse/distribution facility adjacent to SR 99, and therefore allowing transportation to occur largely along the highway corridor and avoid residential streets.	Yes
To provide sufficient parking for trucks and employees in order to minimize impacts to the surrounding area.	This alternative assumes that a similarly configured warehouse or industrial facility would be developed, given the existing land use designations and other factors. It is also assumed that a similar parking	Yes

Table 5-5 Alternative Site #1 and Project Objectives		
Project Objective	Discussion	Fulfill Objective?
	configuration could be designed, given the size of the project site.	
To take advantage of an existing labor pool living in the Merced area.	This alternative would involve industrial or warehouse uses in Merced County.	Yes
Source: Data compiled by EDAW in 2007.		

Page 5-32 is revised as shown below:

Under this alternative, the size and extent of development would be the same as the proposed project, and utilities and public service demands would be approximately the same as the proposed project. However, Alternative Site #2 would be located in an unincorporated area of Merced County. Fire and police protection services for this alternative would be provided by the County, and the alternative would increase demand on County fire and sheriff services. This additional demand may require additional County facilities. Water supplies would be provided by the Merced Irrigation District. Similar to the proposed project, this alternative would be required to pay its fair share of costs associated with the increased demand of fire and police services, and would include the same on-site security measures and incorporate all California Fire Code requirements as the proposed project. A water supply assessment would be required for this alternative to determine as to whether the Merced Irrigation District's projected water supplies available would meet the water demand associated with this alternative, in addition to the existing and planned future uses. Because it is unknown if water supplies would be available to meet demands, this alternative could potentially result in greater impacts on utilities than the project.

~~The proposed project would have cumulatively considerable impacts on wastewater treatment and disposal. The Alternative Site #2 alternative would not change that conclusion. [Greater]~~

Page 5-32 is revised as shown below:

The aesthetic impacts would be similar to those of the proposed project. ~~The alternative site is located directly adjacent to the south of the proposed project site, and would be visible from many of the same viewpoints.~~ Both the alternative site and the proposed site would convert an open space lot into a built environment that includes an approximately 1-million-square-foot building, and would include similar amounts of parking spaces, and lighting. Furthermore, both the alternative site and the proposed project site are zoned for industrial or manufacturing uses. Therefore, the aesthetic environment would be impacted at a similar level.

REVISIONS TO SECTION 6 "CUMULATIVE AND GROWTH-INDUCING IMPACTS"

Page 6-5 is revised as shown below:

CUMULATIVE IMPACT **Cumulative Air Quality Impact (Toxic Air Emissions).** *Project operations would not result in the release of toxic air emissions that constitute a public health risk at existing or potential future sensitive receptors, based on SJVAPCD's thresholds. This would not be a cumulatively considerable incremental contribution, and the project's cumulative impact would be **less than significant**.*

The health risk assessment (HRA) performed to analyze the levels of health risk associated with operation toxic air contaminants (TAC) emissions determined that the maximum increase in cancer risk at a nearby sensitive receptor would be 7.3 in 1 million and the maximum increase noncancer chronic risk level would be an HI of 0.0086. Respectively, these levels of increased risk do not exceed SJVAPCD's threshold of 10 in 1 million for

increased cancer risk (or an HI) of 1 for increased noncarcinogenic chronic risk. In addition to estimating the increased health risk at nearby existing receptors, the HRA also accounted for the increased health risk at future planned receptors that could potentially be approved by the City, developed, and then exposed to TAC emissions from project operations (as shown in Figure 2 on page 13 of the HRA in Appendix C). Based on an analysis of potential sources of toxic air emissions in the area, the project's contribution to health risk at existing and potential future (cumulative) nearby sensitive receptors is not cumulatively considerable and therefore the impact is **less than significant**. Nonetheless, the volume of vehicular traffic is anticipated to increase on area roadways under 2030 traffic conditions, including traffic on the extension of Campus Parkway. However, because of stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future emission factors under cumulative conditions (analysis year 2030) are expected to be substantially lower than those under existing conditions. This is particularly the case for vehicles with diesel engines. Therefore, it is anticipated that the TAC emissions generated by future increased traffic volumes in combination with project activity would be outpaced by reductions in emission factors. As a result, exposure of offsite receptors to mobile-sources of TACs would also be less than cumulatively considerable and, therefore, less than significant under future (2030) conditions.

Pages 6-28 and Table 2-1 on page 2-65 are revised as shown below:

Mitigation Measure 6-9: Mission Avenue at SR 99 northbound off-ramp. Restriping the northbound and westbound approaches would mitigate the impact at this intersection. It is proposed to restripe the northbound approach from a left-through turning movement and a right-only turning movement to a left-through-right turning movement and a right-only turning movement. The westbound approach would be restriped from two through lanes and one right-turn only lane to one through lane, one through-right lane, and one right-turn only lane. Restriping could be accomplished within the existing right-of-way. Prior to issuance of occupancy permits, the applicant shall pay the project's fair share (9.0%) contribution for the restriping.

With these mitigation measures, the intersection of Mission Avenue at SR 99 northbound off-ramps would operate under LOS C conditions, fully mitigating the impact occurring in the p.m. peak hour under 2030 Cumulative with Project Conditions.

Pages 6-30 and Table 2-1 on page 2-66 are revised as shown below:

Mitigation Measure 6-10: SR 140 between Santa Fe Avenue and Kibby Road. The addition of project traffic would cause the segment of SR 140 between Santa Fe Avenue and Kibby Road to deteriorate from LOS D under the 2030 Cumulative No Project Condition to LOS E during the p.m. peak hour. All other study roadway segments would operate at an acceptable LOS (LOS D or better). The level of service on SR 140 between Santa Fe Avenue and Kibby Road is a significant cumulative impact. The project's contribution to this significant impact is cumulatively considerable; therefore, the project's cumulative impact would be **significant**.

By adding one lane in each direction in this segment, the roadway would be improved to operate at an acceptable LOS A. The widening of the roadway, however, may require right of way acquisition, the need for utility relocation and, approval by Caltrans. Prior to issuance of occupancy permits, the applicant shall pay the project's fair share contribution for the additional lanes. The project's fair share contribution for AM peak hour would be 1.5% and the contribution for PM peak hour would be 2.1%. With implementation of this mitigation measure, the cumulative impact would be reduced to a **less-than-significant** level.

Table 6-9 on Page 6-30 is revised as shown below:

Table 6-9 2030 Cumulative with Project Condition Signal Warrant Analysis						
Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met?	Criteria 1	Criteria 2	Warrant met?
SR 140 / Baker Drive	No	Yes	Yes	No	Yes	Yes
SR 140 / Kibby Road	Yes	Yes	Yes	No	No	No
Childs Avenue / SR 99 Southbound Off-Ramp	Yes	Yes	Yes	Yes	Yes	Yes
Childs Avenue / SR 99 Northbound Off-Ramp	No	Yes	Yes	No	Yes	Yes
Mission Avenue / Coffee Street	No	Yes	Yes	Yes	Yes	Yes
Source: DKS Associates 2008						

Pages 6-33 and Table 2-1 on page 2-67 are revised as shown below:

Mitigation Measure 6-11: It is recommended that the roadway segment between SR 140 and Gerard Avenue be improved to address these issues of poor pavement conditions and faded pavement markings. In addition, the Tower Road approaches to the intersection at Gerard Avenue (and the approaches along Gerard Avenue to Tower Road) should be improved to provide proper turning radii for standard trucks as classified under the Surface Transportation Assistance Act (STAA). Prior to issuance of occupancy permits, the applicant shall pay the project's fair share contribution for the roadway improvements. The project's fair share contribution would be 74% (average of 76% and 71%) for peak hour impacts. With implementation of the mitigation measure, the impact would be reduced to a **less-than-significant** level.

4.3 REVISIONS AND CORRECTIONS TO DRAFT EIR IN RESPONSE TO PUBLIC COMMENT

Several comments received during the public review period of the Draft EIR raised issues that require alteration to the Draft EIR. The majority of these issues consist of minor clarifications or correction of typographical errors. None of the issues require major revision to the Draft EIR text. The following insignificant modifications to the Draft EIR text, in response to public comment, do not alter the conclusions of the Draft EIR and do not constitute "substantial" new information as defined under Section 15088.5 of the *State CEQA Guidelines*, because these minor clarifications do not deprive the public of a meaningful opportunity to comment upon a substantial adverse environmental effect or a feasible mitigation or avoidance measure. Recirculation of the Draft EIR is therefore not required. (*State CEQA Guidelines* Section 15088[b])

REVISIONS TO SECTION 3 "PROJECT DESCRIPTION"

In response to various public comments, page 3-15 is revised as shown below:

According to Wal-Mart representatives, to increase the efficiency of its vehicle fleet, all Wal-Mart-owned and operated tractor trailers domiciled at the Merced Distribution Center would comply with EPA 2010 truck fleet requirements, which would result in reduced emissions. Approximately 40-45% of all trucks associated with the proposed Distribution Center would be Wal-Mart-owned and operated. Wal-Mart plans to increase its truck fleet efficiency by 25 percent over the next three years and by 50% within 10 years. Following are specific steps Wal-Mart will take in order to reach that goal.

REVISIONS TO SECTION 4.6 “HYDROLOGY AND WATER QUALITY”

Pages 4.6-21 and Table 2-1 on pages 2-32 are revised as shown below:

The finish floor elevation of each structure on the site would be at least 2 feet above the existing ground elevation at the location of the structure, pursuant to City requirements for development within Zone A. The proposed project would meet or exceed City requirements for development within Zone A, and the stormwater management system would safely convey runoff from the 100-year storm. Preliminary calculations for the detention basins and conveyance facilities are conservative, i.e., they are sized larger than necessary to handle the 100-year storm event and would be refined at the final design phase. The detention basins would be as shallow as possible; target project depth for the detention basin or basins is 5 feet below ground surface (bgs), and although some areas may be deeper (8 to 10 feet) due to grading and terrain, the water depth would still be targeted at 5 feet. The berms would be designed and compacted pursuant to the final geotechnical report (ENGEO 2006b) for the project (Jim Emerson, pers. comm. 2009a).

An agreement with the Merced Irrigation District's (MID) will be required by the City on proposed project stormwater discharge points and drainage improvement details (Kim Espinosa, pers. comm. 2009). This agreement, which would reconcile differences in the requirements from the City and MID including stormwater holding times in the retention basins and release rates, contain the following conditions (per MID Letter to City of Merced [Comment 13 in the FEIR]):

- ▶ If storm water is to be discharged to any MID facility, the project proponent shall enter into a “Storm Drainage Agreement” with the MID Drainage Improvement district No. 1, and pay all applicable fees.
- ▶ The project proponent shall verify with MID stormwater discharge rates, means for connection to MID facilities, and water quality requirements so that MID can set final stormwater requirements. Depending on the approved route and discharge location (preferred alternative Fairfield Canal or the Farmdale Lateral/Doane Lateral) certain improvements including, but not limited to, pipelines, sensors, discharge structure assemblies and their appurtenances, would be required.
- ▶ The property owner must execute an appropriate agreement for all crossings over or under any MID facilities, including utilities, crossings, and pipelines.
- ▶ A signature block will be provided for MID on all project Improvement Plans that impact MID facilities.
- ▶ A “Construction Agreement” between the owner and the MID shall be executed for any work associated with MID facilities.
- ▶ Construction runoff into MID facilities is not allowed. Storm water discharges meeting MID requirements during the construction phase shall be agreed upon beforehand such that water quality is protected within the Doane Lateral and any downstream connected facilities or creeks.
- ▶ The west portion of the warehouse under the proposed project plan shall be realigned to avoid the existing electrical line, servicing City Well No. 10-R2 near the south end of the project site, within a new appropriately sized easement.
- ▶ MID shall receive a copy of the final, signed CEQA documents

City of Merced Storm Drain Master Plan standards have been applied to the formulation of the storm drain conveyance elements and stormwater detention basins at the primary local watershed level (see page 4.6-1), in order to accommodate stormwater runoff under buildout conditions pursuant to the City of Merced Vision 2015 General Plan. As with the stormwater detention and conveyance facilities, the preliminary stormwater quality

designs described in Mitigation Measure 4.6-2 at the conceptual phase are conservative (Jim Emerson, pers. comm. 2009).

The applicant is required to develop and implement a Spill Prevention, Control, and Counter measures to ensure that all pollutants are controlled and contained. An SPCC is required as part of the unified hazardous waste and hazardous materials management program (i.e. Unified Program) required by Senate Bill 1082 (1993). The Merced County Division of Environmental Health (MCDEH) is the Certified Unified Program Agency designated to oversee the SPCC. The Unified Program includes requirements for a SPCC pursuant to California Safety Code Sections 25270-25270.13 and U.S. CFR Title 40 Part 112. The following types of BMPs must be incorporated into the SPCC:

- ▶ Material Delivery and Storage Controls: Provide covered storage for materials, especially toxic or hazardous materials, to prevent exposure to stormwater. Toxic or hazardous materials shall also be stored and transferred on impervious surfaces that will provide secondary containment for spills. Vehicles and equipment used for material delivery and storage, as well as contractor vehicles, shall be parked in designated areas.
- ▶ Spill Prevention and Control: Ensure that spills and releases of materials are cleaned up immediately and thoroughly. Ensure that appropriate spill response equipment, such as spill kits preloaded with absorbents in an overpack drum, are provided at convenient locations throughout the site. Spent absorbent material must be managed and disposed of in accordance with applicable regulations. In particular, absorbents used to clean up spills of hazardous materials or waste must be managed as hazardous waste unless characterized as nonhazardous.
- ▶ Solid Waste Management: Provide a sufficient number of conveniently located trash receptacles to promote proper disposal of solid wastes. Ensure that the receptacles are provided with lids or covers to prevent windblown litter.
- ▶ Vehicle and Equipment Fueling: Fuel vehicles and equipment off site whenever possible. If off site fueling is not practical, establish a designated on site fueling area with proper containment and spill cleanup materials.
- ▶ Vehicle and Equipment Maintenance: Use off site maintenance facilities whenever possible. Any wash bays or on site maintenance areas must be protected from stormwater runoff to or from the area.
- ▶ Toxic debris requiring disposal, including discarded chemical containers, shall be disposed of in a landfill designed to satisfy the standards for protecting groundwater in as described in the design criteria and associated performance standards in the Federal statutes 40 CFR 258.4.

All wastewater generated by the truck wash bay would be discharged to the City's sanitary sewer system after initial processing by separators and other pretreatment approved by the City Environmental Control Officer. The wash bays would be protected from stormwater runoff pursuant to City requirements (Jim Emerson, pers. comm. 2009b).

REVISIONS TO SECTION 4.10 "PUBLIC HEALTH AND HAZARDS"

In response to Comment 96B-19, page 4.10-10 is revised as shown below:

The project site is located over 4 miles ~~west~~east of the Merced Municipal Airport and approximately 10 miles ~~northwest~~southeast of the Castle Airport. Therefore, the project is not located within an airport land use plan or within 2 miles of a public or private airport. As such, no safety hazards related to airports are anticipated, and this issue area will not be evaluated further in this DEIR.

REVISIONS TO SECTION 4.12 “UTILITIES AND PUBLIC SERVICES”

In response to Comment 213-4, pages 4.12-16 and 4.12-17 are revised as shown below:

Additional on-site wastewater conveyance facilities would be required to connect the proposed project into existing City sewer mains, and no extensions of off-site infrastructure would be required to serve the project. In the project area, a 12-inch sewer main is located on Childs Avenue, and a 36-inch sewer main is located on Gerard Avenue. A 30-inch trunk sewer main is located on Kibby Road and passes south through the project site to Gerard Avenue. The portion of this main on the project site would be relocated to an easement on the west side of the site within the property boundaries. (Frank, pers. comm., 2006.) The gravity sewer west of Kibby currently slopes toward Kibby. This would need to be replaced by a sewer sloping to the west, toward the replacement for the Kibby sewer scheduled to be installed along the western boundary of the property. The project’s internal wastewater conveyance system would be constructed, as needed, and would be adequately sized to accommodate project-related wastewater flows. The City’s wastewater system has been master planned for future development such as the proposed project. The Gerard trunk sewer is going to require major rehabilitation in the near future. This is a bituminous-lined, corrugated metal sewer installed in the 1950s and is badly deteriorated. It could be slip lined for an estimated \$6 million. As described in the City General Plan and the Merced Municipal Code, the project proponent would be responsible for paying sewer connection charges when the proposed project connects to the City’s sewer system. Payment of these fees would ensure the project proponent pays for its fair share of the cost of sewer infrastructure and WWTB services. (Frank, pers. comm., 2006.) This improvement will be funded by the connection fees and monthly charges for wastewater services (the City has an enterprise fund for wastewater); therefore, the applicant would pay a portion upon payment of sewer connection fees and through their monthly service charges. It should be noted that the sewer trunk replacement will occur regardless of whether the proposed project is approved. (Espinosa, pers. comm., 2009b)

In response to Comment 121B-1, page 4.12-18 is revised as shown below:

PG&E and MID facilities are located in the project area, and either utility provider could provide electrical service to the project site. PG&E facilities within the project area consist of two parallel transmission lines, a 115-kV line and a 230-kV. These transmission lines generally run north to south through the central area of the site and terminate northeast of the project site at the Wilson Substation. MID has a 12kV overhead line running through the site serving the City’s Water Well 10R2. This line would need to be placed underground and routed out of the way of the Wal-Mart facilities. The applicant would have the option of making an agreement with either MID or PG&E for the provision of electrical services. PG&E also indicated existing electrical facilities in the project are adequate to serve the project needs (Murphy, pers. comm., 2009).

In response to Comment 121B-1, page 4.12-19 is revised as shown below:

PG&E would provide natural gas to the project site. Natural gas lines are in the vicinity of the project site along Yosemite Parkway and Childs Avenue, and these lines parallel existing road rights-of-way (Frank, pers. comm., 2006). Project development would connect to extensions of these existing off-site service lines, with the ultimate configuration to be approved by PG&E. Additional on-site service lines would be sized to meet the demands of the project, and public utility easements would be dedicated for all underground facilities. The location of infrastructure would be identified in the final project design. As part of the project approval process, the project applicant would coordinate with and meet the requirements of PG&E regarding the extension and locations of onsite infrastructure and comply with all existing City requirements. PG&E also indicated existing natural gas facilities in the vicinity are adequate to serve the project needs (Murphy, pers. comm., 2009).

4.4 REVISIONS AND CORRECTIONS TO THE DEIR AIR QUALITY SECTION 4.2

Because there were several minor changes made to Section 4.2 “Air Quality,” the entire revised section is included below. The revisions to Section 4.2 include both staff-initiated changes and changes made as a result of public comment. The following insignificant modifications to the Draft EIR text do not alter the conclusions of the Draft EIR and do not constitute “substantial” new information as defined under Section 15088.5 of the *State CEQA Guidelines*, because these minor clarifications do not deprive the public of a meaningful opportunity to comment upon a substantial adverse environmental effect or a feasible mitigation or avoidance measure. Recirculation of the Draft EIR is therefore not required. (*State CEQA Guidelines* Section 15088[b])

4.2 AIR QUALITY

This section includes a description of existing air quality conditions, summary of applicable regulations, and an analysis of potential short-term and long-term air quality impacts of the proposed project. The method of analysis for short-term construction, long-term regional (operational), local mobile source, odor, and toxic air contaminant (TAC) emissions in accordance with the recommendations of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The analysis also includes consideration of the potential impact of the project on global climate change through the production of greenhouse gas emissions. In addition, mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

4.2.1 ENVIRONMENTAL SETTING

The project site is located in Merced County, which is within the San Joaquin Valley Air Basin (SJVAB). The SJVAB also comprises all of Fresno, Kings, Madera, San Joaquin, Stanislaus, and Tulare counties, and the valley portion of Kern. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by pollutant sources and the atmosphere's ability to transport and dilute such emissions. Natural factors which affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SJVAB, which occupies the southern half of the Central Valley, is approximately 400 miles long (north-south) and, on average, 50 miles wide (east-west). The SJVAB is a well-defined climatic region, with distinct topographic features on three sides. The Coast Ranges, which have an average elevation of 3,000 feet, are located on the western border of the SJVAB. The San Emigdio Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, are both located on the south side of the SJVAB. The Sierra Nevada forms the eastern border of the SJVAB. The northernmost portion of the SJVAB is San Joaquin County. There is no topographic feature delineating the northern edge of the basin. The SJVAB is basically flat with a downward gradient in terrain to the northwest. Air flows into the SJVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin River Delta from the San Francisco Bay area. The mountains surrounding the SJVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution.

The inland Mediterranean climate type of the SJVAB is characterized by hot, dry summers and cool, rainy winters. The climate is a result of the topography and the strength and location of a semi-permanent, subtropical high-pressure cell. During summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. Daily summer high temperatures often exceed 100° F, averaging in the low 90s in the north and high 90s in the south. In the entire SJVAB, daily summer high temperatures average 95° F. Over the last 30 years, temperatures in the SJVAB averaged 90° F or higher for 106 days a year, and 100° F or higher for 40 days a year. The daily summer temperature variation can be as high as 30° F (SJVAPCD 2002). In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Average high temperatures in the winter are in the 50s, but lows in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low winter temperature is 45° F (SJVAPCD 2002).

A majority of the precipitation in the SJVAB occurs as rainfall during winter storms. The rare occurrence of precipitation during the summer is in the form of convective rain showers. The amount of precipitation in the SJVAB decreases from north to south primarily because of the Pacific storm track that often passes through the

northern part while the southern part remains protected by the Pacific high-pressure cell. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. Average annual rainfall for the entire SJVAB is approximately 9.25 inches on the valley floor (SJVAPCD 2002).

The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. Precipitation and fog tend to reduce or limit some pollutant concentrations. For instance, clouds and fog block sunlight, which is required to fuel photochemical reactions that form ozone. Because carbon monoxide (CO) is partially water-soluble, precipitation and fog also tend to reduce concentrations in the atmosphere. In addition, respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀) can be washed from the atmosphere through wet deposition processes (e.g., rain). However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions resulting in the concentration of air pollutants (e.g., CO and PM₁₀).

Summer is considered the ozone season in the SJVAB. This season is characterized by poor air movement in the mornings and longer daylight hours which provides a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_x), which result in ozone formation. During the summer, wind speed and direction data indicate that summer wind usually originates at the north end of the San Joaquin Valley and flows in a south-southeasterly direction through the San Joaquin Valley, through Tehachapi pass, and into the Southeast Desert Air Basin (SJVAPCD 2002).

OZONE TRANSPORT

Ozone transport refers to the movement of ozone and precursors from other basins to the SJVAB, from the SJVAB to other air basins, and within the SJVAB. Transport can occur at ground level and also at higher altitudes (e.g., movement up mountain slopes during the day).

According to the SJVAB Extreme Ozone Attainment Demonstration Plan, the transport of pollutants within the SJVAB significantly contributes to high ozone concentrations (SJVAPCD 2005). As discussed above, prevailing winds blow from the northern part of the SJVAB to the south, and can transport pollutants from San Joaquin, Stanislaus, and Merced counties to the Fresno area. Pollutants transported from the San Francisco Bay area south to Fresno and Bakersfield are combined with those in the northern portion of the SJVAB because of the passage of air movement. Further south, eddy currents can transport pollutants along the east side of the SJVAB from Tulare County and northern Kern County to the Fresno area.

Ozone and precursors are transported from other basins to the SJVAB. On some days, according to an California Air Resources Board (ARB) assessment of ozone transport, pollutants transported from the San Francisco Bay area affect ozone air quality in the northern SJVAB, mixing with local emissions to contribute to violations of the national 1-hour ozone standard¹ (ARB 2001). On other days, violations of the standard are entirely from local emissions. The effect of San Francisco Bay area transport diminishes with distance so that ambient ozone concentrations in Fresno and Bakersfield are affected less. Overall, ARB rates the San Francisco Bay area's impact on SJVAB ozone air quality as ranging from inconsequential to overwhelming (i.e., alone can cause violations) depending on meteorological conditions occurring at the time of transport evaluation and in the receptor area. ARB also identifies the broader Sacramento area as a source of ozone and precursor transport to the SJVAB, but the effect only ranges from significant (i.e., contributes to a violation when combined with local emissions) to inconsequential. ARB's assessment of ozone transport found that pollutants transported from other air basins affect the SJVAB's ozone air quality, but the magnitude of the effect declines from north to south (ARB 2001). Local emissions are thought to be primarily responsible for the SJVAB's worst ozone air quality.

EXISTING AIR QUALITY—CRITERIA AIR POLLUTANTS

Concentrations of the following air pollutants: ozone, CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable and fine particulate matter (PM₁₀ and PM_{2.5}), and lead are used as indicators of ambient air quality conditions. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as “criteria air pollutants.”

A brief description of each criteria air pollutant including source types, health effects, and future trends is provided below along with the most current attainment area designations and monitoring data for the project area.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 parts per million (ppm) for 1 to 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in responsiveness of the respiratory system to challenges, and the interference or inhibition of the immune system's ability to defend against infection (Godish 2004). Ground level ozone also damages forests, agricultural crops, and some human-made materials, such as rubber, paint, and plastics (City of Merced 1997).

Emissions of ozone precursors ROG and NO_x have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. The ozone problem in the San Joaquin Valley ranks among the most severe in the State. Peak levels have not declined as much as the number of days that standards are exceeded. From 1985 to 2004, the maximum peak 8-hour indicator decreased only 2%. The number of national 8-hour standard exceedance days has been quite variable over the years. This variability is due, in part, to the influence of meteorology as well as changes to the monitoring network. The monitoring network was not as extensive during the 1980's as it has been during the last 14 years. For this reason, the period of 1990 to 2005 provides a better indication of trends. During this period, there has been an 8% decrease in the three-year average of the number of exceedance days of the national 8-hour standard (ARB ~~2006~~2006a).

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 77% of the nationwide CO emissions are from mobile sources. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA ~~2006x~~2006a).

The highest concentrations are generally associated with cold stagnant weather conditions that occur during the winter. In contrast to ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂ (EPA ~~2006x~~2006a). The combined emissions of NO and NO₂ are referred to as NO_x, which are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local NO_x emission sources.

Inhalation is the most common route of exposure to NO₂. Because NO₂ has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO₂ intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions.

Sulfur Dioxide

SO₂ is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills. The major adverse health effects associated with SO₂ exposure pertain to the upper respiratory tract. SO₂ is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO₂ at 5 ppm or more. On contact with the moist mucous membranes, SO₂ produces sulfuric acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO₂ concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO₂ and ROG (EPA ~~2006x~~2006a). Fine particulate matter (PM_{2.5}) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB ~~2006x~~2006a).

The adverse health effects associated with PM₁₀ depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM₁₀ may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA ~~2006~~2006a). PM_{2.5} poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health.

Direct emissions of PM₁₀ have remained relatively unchanged between 1975 and 2005 and are projected to remain unchanged through 2020. PM₁₀ emissions in the San Joaquin Valley are dominated by emissions from areawide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion. Direct emissions of PM_{2.5} decreased from 1975 to 2005 and are projected to continue decreasing through 2020. PM_{2.5} emissions in the San Joaquin Valley are dominated by emissions from areawide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion (ARB ~~2006~~2006a).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. Environmental Protection Agency (EPA) set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA ~~2006~~2006a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded (EPA ~~2006~~2006a).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant.

Emissions Inventory

Table 4.2-1 summarizes emissions of criteria air pollutants within Merced County for various source categories. According to Merced County's emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of CO and NO_x accounting for approximately 57% and 78%, respectively, of the total emissions. Areawide sources account for approximately 58%, 91%, and 85% of the County's ROG, PM₁₀ and PM_{2.5} emissions, respectively. Stationary sources account for approximately 67% of the County's oxides of sulfur emissions.

Table 4.2-1 Summary of 2005 Estimated Emissions Inventory for Merced County						
Source Type/Category	Estimated Annual Average Emissions (Tons per Day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources						
Fuel Combustion	0.55	11.25	3.33	0.79	0.24	0.24
Waste Disposal	0.02	0.00	0.00	—	0.00	0.00
Cleaning and Surface Coating	1.17	—	—	—	—	—
Petroleum Production and Marketing	0.62	—	—	—	—	—
Industrial Processes	1.57	0.62	3.10	0.08	1.71	0.90
Subtotal (Stationary Sources)	3.93	11.87	6.43	0.87	1.96	1.13
Areawide Sources						
Solvent Evaporation	5.02	—	—	—	—	—
Miscellaneous Processes	13.02	60.60	0.92	0.04	30.70	11.19
Subtotal (Areawide Sources)	18.04	60.60	0.92	0.04	30.70	11.19
Mobile Sources						
On-Road Motor Vehicles	6.67	78.33	15.98	0.12	0.48	0.34
Other Mobile Sources	2.55	16.35	9.98	0.28	0.63	0.57
Subtotal (Mobile Sources)	9.22	94.68	25.96	0.40	1.11	0.92
Grand Total for Merced County	31.19	167.15	33.31	1.30	33.77	13.24
Notes: <u>Numbers may not match the County totals due to rounding.</u> ROG = reactive organic gases; CO = carbon monoxide; NO _x = oxides of nitrogen; SO _x = oxides of sulfur; PM ₁₀ = respirable particulate matter; PM _{2.5} = fine particulate matter Source: ARB 2007 2007a						

Monitoring Station Data and Attainment Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SJVAB. The monitoring station closest to the proposed project site is located just west of the project site at 385 South Coffee Avenue and measures ozone and NO₂. The closest monitoring station that measures PM₁₀ and PM_{2.5} is located at 2334 M Street, which is approximately 3.7 miles northwest of the project site. Table 4.2-2 summarizes the air quality data from these two stations for the most recent 4 years, 2003 through 2006. The data is not necessarily representative of the project site, because of the distance from the monitor to the site and the monitor location was meant to measure the highest urban ozone concentrations (SJVAPCD 2005).

Both ARB and EPA use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. The most current attainment designations for the Merced County portion of the SJVAB are shown in Table 4.2-3 for each criteria air pollutant.

Table 4.2-2 Summary of Annual Ambient Air Quality Data (20035–20068) – Merced Stations¹				
	2005	2006	2007	2008
Ozone				
Maximum concentration (1-hr/8-hr, ppm)	0.100/0.093	0.102/0.091	0.105/0.096	<u>0.131/0.121</u>
Number of days state standard exceeded (1-hr)	6	4	5	<u>14</u>
Number of days national standard exceeded (1-hr/8-hr)	0/20	0/23	0/18	<u>3/33</u>
Nitrogen Dioxide (NO₂)				
Maximum concentration (1-hr, ppm)	0.062	0.062	0.050	<u>0.060</u>
Number of days state standard exceeded (1-hr)	0	0	0	<u>0</u>
Annual Average (ppm)	0.011	0.010	0.009	<u>0.009</u>
Fine Particulate Matter (PM_{2.5})				
Maximum concentration (µg/m ³)	54	56	82	<u>54</u>
Number of days national standard exceeded (measured ²)	1	1	1	<u>9</u>
Respirable Particulate Matter (PM₁₀)				
Maximum concentration (µg/m ³)	75	98	69	<u>76.8</u>
Number of days state standard exceeded (calculated ²)	29	47.4	36.5	<u>83</u>
Number of days national standard exceeded (calculated ²)	0	0	0	<u>0</u>
Notes: ppm = parts per million; µg/m ³ = micrograms per cubic meter ¹ Measurements of ozone and NO ₂ are from the Coffee Avenue station, and measurements of PM ₁₀ and PM _{2.5} are from the M Street station. ² Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year. Sources: ARB 2008 ²⁰⁰⁷ _b , EPA 2006 ²⁰⁰⁶ _b , ARB 2009. Air Quality Data Statistics. Available: < http://www.arb.ca.gov/adam/welcome.html > Accessed June 30, 2009.				

Table 4.2-3 Ambient Air Quality Standards and Merced County Attainment Status						
Pollutant	Averaging Time	California		National Standards ¹		
		Standards ^{2,3}	Attainment Status ⁴	Primary ^{3,5}	Secondary ^{3,6}	Attainment Status ⁷
Ozone	1-hour	0.09 ppm (180 µg/m ³)	N (Severe)	- ⁹	-	-
	8-hour	0.070 ppm ⁸ (137 µg/m ³)	N	0.075 ppm (147 µg/m ³)	Same as Primary Standard	N(Serious)
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	U ¹¹	35 ppm (40 mg/m ³)	–	U/A
	8-hour	9 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)		
Nitrogen Dioxide (NO ₂) ¹²	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	–	0.053 ppm (100 µg/m ³)	Same as Primary Standard	U/A
	1-hour	0.18 ppm (339 µg/m ³)	A	–		–
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	–	0.030 ppm (80 µg/m ³)	–	U
	24-hour	0.04 ppm (105 µg/m ³)	A	0.14 ppm (365 µg/m ³)	–	
	3-hour	–	–	–	0.5 ppm (1300 µg/m ³)	
	1-hour	0.25 ppm (655 µg/m ³)	A	–	–	
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N(Serious)	– ¹³	Same as Primary Standard	A ¹⁴
	24-hour	50 µg/m ³		150 µg/m ³		
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	N ¹⁵	15 µg/m ³	Same as Primary Standard	N
	24-hour	–	–	35 µg/m ³		
Lead ¹⁰	30-day Average Calendar Quarter	1.5 µg/m ³	A	–	Same as Primary Standard	–
		–	–	1.5 µg/m ³		
	Rolling 3-Month Average	–		0.15 µg/m ³		
Sulfates	24-hour	25 µg/m ³	A	No National Standards		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m ³)	U			
Vinyl Chloride ¹⁰	24-hour	0.01 ppm (26 µg/m ³)	A			

**Table 4.2-3
Ambient Air Quality Standards and Merced County Attainment Status**

Pollutant	Averaging Time	California		National Standards ¹		
		Standards ^{2,3}	Attainment Status ⁴	Primary ^{3,5}	Secondary ^{3,6}	Attainment Status ⁷
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

- ¹ National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.
- ² California standards for ozone, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. The California ambient air quality standard for NO₂ was amended on February 22, 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm.
- ³ Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m³)]. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ⁴ Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.
Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.
- ⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
- ⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ⁷ Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.
- ⁸ This concentration effective May 17, 2006.
- ⁹ The 1-hour ozone NAAQS was revoked on June 15, 2005.
- ¹⁰ ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ¹¹ Designation for Merced County; the designation is different for one or more other counties in the SJVAB.
- ¹² The CAAQS were amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.03 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law, expected later this year.
- ¹³ Because of a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM₁₀ standard on September 21, 2006.
- ¹⁴ On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan.
- ¹⁵ The SJVAB is designated nonattainment for the 1997 PM 2.5 federal standards. EPA designations for the 2006 PM 2.5 standards will be finalized in December 2009. The District has determined, as of the 2004-06 PM 2.5 data, that the Valley has attained the 1997 24-Hour PM 2.5 standard.
- ¹⁶ National lead standard, rolling 3-month average: final rule signed October 15, 2008.
- Source: SJVAPCD ~~2006a~~~~2006b~~; ARB ~~2008a~~~~2007c~~, 2007d, ~~2006d~~; SJVAPCD 2008

EXISTING AIR QUALITY—TOXIC AIR CONTAMINANTS

Concentrations of TACs are also used as indicators of ambient-air-quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the 2005 edition of the California Almanac of Emissions and Air Quality (ARB ~~2006~~2006a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, ARB estimated the diesel PM health risk in 2000 to be 390 excess cancer cases per million people in the SJVAB. Since 1990, the health risk caused by diesel PM in the SJVAB has been reduced by 50%. Overall, levels of most TACs have gone down since 1990 except for *para*-dichlorobenzene and formaldehyde (ARB ~~2006~~2006a).

Existing Sources of TACs

Existing sources in the project vicinity include mobile-source emissions from surrounding freeways, McLane Pacific Grocery, and Central Valley Processing. Stationary TAC emission sources associated with McLane Pacific Grocery and Central Valley Processing may include boilers, backup emergency diesel generators, and above-ground fuel storage. According to ARB, there are no major existing stationary sources of TACs near the project site (ARB ~~2007~~2007e).

Naturally Occurring Asbestos

Naturally occurring asbestos may be found in at least 44 of California's 58 counties. Asbestos is the name for a group of naturally occurring silicate minerals. Exposure to asbestos may result in inhalation or ingestion of asbestos fibers, which over time may result in damage to the lungs or membranes that cover the lungs, leading to illness or even death.

According to the *General Location Guide for Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos* (Churchill and Hill 2000), the project site and off-site program elements are not located in areas that are more likely to contain naturally occurring asbestos.

EXISTING AIR QUALITY – ODORS

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

There are no discrete sources of odor in the vicinity of the project site. The agricultural lands located to the south and east of the project site do include dairy cattle, livestock, or other operations that involve large quantities of animal waste. The facilities operated by McLane Pacific Grocery and Central Valley Processing north of the project site sometimes harbor high volumes of diesel trucks. Exhaust odors from diesel engines operating at these nearby facilities were not noticeable during the 1-day site visit to the proposed project site. Typically, exhaust odors from diesel engines disperse rapidly with distance from the source.

EXISTING AIR QUALITY—GREENHOUSE GASES AND LINKS TO GLOBAL CLIMATE CHANGE

Various gases in the earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth, not as high-frequency solar radiation, but lower frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate on Earth. Without the Greenhouse Effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the Greenhouse Effect are carbon dioxide (CO₂), methane (CH₄), ozone, nitrous oxide, hydrofluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the Greenhouse Effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming (Ahrens 2003). It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (Intergovernmental Panel on Climate Change [IPCC] 2007). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (CEC ~~2006~~2006a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CEC ~~2006~~2006a). Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) associated with agricultural practices and landfills. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, respectively, two of the most common processes of CO₂ sequestration.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46% of human-caused CO₂ emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of CAPs and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice to say, the quantity is enormous, and no single project alone would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Atmospheric Persistence in the Global Carbon Cycle

Unlike diurnal criteria air pollutants such as ozone, CO₂ emissions persist in the atmosphere for much longer periods, on the order of tens to hundreds of years. Although the exact lifetime of any particular CO₂ molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46% of human-caused CO₂ emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Feedback Mechanisms and Uncertainty

Many complex mechanisms interact within Earth's energy budget to establish the global average temperature and global and regional climate conditions. For example, increases in atmospheric temperature would lead to increases in ocean temperature. As atmospheric and ocean temperatures increase, sea ice and glaciers are expected to melt, adding more fresh water to the ocean and altering salinity conditions. Both increases in ocean temperature and changes in salinity would be expected to lead to changes in circulation of ocean currents. Changes in current circulation would further alter ocean temperatures and alter terrestrial climates where currents have changed. Several interacting atmospheric, climatic, aquatic, and terrestrial factors affecting global climate change are described below. These factors result in feedback mechanisms that could potentially increase or decrease the effects of global climate change. There is uncertainty about how some factors may affect global climate change because they have the potential to both intensify and neutralize future climate warming. Examples of these conditions are described below.

Direct and Indirect Aerosol Effects

Aerosols, including particulate matter, reflect sunlight back to space. As air quality goals for particulate matter are met and fewer emissions of particulate matter occur, the cooling effect of aerosols would be reduced, and the Greenhouse Effect would be further intensified. Similarly, aerosols act as cloud condensation nuclei, aiding in cloud formation and increasing cloud lifetime. Under some circumstances (see discussion of the cloud effect below), clouds efficiently reflect solar radiation back to space. With a reduction in emission of particulate matter, including aerosols, the indirect positive effect of aerosols on clouds would be reduced, potentially further amplifying the Greenhouse Effect.

The Cloud Effect

As global temperature rises, the ability of the air to hold moisture increases, facilitating cloud formation. As stated above, clouds can efficiently reflect solar radiation back to space. If an increase in cloud cover occurs at low or middle altitudes, resulting in clouds with greater liquid water content, such as stratus or cumulus clouds, more radiation would be reflected back to space than under current conditions. This would result in a negative feedback mechanism, in which the increase in cloud cover resulting from global climate change acts to balance the amount of further warming. If clouds form at higher altitudes in the form of cirrus clouds, however, these clouds allow more solar radiation to pass through than they reflect and ultimately act as a GHG themselves. This results in a positive feedback mechanism, in which the side effect of global climate change (an increase in cloud cover) acts to intensify the warming process. Because of the conflicting feedback mechanisms to which increasing cloud cover can contribute, this cloud effect is an area of relatively high uncertainty for scientists when projecting future global climate change conditions.

Other Feedback Mechanisms

As global temperature continues to rise, CH₄ gas trapped in permafrost is expected to be released into the atmosphere. As identified above in the description of CO₂ equivalents, CH₄ is approximately 21 times as efficient a GHG as CO₂; therefore, this release of CH₄ would accelerate and intensify global climate change if current trends continue. Additionally, as the surface area of polar and sea ice continues to diminish, Earth's albedo, or reflectivity, also is anticipated to decrease. More incoming solar radiation likely will be absorbed by the earth rather than be reflected back into space, further intensifying the Greenhouse Effect and associated global climate change. These and other both positive and negative feedback mechanisms are still being studied by the scientific community to better understand their potential effects on global climate change. It is not known at this time how much of an increase in global average temperature may result from the interaction of all the pertinent variables. Although the amount and rate of increase in global average temperature are uncertain, there is no longer much debate within the scientific community that global climate change is occurring and that human-caused GHG emissions are contributing to this phenomenon.

ATTRIBUTING CLIMATE CHANGE—GREENHOUSE GAS EMISSION SOURCES

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission [CEC] ~~2006~~2006a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CEC ~~2006~~2006a). Emissions of CO₂ are byproducts of fossil fuel combustion. CH₄, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) is largely associated with agricultural practices and landfills. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, respectively, two of the most common processes of CO₂ sequestration.

California is the 12th to 16th largest emitter of CO₂ in the world (CEC ~~2006~~2006a). California produced 499 million gross metric tons of CO₂ equivalent (CO₂e) in 2004 (ARB ~~2007~~2008a). CO₂e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the Greenhouse Effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, "Calculation References," of the General Reporting Protocol of the California Climate Action Registry (CCAR 2007), 1 ton of CH₄ has the same contribution to the Greenhouse Effect as approximately 23 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂. Expressing emissions in CO₂e takes the contributions of all GHG emissions to the Greenhouse Effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 40.7% of total GHG emissions in the state (CEC ~~2006~~2006a). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (22.2%) and the industrial sector (20.5%) (CEC ~~2006~~2006a).

4.2.2 REGULATORY SETTING

Air quality within Merced County is regulated by EPA, ARB, and SJVAPCD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

U.S. Environmental Protection Agency

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 4.2-2, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformance to the mandates of the CAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal Implementation Plan may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

In April 2007 the Supreme Court of the United States ruled that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. However, there are no federal regulations or policies regarding GHG emissions applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Air Resources Board

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California ambient air quality standards (CAAQS) (Table 4.2-3). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the

emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with California and federal laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. There are 15 nonattainment areas for the national ozone standard and two nonattainment areas for the PM_{2.5} standard. The Ozone SIP and PM_{2.5} SIP must be adopted and sent to EPA by June 2007 and April 2008, respectively. The SIP must show how each area will attain the federal standards. To do this, the SIP will identify the amount of pollution emissions that must be reduced in each area to meet the standard and the emission controls needed to reduce the necessary emissions.

ARB and local air pollution control districts are currently developing plans for meeting new national air quality standards for ozone and PM_{2.5}. The Draft Statewide Air Quality Plan was released in April 2007 (ARB ~~2007~~2007f).

Airborne Toxic Control Measures (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling

As part of its diesel risk reduction plan, ARB has developed an air toxic control measure that limits stationary idling by diesel-fueled commercial trucks to 5 minutes (13 CCR Chapter 10 Section 2485).

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state.”

To meet the requirements of AB 1493, in 2004 ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California’s existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. Emissions requirements adopted as part of 13 CCR 1961.1 are shown in Table 4.2-4. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37% lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions are reduced approximately 24% between 2009 and 2016.

**Table 4.2-4
Fleet-Average Greenhouse Gas Exhaust Emission Limits Included in CCR 13 1961.1**

Vehicle Model Year	Fleet-Average Greenhouse Gas Emissions (carbon dioxide equivalents in grams per mile)	
	Light-Duty Trucks 0-3,750 Pounds LVW and Passenger Cars	Light-Duty Trucks 3,751 Pounds LVW to 8,500 Pounds GVW and Medium-Duty Passenger Vehicles*
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016	205	332

Notes: GVW = gross vehicle weight, LVW = loaded vehicle weight.

* Specific characteristics of passenger cars, light-duty trucks, and medium-duty passenger vehicles are provided in Title 13, Section 1900 of the California Code of Regulations as amended to comply with Assembly Bill 1493.

Source: California Code of Regulations, Title 13, Section 1961.1

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961 as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.*). The suit, still in process, in the U.S. District Court for the Eastern District of California, contends that California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies. To date, the suit has not been settled, and the judge has issued an injunction stating that ARB cannot enforce the regulations in question before receiving appropriate authorization from EPA. In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al., v. Environmental Protection Agency, et al.*, the primary issue in question was whether the CAA provides authority for EPA to regulate CO₂ emissions. EPA contended that the CAA does not authorize regulation of CO₂ emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO₂. The U.S. Supreme Court rule on April 2, 2007 that GHGs are "air pollutants" as defined under the CAA, and EPA is granted authority to regulate CO₂ (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also

submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32, the California Climate Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

AB 32 does not explicitly apply to emissions from land development, though emissions associated with land development projects are closely connected to the utilities, transportation, and commercial end-use sectors. Further, because AB 32 imposes a statewide emissions cap, land development-related emissions will ultimately factor in to considerations of GHG emissions in the state.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a greenhouse gas emission performance standard for baseload generation from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC.

Senate Bills 1771 and 527 and the California Climate Action Registry

The California Climate Action Registry (CCAR) was established in 2001 by Senate Bills 1771 and 527 as a nonprofit voluntary registry for GHG emissions. The purpose of CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry.

Senate Bill 97

Senate Bill (SB) 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the State Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. This bill also removes inadequate CEQA analysis of effects of GHG emissions from projects (retroactive and future) funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E) as a legitimate cause of action. This provision will be repealed on January 1, 2010, wherein inadequate CEQA analysis for those projects could then become a legitimate cause of action. This bill would only protect a handful of public agencies from CEQA challenges on certain types of projects for a few years time.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

San Joaquin Valley Air Pollution Control District

The SJVAPCD seeks to improve air quality conditions in Merced County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SJVAPCD includes the preparation of plans and programs for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The SJVAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA, CAAA, and the CCAA.

In January 2002, the SJVAPCD released a revision to the previously adopted guidelines document. This revised Guide for Assessing and Mitigation Air Quality Impact (GAMAQI) (SJVAPCD 2002) is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The guide contains the following applicable components:

- ▶ criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- ▶ specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- ▶ methods available to mitigate air quality impacts; and
- ▶ information for use in air quality assessments that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

Air Quality Plans

The SJVAPCD prepares and submits Air Quality Attainment Plans in compliance with the requirements set forth in the CCAA. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plans must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. These milestone reports include compliance demonstrations that the requirements have been met for the nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_x, and PM₁₀ emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program (Rule 9510); adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures. In the formulation of its attainment plans, SJVAPCD accounts for

all future projected growth and development in the SJVAB as provided by local governments, including the City of Merced, through the Merced County Association of Governments (MCAG). (More details about MCAG are provided under its own heading later in this section.) Table 4.2-5 summaries SJVAPCD's most current Air Quality Attainment Plans.

Table 4.2-5 Summary of San Joaquin Valley Air Pollution Control District Air Quality Plans			
Pollutant	Plan Title	Date	Status
Ozone	Extreme Ozone Attainment Demonstration Plan for the Revoked Federal 1-Hour Ozone Standard	October 2004, Amended October 2005, Clarifications adopted August 2008	On April 30, 2007 the Governing Board of the SJVAPCD voted to request EPA to reclassify the SJVAB as extreme nonattainment for the federal 8-hour ozone standards. On June 14, 2007, ARB approved this request. On October 16, 2008 EPA proposed to approve the plan [73 FR 613781].
	8-hour Ozone Reasonably Available Control Technology – State Implementation Plan (RACT SIP) Analysis	April 2006	Adopted by SJVAPCD in August 2006.
	8-hour Ozone Attainment Demonstration Plan for the San Joaquin Valley	April 2007	Adopted by SJVAPCD in April 2007. This request must be forwarded to EPA by ARB and would become effective upon EPA final rulemaking after a notice and comment process; it is not yet in effect.
Carbon Monoxide (CO)	2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan For Ten Federal Planning Areas	July 2004	Adopted by ARB July 2004.
Respirable and Fine Particulate Matter (PM ₁₀ and PM _{2.5})	2007 PM ₁₀ Maintenance Plan and Request for Redesignation.	September 2007	Adopted by SJVAPCD in February 2006. EPA issued a Final Rule determining that the SJVAB had attained the NAAQS for PM ₁₀ [71 FR 63642] in October 2006.
	2008 PM _{2.5} Plan	April 2008	The SJVAB is designated nonattainment for the 1997 PM _{2.5} federal standards. EPA designations for the 2006 PM 2.5 standards will be finalized in December 2009. SJVAPCD has determined, as of the 2004-06 PM _{2.5} data, that the SJVAB has attained the 1997 24-Hour PM _{2.5} standard.
	Natural Events Action Plan for High Wind Events in the San Joaquin Valley	February 2006	Adopted by SJVAPCD in February 2006; Submitted to ARB
Source: SJVAPCD 2005, 2006a 2006b, 2007x 2006c, 2006x 2007x			

Rules and Regulations

As mentioned above, the SJVAPCD adopts rules and regulations. All projects are subject to SJVAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction and operation of the proposed project may include, but are not limited to:

- ▶ Rule 2201 New and Modified Stationary Source Review
- ▶ Rule 2280 Portable Equipment Registration
- ▶ Rule 3135 Dust control Plan Fee
- ▶ Rule 4002 National Emission Standards for Hazardous Air Pollutants
- ▶ Rule 4101 Visible Emissions
- ▶ Rule 4102 Nuisance
- ▶ Rule 4103 Open Burning
- ▶ Rule 4601 Architectural Coatings
- ▶ Rule 4641 Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations
- ▶ Rule 4901 Wood Burning Fireplaces and Wood Burning Heaters
- ▶ Regulation VIII Fugitive PM₁₀ Prohibitions includes the following rules:
 - *Rule 8021*: Construction, demolition, excavation, and extraction; and other earthmoving activities;
 - *Rule 8031*: Handling and storage of bulk materials;
 - *Rule 8041*: Trackout/Carryout of dirt and other materials onto paved public roads;
 - *Rule 8051*: Open Areas;
 - *Rule 8061*: Construction and use of paved and unpaved roads; and
 - *Rule 8071*: Use of unpaved vehicle and/or equipment traffic areas; and
 - *Rule 8081*: Agricultural Sources.
- ▶ Rule 9510 Indirect Source Review. Indirect Source Review (ISR) applies to development and transportation or transit projects that have not yet gained discretionary approval. A discretionary permit is a permit from a public agency, such as a city or county that requires some amount of deliberation by that agency, including the potential to require modifications or conditions on the project. The purpose of the ISR program is to reduce emissions of NO_x and PM₁₀ from new development projects. In general, new development contributes to the air-pollution problem in the basin by increasing the number of vehicles and vehicle miles traveled and by associated construction activity. When a development project cannot reduce its emissions of NO_x and PM₁₀ to the level required by the rule, then the difference must be mitigated through the payment of a fee. The monies collected from each project fee is used by SJVAPCD to reduce emissions in the SJVAB on behalf of the respective project, with the goal of offsetting the emissions increase from the project by decreasing emissions elsewhere in the SJVAB. More specifically, the fees received are used in SJVAPCDs existing Emission Reduction Incentive Program to fund emission reduction projects. With regard to the development of light industrial facilities, this rule applies to any development project that would need a final discretionary approval and upon full buildout would include a minimum of 25,000 square feet of light industrial space. Thus, the proposed project would be subject to requirements set forth in the ISR rule.

City of Merced

Merced Vision 2015 General Plan

Air quality is addressed in the Sustainable Development element of the *Merced Vision 2015 General Plan* (City of Merced 1997). The following goals are included in the Sustainable Development Element as Goal Area SD-1:

- ▶ clean air with minimal toxic substances and odor,
- ▶ clean air with minimal particulate content,
- ▶ effective and efficient transportation infrastructure, and
- ▶ coordinated and cooperative inter-governmental air quality programs.

The policies and implementing actions of for the above-listed goals are presented below:

- ▶ Policy SD-1.1. Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
 - Implementing Action 1.1.a. Develop uniform standards for mitigating air quality impacts resulting from development.
 - Implementing Action 1.1.b. Ensure that significant air quality impacts identified during CEQA review are consistently and fairly mitigated.
 - Implementing Action 1.1.c. All air quality mitigation measures should be feasible, implementable, and cost effective.
 - Implementing Action 1.1.d. Work with the [SJVAPCD] to identify regional cumulative transportation and air quality impacts.
 - Implementing Action 1.1.e. Reduce the air quality impacts of development projects that may be insignificant by themselves, but cumulatively are significant.
 - Implementing Action 1.1.f. Encourage innovative measures to reduce air quality impacts.
- ▶ Policy SD-1.2. Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.
 - Implementing Action 1.2.a. Work with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues.
 - Implementing Action 1.2.b. Consult with [SJVAPCD] during CEQA review for discretionary projects.
 - Implementing Action 1.2.c. Coordinate with other jurisdictions and other regional agencies in the San Joaquin Valley to establish consistent and uniform implementation measures (trip reduction ordinances, indirect source programs, etc.).
 - Implementing Action 1.2.d. Support cost-effective multi-use modeling and geographic information system (GIS) technology.
- ▶ Policy SD-1.3. Integrate land use planning, transportation planning, and air quality planning for most efficient use of public resources and for a healthier environment.
 - Implementing Action 1.3.a. The City of Merced will consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.
 - Implementing Action 1.3.b. Transportation improvement should be consistent with the air quality goals and policies of the General Plan.
 - Implementing Action 1.3.c. The City of Merced will consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.
 - Implementing Action 1.3.d. Encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.

- Implementing Action 1.3.e. The City of Merced will work with Caltrans and the Merced County Association of Governments (MCAG) and the Regional Transportation Planning Agency to minimize the air quality, and mobility impacts of large scale transportation projects on existing neighborhoods.
- Policy SD-1.4. Educate the public on the impact of individual transportation, lifestyle, and land use decisions.
 - Implementing Action 1.4.a. Work to improve the public’s understanding of the land use, transportation, and air quality link.
 - Implementing Action 1.4.b. Support [SJVAPCD] efforts to encourage formation of local groups that provide air quality education programs.
- Policy SD-1.5. Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs.
 - Implementing Action 1.5.a. Study implementing innovative employer-based trip reduction programs for their employees.
 - Implementing Action 1.5.b. Fleet vehicle operators should evaluate alternatives which include replacing or converting conventional fuel vehicles with clean fuel vehicles.
 - Implementing Action 1.5.c. Support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.
 - Implementing Action 1.5.d. Make use of telecommuting programs as part of their trip reduction strategies.
 - Implementing Action 1.5.e. Encourage the development of state of the art communication infrastructure linked to the rest of the world.
- Policy SD-1.6. Reduce emissions of PM₁₀ and other particulates with local control potential.
 - Implementing Action 1.6.a. Work with the [SJVAPCD] to reduce, to the maximum extent feasible, particulate emissions from construction, grading, excavation, and demolition.
 - Implementing Action 1.6.b. Reduce PM10 emissions from City maintained roads to the maximum extent feasible.
- Policy SD-3.1: Promote the use of solar energy technology.
 - Implementing Action 3.1.a: Encourage the use of solar energy in design and management of all new construction in the City.
 - Implementing Action 3.1.c: Encourage developers and builders to properly design all structures on each building lot in the City to take fullest advantage of solar use in heating and cooling.
 - Implementing Action 3.1.d: Encourage developers and builders to maximize “passive” solar design, such as large south-facing windows for winter heat gains and overhangs for shading for summer heat protection.

In addition, Implementation Action 3.1.h of the Land Use element states that the city shall consider air quality and mobility when reviewing any proposed change to the land use pattern of this community.

- ▶ Policy SD-3.2: Encourage the use of energy conservation features and low emission equipment for all new residential and commercial development.
 - Implementing Action 3.4.c: Encourage new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption.
- ▶ Policy OS-1.4. Maintain and expand the City's urban forest and reduce the heat island effects of urban development.
- ▶ Implementing Action 1.4.b: Continue to require new development to plant street trees approximately 40 feet apart, at a maximum, along City streets.

Merced County Association of Governments

The Merced County Association of Governments (MCAG) was formed through a Joint Powers Agreement (JPA) signed by member jurisdictions on November 28, 1967, and the Governing Board is composed of all five members of the Merced County Board of Supervisors and one elected official from each of the six incorporated cities located within the political boundary of Merced County.

The Overall Budget and Work Program is a product of a cooperative effort of the MCAG Technical Planning Committee for Regional Transportation Planning (TPC), composed of local governmental technical staff members; the Citizens' Advisory Committee for Regional Transportation Planning (CAC), composed of citizens appointed by the MCAG Governing Board, the MCAG Technical Review Board (TRB), composed of the chief administrative officers of all local governments within Merced County; the MCAG Executive Committee; and the MCAG Board.

The MCAG participates in air quality planning for which the purpose of the program is to inform and advise MCAG and member agencies on air quality issues and policies; to ensure that MCAG's transportation plans, programs, and projects conform to the most recent air quality requirements; and to coordinate effectively with other government agencies on these matters.

Air quality conformity is the process wherein plans, programs, and projects are shown to meet the requirements of the CAA and CAAA, and the applicable SIP. Specific procedures for fulfilling the requirements of the CAAA are given in the Final Conformity Rule published by EPA in 1993 and updated in 2004. MCAG is responsible for fulfilling these requirements. Similar work is performed by the seven other Transportation Planning Agencies (TPAs) in the SJVAB. All SJVAB TPAs work closely with each other and with the SJAPCD on air quality issues, conformity determinations, and the development and implementation of Transportation Control Measures, with the ultimate goal of improving the air quality in the SJVAB. A Memorandum of Understanding exists between the Air District and the eight valley TPAs, for the purpose of ensuring coordinated and consistent valley-wide air quality planning.

MCAG recently prepared the final draft of the PM_{2.5} Air Quality Conformity Analysis for the Federally Approved 2004 Federal Transportation Improvement Program (FTIP) for Merced County (Merced County Association of Governments 2006). MCAG is also involved with the following activities, plans and programs:

- ▶ Air Quality Conformity Determinations for the Regional Transportation Plan (RTP) and FTIP;
- ▶ monitor State and Federal air quality regulations and plans, and advise the MCAG Governing Board and member jurisdictions;
- ▶ coordinate with the SJVAPCD and TPAs on air quality issues;
- ▶ ensure timely implementation of all required transportation control measures;

- ▶ collaborate with ARB and SJVAPCD on emission inventory development;
- ▶ provide vehicle miles travel (VMT) data to ARB for use in emission budgets; and
- ▶ prepare air quality conformity analyses for the RTP and FTIP amendments.

TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs, or in federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 4.2-3). Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by the SJVAPCD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Programs

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

State and Local Toxic Air Contaminant Programs

TACs in California are primarily regulated through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted EPA’s list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions (e.g., the Airborne Toxic Control Measure limits truck idling to 5 minutes [13 CCR Chapter 10 Section 2485]).

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines; 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle (LEV)/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

ARB published the Air Quality and Land Use Handbook: A Community Health Perspective, which provides guidance concerning land use compatibility with TAC sources (ARB 2005). While not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries dry cleaners, gasoline stations, and industrial facilities to help keep children and other sensitive populations out of harm's way.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SJVAPCD regulations II and VII, all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The SJVAPCD limits emissions and public exposure to TACs through a number of programs. The SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by the SJVAPCD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project would emit toxics in excess of SJVAPCD's threshold of significance for TACs, as identified below, sources have to implement the best available control technology for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the SJVAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that SJVAPCD's air quality permitting process applies to stationary sources; and properties, which are exposed to elevated levels of nonstationary type sources of TACs, and the nonstationary type sources themselves (e.g., on-road vehicles) are not subject to air quality permits. Further, because of feasibility and practicality reasons, mobile sources (cars, trucks, etc.) are not required to implement T-BACT, even if they do have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (e.g., vehicles) are subject to regulations implemented on the state and federal level.

ODORS

The SJVAPCD has determined some common types of facilities that have been known to produce odors, including wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any

physical harm and no requirements for their control are included in state or federal air quality regulations, the SJVAPCD has no quantitative rules or standards related to odor emissions other than its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the SJVAPCD. According to the SJVAPCD, significant odor problems occur when there is more than one confirmed complaint per year averaged over a 3-year period or when there are three unconfirmed complaints per year averaged over a 3-year period (SJVAPCD 2002).

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odor. In the first situation, the SJVAPCD recommends operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects locating near a source of odors where there is no nearby development that may have filed complaints, and for odor sources locating near existing sensitive receptors, the SJVAPCD requires the determination of potential conflict to be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility (SJVAPCD 2002).

4.2.3 ENVIRONMENTAL IMPACTS

METHOD OF ANALYSIS

Emissions of short-term construction-related and long-term operation-related (i.e., regional and local) criteria air pollutants and precursors, odors, and TACs were assessed in accordance with SJVAPCD-recommended methodologies (SJVAPCD 2002, ~~2006~~2006a, ~~2007~~2007a, ~~2007~~2007b, ~~2007~~2007c, ~~2007~~2007d).

Project-generated, construction-related emissions of criteria air pollutants (e.g., PM₁₀) and precursors (ROG and NO_x) were assessed in accordance with SJVAPCD-recommended methods. Where quantification was required, emissions were modeled using the URBEMIS 2007 Version 9.2.2 computer model (ARB ~~2007~~2007g). Modeling was based on SJVAPCD-recommended parameters for composition of the construction equipment fleet (SJVAPCD ~~2007~~2007a, ~~2007~~2007b). Modeled project-generated, construction-related emissions were compared with applicable SJVAPCD thresholds for determination of significance.

Project-generated, operation-related (i.e., regional) emissions of criteria air pollutants and precursors (e.g. mobile- and area-sources) were also quantified using the URBEMIS 2007 Version 9.2.2 computer model (ARB ~~2007~~2007g). Modeling was based on project-specific data (e.g., size and type of proposed use) and vehicle trip information from the traffic analysis prepared for this project (DKS Associates 2008). No adjustments were made to account for increased fuel efficiency of Wal-Mart's truck fleet due to its participation in the U.S. EPA's SmartWay Transport Partnership. The Partnership is a voluntary program; therefore, although the current Wal-Mart fleet would have better than average fuel efficiency, nothing mandates them to continue to stay in the program. Thus, this EIR uses a conservative, reasonably foreseeable scenario that considers that Wal-Mart could use a fleet that is more reflective of the average fleet. To the extent Wal-Mart continues to participate in the program, the analysis likely over-states actual emissions from Wal-Mart's truck fleet. Long-term stationary-source emissions were qualitatively assessed in accordance with SJVAPCD-recommended methodologies. Modeled project-generated, long-term operation-related emissions were compared with applicable SJVAPCD thresholds for determination of significance.

At this time, SJVAPCD has not adopted a methodology for analyzing short-term construction-related emissions of TACs and does not recommended the completion of health risk assessments (HRAs) for such emissions, with a few exceptions (e.g., where construction phase is the only phase of project) (Reed, pers. comm., 2007). Therefore, project-generated, construction-related emissions of TACs were assessed in a qualitative manner.

With respect to long-term operation-related exposure of sensitive receptors to emissions of TACs, a HRA was performed in accordance with *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003) and SJVAPCD's *Guidance for Air Dispersion Modeling* (SJVAPCD 2007~~x~~2007c). Refer to Appendix C for a copy of the HRA prepared for this project (ENSR 2007).

To date, SJVAPCD has not adopted a method for evaluating impacts associated with emissions of PM_{2.5}. However, because project-generated, construction- and operation-related emissions of PM_{2.5}, by definition, would be a subset of PM₁₀ emissions, SJVAPCD-recommended methodologies and mitigation measures for PM₁₀ would also be relevant to emissions of PM_{2.5}.

Project-generated emissions of GHGs would predominantly be in the form of CO₂. While emissions of other GHGs, such as methane, are important with respect to global climate change, the project is not expected to emit significant quantities of GHGs other than CO₂. The reason for this conclusion is that most emissions from the project are associated with vehicular emissions and, though vehicles also emit small quantities of N₂O and CH₄, the primary GHG emitted during fuel combustion is CO₂, even considering the higher global warming potential of N₂O and CH₄ (21 and 310 times that of CO₂, respectively [CCAR 2007]). Thus, project-generated emissions of CO₂ were used as a proxy for total emissions GHGs, unless otherwise noted.

With respect to the proposed project, the net increase in emissions of CO₂ would be primarily associated with an increase in truck and passenger vehicle activity, off-site and on-site, and consumption of electricity. Construction- and operation-related emissions of CO₂ were quantified using the URBEMIS 2007 Version 9.2.2 computer model (ARB 2007~~x~~2007g). Modeling was based on project-specific data (e.g., size and type of proposed use) and vehicle trip information from the traffic analysis prepared for this project (DKS Associates 2008) and truck trip information from an existing Wal-Mart distribution centers in California (McAlexander, pers. comm., 2007). Indirect emissions of CO₂ associated with electricity consumption were estimated according to methodologies of the California Climate Action Registry General Reporting Protocol, Version 2.2 (CCAR 2007).

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines and SJVAPCD, an air quality impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ conflict with or obstruct implementation of the applicable air quality plan,
- ▶ violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- ▶ result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors),
- ▶ expose sensitive receptors to substantial pollutant concentrations, or
- ▶ create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance of criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Thus, as contained in the GAMAQI, implementation of the proposed project would result in significant air quality impacts if:

- ▶ all control measures in compliance with the requirements of Regulation VIII-Fugitive Dust Prohibition are not incorporated into project design or implemented during project construction;
- ▶ construction-related emissions of ROG or NO_x exceed SJVAPCD-recommended mass emissions threshold of 10 TPY;

- ▶ long-term operation-related regional emissions of ROG or NO_x exceed SJVAPCD-recommended mass emissions threshold of 10 TPY;
- ▶ construction- or operation-related emissions of PM₁₀ exceed SJVAPCD's applied mass emissions threshold of 15 TPY;
- ▶ construction- or operation-related emissions (i.e., regional and local) of criteria air pollutants or precursor emissions violate or substantially contribute to a violation of the NAAQS and/or CAAQS (e.g., 8-hour CO standard of 9 ppm);
- ▶ exposure of sensitive receptors to a substantial incremental increase in emissions of TACs that exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic Hazard Index (HI) of 1 for the Maximally Exposed Individual (MEI), as recommended in SJVAPCD's *Guidance for Air Dispersion Modeling* (SJVAPCD ~~2007~~2007c); or
- ▶ project implementation would locate receptors near an existing odor source where one confirmed complaint per year averaged over a three year period, or three unconfirmed complaints per year averaged over a three year period has been experienced by existing receptors as close as the project to the odor source; or by existing receptors in the vicinity of a similar facility considering distance, frequency, and odor control, where there is currently no nearby development and for proposed odor sources near existing receptors.

In addition, the following thresholds of significance have been used to determine whether implementation of the proposed project would result in significant impacts with respect to global climate change. A global climate change impact is considered significant if implementation of the proposed project under consideration would do any of the following:

- ▶ conflict with or obstruct state or local policies or ordinances established for the purpose of reducing greenhouse gas emissions, or
- ▶ result in a considerable net increase in greenhouse gases.

With regard to emissions of GHGs, no air district in California, including the SJVAPCD, has identified a significance threshold for analyzing project-generated emissions or a methodology for analyzing air quality impacts related to global warming. Nonetheless, by adoption of AB 32, California has identified that global climate change is a serious environmental issue, and has identified GHG reduction goals.

To meet AB 32 goals, California as a whole will ultimately need to generate substantially less GHG than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall emission levels of GHGs.

While AB 32 focuses on stationary sources of emissions, the primary objective of AB 32 is to reduce California's contribution to global warming by reducing California's total annual production emissions. The impact that emissions of GHGs have on global climate change is not dependent on whether they were generated by stationary, mobile, or area sources; or whether they were generated in one region or another. Thus, the net change in total levels of GHGs generated by a project or activity is the best metric for determining whether the proposed project would contribute to global warming.

The effect of GHG emissions as they relate to global climate change is inherently a cumulative impact issue. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. In the case of the proposed project, if the size of the increase in emissions from the project is considered to be substantial, then the impact of the project would be cumulatively considerable. Please refer to Chapter 6,

“Cumulative and Growth-Inducing Impacts,” of this EIR for a description of GHG related and other cumulative impacts of the project.

IMPACT ANALYSIS

IMPACT 4.2-1 **Generation of Short-Term Construction-Related Emissions of Criteria Air Pollutants and Precursors.**
*Project-generated, construction-related emissions of ROG and NO_x would exceed SJVAPCD's significance threshold of 10 TPY. Project-generated, construction-related emissions of PM₁₀ would exceed SJVAPCD's significance threshold of 15 TPY. In addition, with respect to construction-related emissions of PM₁₀, SJVAPCD-recommended control measures beyond compliance with Regulation VIII-Fugitive Dust Prohibition are not incorporated into the project design. Thus, project-generated, construction-related emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of Merced County. As a result, this would be a **significant** impact.*

Construction-related emissions are described as “short term” or temporary in duration and have the potential to represent a significant impact with respect to air quality. Construction of the proposed project could begin as early as 2010 and would take 12 months for completion. Construction-related activities would result in project-generated emissions of criteria air pollutants (e.g., PM₁₀) and precursors (e.g., ROG and NO_x) from site preparation (e.g., excavation, grading, and clearing); off-road equipment, material delivery, and worker commute exhaust emissions; vehicle travel on unpaved roads, and other miscellaneous activities (e.g., asphalt paving and the application of architectural coatings).

Emissions of Ozone Precursors

Emissions of ozone precursors (e.g., ROG and NO_x) are primarily associated with off-road equipment exhaust. Worker commute trips and other construction-related activities (e.g., asphalt paving and the application of architectural coatings) also contribute to short-term increases in such emissions.

Project-generated, construction-related emissions of ROG and NO_x were modeled using the ARB-approved URBEMIS 2007 Version 9.2.2 computer program (ARB ~~2007~~2007g). URBEMIS is designed to model construction emissions for land use development projects based on building size and type and allows for the input of project-specific information. Detailed information about the number and types of construction equipment needed, maximum daily acreage disturbed, number of workers, and hours of operation is not currently known at this time. Thus, values for these parameters were estimated using the default values of URBEMIS 2007, including vehicle emission factors that are specific to the SJVAB, and SJVAPCD's Recommended Construction Fleet spreadsheet (SJVAPCD ~~2007~~2007a). SJVAPCD's spreadsheet provides estimates for the amount of maximum daily acreage disturbed and number and type of construction equipment that would be used on a project based on its total acreage and type (e.g., commercial, residential). SJVAPCD formulated this methodology to provide an accurate set of assumptions about the input parameters of a construction project while erring on the conservative side so as not to underestimate construction-generated emissions. The exhaust emissions of two off-road water trucks were also included as part of initial site preparation activity (e.g., grading). Table 4.2-6 summarizes the modeled project-generated, construction-related emissions of criteria air pollutants and ozone precursors from initial site preparation (e.g., grading) and building construction activities for the proposed project. Construction-related air quality effects were determined by comparing these modeling results with applicable SJVAPCD significance thresholds. Refer to Appendix C for detailed modeling input parameters, including the SJVAPCD-Recommended Construction Fleet spreadsheet, as well as modeling results.

Table 4.2-6 Summary of Modeled Project-Generated, Construction-Related Emissions of Criteria Air Pollutants and Precursors				
Source	Emissions (Tons/Year)			
	ROG	NO _x	PM ₁₀ (Total) ¹	PM _{2.5} (Total) ¹
Grading				
Fugitive Dust	0.0	0.0	16.7	3.5
Off-Road Diesel Exhaust	1.3	11.4	0.6	0.5
On-Road Diesel Exhaust	0.0	0.0	0.0	0.0
Worker Trips	0.0	0.0	0.0	0.0
Subtotal Unmitigated	1.4	11.4	17.3	4.0
Asphalt				
Off-Gas Emissions	0.1	0.0	0.0	0.0
Off-Road Diesel Exhaust	0.1	0.3	0.0	0.0
On-Road Diesel Exhaust	0.0	0.4	0.0	0.0
Worker Trips	0.0	0.0	0.0	0.0
Subtotal Unmitigated	0.2	0.7	0.1	0.0
Building Construction				
Off-Road Diesel Exhaust	1.0	11.9	0.4	0.4
Vendor Trips	1.0	11.8	0.6	0.5
Worker Trips	0.6	1.0	0.1	0.1
Subtotal Unmitigated	2.6	24.7	1.1	0.9
Architectural Coatings				
Off-Gas Emissions	12.9	0.0	0.0	0.0
Worker Trips	0.0	0.0	0.0	0.0
Subtotal Unmitigated	12.9	0.0	0.0	0.0
Total Unmitigated	17.0	36.8	18.4	5.0
Total with ISR Compliance	16.8	32.1	17.9	— ²
SJVAPCD Significance Threshold	10	10	15 ³	— ³
Notes: See Appendix C for detailed input parameters and modeling results.				
¹ Shown for informational purposes only.				
² This estimate does not account for dust control mitigation measures. Fugitive PM dust emissions are discussed separately below.				
³ SJVAPCD has not identified mass emissions thresholds for construction-related emissions of PM ₁₀ or PM _{2.5} .				
Sources: Modeling performed by EDAW 2007				

As shown in Table 4.2-6, construction-related activities would result in project-generated annual unmitigated emissions of approximately 17 TPY of ROG and 37 TPY of NO_x. ~~PM₁₀ emissions from diesel equipment and worker commute trip exhaust are also shown in Table 4.2-6 because of their applicability to SJVAPCD Rule 9510, ISR rule, as discussed in detail below.~~

Based on the modeling conducted, construction-related activities would result in project-generated emissions of ROG and NO_x that exceed SJVAPCD's significance threshold of 10 TPY (refer to Table 4.2-6). Thus, project-generated, construction-related emissions of ozone precursors could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of Merced County. As a result, this would be a **significant** impact.

Emissions of Fugitive PM Dust

Emissions of fugitive PM dust (e.g., PM₁₀ and PM_{2.5}), are associated primarily with ground disturbance activities during initial site preparation (e.g., grading) and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and vehicle miles traveled (VMT) on- and off-site. Exhaust emissions from diesel equipment and worker commute trips also contribute to short-term increases in PM emissions, but to a much lesser extent (see Table 4.2-6).

As shown in Table 4.2-6, construction-related activities would result in project-generated annual unmitigated emissions of approximately 18 TPY of PM₁₀. Based on the modeling conducted, construction-related activities would result in project-generated emissions of PM₁₀ that exceed SJVAPCD's significance threshold of 15 TPY (refer to Table 4.2-6). Thus, project-generated, construction-related emissions of fugitive dust (i.e., PM₁₀ and PM_{2.5}) could violate or contribute substantially to an existing or projected air quality violation, especially considering the nonattainment status of Merced County. SJVAPCD's approach to CEQA analyses of the potentially adverse localized effects of construction-related fugitive PM₁₀ dust concentrations emissions is to require implementation of effective and comprehensive control measures rather than a detailed quantification. SJVAPCD-recommended control measures beyond compliance with Regulation VIII-Fugitive Dust Prohibition, which is required by law, are not incorporated into the project design. Thus, project-generated, construction-related emissions of fugitive dust (i.e., PM₁₀ and PM_{2.5}) could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of Merced County. As a result, this would be a **significant** impact.

Mitigation Measure 4.2-1a: Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510). Construction of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510), as required by law. The Applicant shall ~~submit and have approved~~ an Air Impact Assessment (AIA) application ~~to approved by SJVAPCD no later than applying for a prior to issuance of final discretionary approval with a building permit by the City of Merced.~~ The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name and address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify construction NO_x and PM₁₀ emissions associated with the project. This assessment shall include: an estimate of construction emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project, or each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. The general mitigation requirements in the assessment, as contained in the ISR rule, shall include the following:

- ▶ Exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project shall be reduced by 20% of the total NO_x and by 45% of the total PM₁₀ emissions from the statewide average as estimated by ARB.
- ▶ Methods employed by the applicant to reduce construction emissions to the degree noted above include using less polluting construction equipment, including the use of add-on controls, cleaner fuels, or newer lower emitting equipment. The emissions reduction targets listed above shall be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in Mitigation Measure 4.2-1b below.

The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in Mitigation Measures 4.2-1b and 4.2-1c below; however, any on-site emission reductions must be both quantifiable and verifiable to be credited towards the requirements of the ISR Rule. Any off-site mitigation fees shall be paid by the applicant to SJVAPCD prior to issuance of a building permit by the City of Merced.

Mitigation Measure 4.2-1b: Implement Measures to Reduce Construction-Related Diesel Equipment Exhaust Emissions.

The following required mitigation measures shall be implemented by the project applicant to reduce construction-related diesel equipment exhaust emissions regardless of whether the emission reductions can be quantified and documented. However, any emissions reductions attained by these measures that can be quantified and documented can be credited to achieve the ISR reduction goals discussed in Mitigation Measure 4.2-1a. These required measures are listed below. Prior to construction a requirement to implement these required measures shall be included in the contract language between the applicant and the builders of the project.

Required Measures to Reduce Construction-Related Diesel Equipment Exhaust Emission

- ▶ All off-road construction equipment used on the project site shall be powered by engines that meet, at a minimum, Tier II emission standards, as set forth in §2423 of title 13 of the California Code of Regulations and Part 89 of title 40 of the Code of Federal Regulations. The fleet of off-road construction equipment shall achieve a fleet average emissions factor equal to or less than the Tier II emissions standard of 4.8 grams per horsepower-hour for NO_x.
- ▶ Cease construction activity on forecasted Spare the Air Days.
- ▶ Staging areas for heavy-duty construction equipment shall be located as far as possible from sensitive receptors. They shall be located on site and not be within 1,000 feet of any off-site receptor~~the project boundary~~.
- ▶ Before construction contracts are issued, the project applicant shall perform a review of new technology in consultation with SJVAPCD, as it relates to heavy-duty diesel equipment, to determine what (if any) advances in emissions reductions are available for use and are economically feasible. Construction contract and bid specifications shall require contractors to utilize the available and economically feasible technology on a percentage of the equipment fleet, as determined by SJVAPCD.
- ▶ When not in use, idling of on-site equipment shall be minimized. Under no conditions shall on-site equipment be left idling for more than 5 minutes.
- ▶ Prohibit the use of trucks with off-road engines to haul materials on-site. Use trucks with on-road engines instead.

In addition, measures implemented to achieve the ~~above~~ ISR reduction goals required by Mitigation Measure 4.2-1a may include, but are not limited to the additional measures listed below.

Additional Operational Emission Reduction Measures

- ▶ Use alternate fuels and emission controls to further reduce NO_x and PM₁₀ exhaust emissions above the minimum requirements set forth in the ISR rule.
- ▶ Replace/substitute fossil-fueled (e.g., diesel) equipment with electrically driven equivalents (provided they are not run via a portable generator set).
- ▶ Use ARB-certified alternative fueled engines in construction equipment. Alternative fueled equipment may be powered by compressed natural gas, liquid propane gas, electric motors, or other ARB-certified off-road technologies. (To find engines certified by ARB, see <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>.)
- ▶ Provide commercial electric power to the project site in adequate capacity to avoid or minimize the use of portable electric generators and equipment.

- ▶ Limit the hours of operation of heavy duty diesel equipment and/or the amount of equipment in use at any one time.

Mitigation Measure 4.2-1c: Implement an Emissions Reduction Agreement with SJVAPCD to Reduce Construction Emissions of ROG and NO_x. The Applicant shall enter into an emissions reduction agreement with SJVAPCD to reduce net ROG and NO_x emissions to less than 10 TPY. This agreement includes an emission reduction program, whereby the Applicant funds projects in the SJVAB, such as replacement and destruction of old engines with new more efficient engines. The agreement requires the Applicant to identify and propose opportunities for the reduction of emissions to fully mitigate the project's construction emissions to less than significant, and includes opportunities for removal or retrofication of stationary, transportation, indirect, and/or mobile-source equipment. Each proposal requires SJVAPCD approval and verification of emission reduction prior to receiving final discretionary approval of the project from the City of Merced. The emissions reduction agreement must be implemented *in addition to* the Required Measures to Reduce Construction-Related Diesel Equipment Exhaust Emission listed in Mitigation Measure 4.2-1b. Development and implementation of the emissions reduction agreement shall be fully funded by the Applicant. To the extent feasible, preference shall be given to off-site emission reduction projects that are located in or in close proximity to the City of Merced. If approved by SJVAPCD, the Applicant may develop an emissions reduction agreement that also fulfills the compliance requirements of SJVAPCD's ISR Rule (Rule 9510). The Applicant shall demonstrate to the City that it has successfully entered into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District before issuance of the first building permit by the City.

Mitigation Measure 4.2-1d: Comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions and Implement All Applicable Control Measures. Construction of the proposed project shall comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions and implement all applicable control measures, as required by law. Regulation VIII contains, but is not limited to, the following required control measures:

- ▶ Prewater site sufficient to limit visible dust emissions (VDE) to 20% opacity.
- ▶ Phase work to reduce the amount of disturbed surface area at any one time.
- ▶ During active operations, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20% opacity.
- ▶ During active operations, construct and maintain wind barriers sufficient to limit VDE to 20% opacity.
- ▶ During active operations, apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20% opacity and meet the conditions of a stabilized unpaved road surface.
- ▶ An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour (mph).
- ▶ An owner/operator shall post speed limit signs that meet State and Federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
- ▶ When handling bulk materials, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20% opacity.
- ▶ When handling bulk material, construct and maintain wind barriers sufficient to limit VDE to 20% opacity and with less than 50% porosity.

- ▶ When storing bulk materials, comply with the conditions for a stabilized surface as listed above.
- ▶ When storing bulk materials, cover bulk materials stored outdoors with tarps, plastic, or other suitable material and anchor in such a manner that prevents the cover from being removed by wind action.
- ▶ When storing bulk materials construct and maintain wind barriers sufficient to limit VDE to 20% opacity and with less than 50% porosity. If utilizing fences or wind barriers, apply water or chemical/organic stabilizers/suppressants to limit VDE to 20% opacity or utilize a 3-sided structure with a height at least equal to the height of the storage pile and with less than 50% porosity.
- ▶ Limit vehicular speed while traveling on the work site sufficient to limit VDE to 20% opacity.
- ▶ Load all haul trucks such that the freeboard is not less than 6 inches when material is transported across any paved public access road sufficient to limit VDE to 20% opacity.
- ▶ Apply water to the top of the load sufficient to limit VDE to 20% opacity.
- ▶ Cover haul trucks with a tarp or other suitable cover.
- ▶ Clean the interior of the cargo compartment or cover the cargo compartment before the empty truck leaves the site; and prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate; and load all haul trucks such that the freeboard is not less than 6 inches when material is transported on any paved public access road, and apply water to the top of the load sufficient to limit VDE to 20% opacity; or cover haul trucks with a tarp or other suitable cover.
- ▶ Owners/operators shall remove all visible carryout and trackout at the end of each workday.
- ▶ An owner/operator of any site with 150 or more vehicle trips per day, or 20 or more vehicle trips per day by vehicles with three or more axles shall take actions for the prevention and mitigation of carryout and trackout.
- ~~▶ Within urban areas, an owner/operator shall prevent carryout and trackout, or immediately remove carryout and trackout when it extends 50 feet or more from the nearest unpaved surface exit point of a site.~~
- ~~▶ Within rural areas, construction projects 10 acres or more in size, a~~An owner/operator shall prevent carryout and trackout, or immediately remove carryout and trackout when it extends 50 feet or more from the nearest unpaved surface exit point of a site.
- ▶ For sites with paved interior roads, an owner/operator shall prevent and mitigate carryout and trackout.
- ▶ Cleanup of carryout and trackout shall be accomplished by manually sweeping and picking-up; or operating a rotary brush or broom accompanied or preceded by sufficient wetting to limit VDE to 20% opacity; or operating a PM₁₀-efficient street sweeper that has a pick-up efficiency of at least 80%; or flushing with water, if curbs or gutters are not present and where the use of water would not result as a source of trackout material or result in adverse impacts on storm water drainage systems or violate any National Pollutant Discharge Elimination System permit program.

An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer (APCO) before the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for nonresidential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least 3 days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days before the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control

plan shall apply to all such activities conducted for residential and nonresidential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity. Prior to issuance of grading or building permits from the City of Merced, the applicant shall demonstrate to the satisfaction of the SJVAPCD that mitigation measures identified above will be met, and identify and an individual responsible for enforcing the measures.

Mitigation Measure 4.2-1e: Implement SJVAPCD-Recommended Enhanced and Additional Dust Control Measures.

The following SJVAPCD-recommended enhanced and additional control measure shall be implemented to further reduce emissions of fugitive PM₁₀ dust.

- ▶ Install sandbags or other erosion control measures to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1%.
- ▶ Suspend excavation and grading activity when winds exceed 20 mph.
- ▶ Limit area subject to excavation, grading, and other construction activity at any one time.
- ▶ Prior to issuance of grading or building permits from the City of Merced, the applicant shall demonstrate to the satisfaction of the SJVAPCD that mitigation measures identified above will be met, and identify and an individual responsible for enforcing the measures.

Implementation of Mitigation Measures 4.2-1a and -1b would result in the required minimum 20% reduction in NO_x emissions and a 45% reduction in PM₁₀ emissions from heavy-duty diesel equipment, as compared with statewide average emissions. ~~In addition, implementation of these measures would also result in a 5% reduction in ROG emissions from heavy-duty diesel equipment.~~ All or part of the reductions may result from on-site equipment and fuel selection; the remainder would result from off-site reductions achieved through the payment of fees. Implementation of Mitigation Measure 4.2-1c would ensure the additional emissions reduction necessary to reduce construction-generated ROG and NO_x emissions to levels below 10 TPY. By prohibiting construction activity on forecasted Spare the Air days, Mitigation Measure 4.2-1b will also prevent construction-related emissions of ozone precursors from contributing substantially to an existing or projected air quality violation. As a result, this impact (generation of construction-related ROG and NO_x emissions) would be reduced to a **less-than-significant level**.

With respect to fugitive PM₁₀ dust emissions, implementation of Mitigation Measures 4.2-1d and 4.2-1e would ensure compliance with Regulation VIII, which is required by law, and include additional SJVAPCD-recommended control measures. These dust control measures typically reduce fugitive PM₁₀ dust emissions by 75% to approximately 4.2 TPY, which is less than SJVAPCD's recommended threshold of 15 TPY. As a result, this impact (generation of construction-related fugitive PM₁₀ dust emissions) would be reduced to a **less-than-significant level**.

IMPACT 4.2-2 **Generation of Long-Term Operation-Related (Regional) Emissions of Criteria Air Pollutants and Precursor Emissions.** *Operation-related activities would result in project-generated emissions of ROG and NO_x that exceed SJVAPCD's significance threshold of 10 TPY (refer to Table 4.2-7). Operation-related activities would result in project-generated emissions of PM₁₀ that exceed SJVAPCD's significance threshold of 15 TPY (refer to Table 4.2-7). Thus, project-generated, operation-related emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of Merced County. In addition, because SJVAPCD's significance thresholds approximately correlate with reductions from heavy-duty vehicles and land use project emission reduction requirements in the SIP, project-generated emissions could also conflict with any air quality planning efforts. As a result, this would be a **significant impact**.*

Area- and Mobile-Source Emissions

Project-generated, regional area- and mobile-source emissions of ROG, NO_x, PM₁₀, and PM_{2.5} were estimated using URBEMIS 2007 Version 9.2.2 computer program (ARB ~~2007x2007g~~), which is designed to model emissions for land use development projects. URBEMIS allows land use selections that include project location and trip generation rates. URBEMIS accounts for area-source emissions from the usage of natural gas, landscape maintenance equipment, and consumer products; and mobile-source emissions associated with vehicle trips. Regional area- and mobile-source emissions were estimated based on the proposed land uses type and size identified in Chapter 3, "Project Description," the increase in trip generation from the traffic analysis prepared for this project (DKS Associates 2008), Section 4.11 "Traffic and Transportation," and default and SJVAPCD-recommended settings and parameters attributable to land use type and site location (SJVAPCD ~~2007x2007b~~). This analysis does account for the fact that some outbound delivery truck trips from the Merced Distribution Center to the 49 existing Wal-Mart stores that it would serve would replace outbound delivery truck trips that are currently based at other existing Wal-Mart distribution centers. Results of the URBEMIS modeling, including the net results, are shown in Table 4.2-7.

Table 4.2-7 Summary of Modeled Project-Generated, Operation-Related Emissions of Criteria Air Pollutants and Precursors				
Source	Emissions (Tons/Year) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Area Source²				
Natural Gas	0.0	0.3	0.0	0.0
Landscaping	0.0	0.0	0.0	0.0
Architectural Coatings	1.3	0.0	0.0	0.0
Mobile Source				
Employee Commute Trips	5.1	3.6	1.6	0.4
Outbound Delivery Truck Trips³				
Proposed Project ⁴	11.7	176.1	104.5	22.9
Existing ⁵	6.7	122.5	73.9	16.0
Net ⁶	5.0	53.6	30.6	6.9
Inbound Receivable Truck Trips³				
Proposed Project ⁷	12.0	220.5	133.1	28.8
Existing ⁷	12.0	220.5	133.1	28.8
Net Change ⁶	0.0	0.0	0.0	0.0
On-Site Truck Activity				
Haul Truck Idling ⁸	0.5	2.9	0.2	0.2
Haul Truck Travel ⁸	0.6	4.9	0.1	0.1
Yard Truck Idling ⁹	0.8	6.1	0.4	0.3
Yard Truck Travel ⁹	0.2	1.4	0.1	0.1
Total (Net) Unmitigated	13.5	72.7	32.9	8.0
Total with ISR Compliance) ¹⁰	No ISR requirement	48.7	16.5	No ISR requirement
SJVAPCD Significance Threshold	10	10	15 ⁻¹¹	— ¹¹
¹ Except for emissions generated by on-site haul truck activity, all emissions were modeled using the URBEMIS 2007 Version 9.2.2 computer model, based on trip generation rates obtained from the traffic analysis, and implementing SJVAPCD's Recommended Standard Changes to URBEMIS Default Values (SJVAPCD 2007x2007b). <u>No adjustments were made to account for the fact the lower emission rates of Wal-mart-operated trucks that participate in the U.S. EPA's SmartWay Transport Partnership.</u>				
² Emissions from the periodic testing of the back-up generator and fire-water pump are not included because the amount of operation from periodic testing and maintenance would be nominal at an estimated 52 hours per year. Refer to stationary-source emissions discussion below.				
³ According to the traffic analysis, a total of 644 truck trips would be generated by the proposed Merced Distribution Center. It is assumed that half of these truck trips would be associated with truck deliveries from the distribution center to retail stores (322 <i>outbound</i> delivery truck trips)				

Table 4.2-7
Summary of Modeled Project-Generated, Operation-Related Emissions
of Criteria Air Pollutants and Precursors

Source	Emissions (Tons/Year) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
and that the other half of trips would be associated with deliveries of goods to the distribution center (322 <i>inbound</i> receivable truck trips). The emission estimates for outbound and inbound truck trips do not account for Wal-Mart's participation in EPA's SmartWay Transport Partnership or installation of auxiliary power units on its overnight truck fleet, which aim to increase energy efficiency and reduce emissions from ground freight carriers (EPA 2007). ⁴ It is assumed that the average trip distance for all 322 outbound delivery truck trips would be equal to the average trip distance (in the San Joaquin Valley Air Basin) from the proposed distribution center to the 49 existing Wal-Mart stores that would be served by the Merced Distribution Center, which is 83.0 miles per trip, as provided by Wal-Mart (McAlexander, pers. comm., 2007). ⁵ The trip generation rate and average trip distance (106.2 miles in the San Joaquin Valley Air Basin per trip) for existing outbound delivery trucks are based on existing conditions data provided by Wal-Mart for the 49 existing stores that would be supplied by the Merced Distribution Center (McAlexander, pers. comm., 2007). ⁶ Net emissions are equal to emissions generated by the proposed project minus existing emissions. ⁷ It is assumed that the average trip distance in the San Joaquin Valley Air Basin for all inbound receivable truck trips, with and without the proposed project, would be equal to the average existing trip distance of 106.2 miles between the 49 existing Wal-Mart stores that would be served by the Merced Distribution Center and their exist distribution center currently used by such trucks; these existing centers are located in Red Bluff and Porterville. ⁸ Emissions generated by on-site travel and idling by haul trucks were estimated separately using emission factors from the EMFAC2007 Version 2.3 model (ARB 2006x2006b). ⁹ Emissions generated by on-site travel and idling by off-road yard trucks were estimated using emission factors derived from URBEMIS 2007 Version 9.2.2 (ARB 2007x2007g). ¹⁰ SJVAPCD's ISR Rule (Rule 9510) requires a 33% reduction in operational emissions of NO_x and a 50% reduction in PM₁₀ over 10 years. ¹¹ The SJVAPCD has not identified <u>a</u> mass emissions thresholds for operational emissions of PM₁₀ and PM_{2.5}. See Appendix C for detailed input parameters and modeling results. Sources: Modeling performed by EDAW 2007				

In addition, emissions from on-site activity by on-road haul trucks and off-road yard trucks were estimated separately using emission factors from EMFAC2007 Version 2.3 (ARB ~~2006x2006b~~) and project-specific assumptions for on-site travel distances and idling times used in the HRA prepared for this project (Refer to Impact 4.2-4).

Results of the URBEMIS modeling, including the net results of changes in regional truck operations and emissions from on-site truck activity, are shown in Table 4.2-7. As shown in the Table 4.2-7, operation-related activities would result in project-generated annual unmitigated emissions of approximately 14 TPY of ROG, 73 TPY of NO_x, 33 TPY of PM₁₀ and 8 TPY of PM_{2.5}. Based on the modeling conducted, operation-related activities would result in project-generated emissions of ROG and NO_x that exceed SJVAPCD's significance threshold of 10 TPY and in emissions of PM₁₀ that exceed SJVAPCD's significance threshold of 15 TPY (refer to Table 4.2-7). Thus, project-generated, operation-related emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the San Joaquin Valley Air Basin within (and outside of) Merced County. In addition, because SJVAPCD's significance thresholds approximately correlate with reductions from heavy-duty vehicles and land use project emission reduction requirements of the SIP, project-generated emissions could also conflict with current air quality planning efforts. As a result, this would be a **significant** impact.

Stationary-Source Emissions

The proposed project would include stationary sources of pollutants that would be required to obtain permits to operate under SJVAPCD Rule 2201-New and Modified Stationary Sources. These sources could include, but not

be limited to, diesel-engine generators for emergency power generation and a charcoal grill at the employee cafeteria. The permit process would assure that these sources would be equipped with the required emission controls, and that individually, these sources would not cause a significant environmental impact. These sources would not be subject to the ISR rule. An HRA for these sources, as well as on-site activity by diesel-engine trucks is discussed in Impact 4.2-4. Nonetheless, the emissions from these sources would be additive to modeled area- and mobile-source emissions described above.

Mitigation Measure 4.2-2a: Comply with SJVAPCD's Indirect Source Review Rule (Rule 9510)

Similar to Mitigation Measure 4.2-1a, which addresses construction-related emissions, operation of the proposed project shall comply with SJVAPCD's ISR rule (Rule 9510), as required by law. The applicant shall ~~submit~~ have an AIA application ~~to approved by SJVAPCD no later than applying prior to issuance of for a final discretionary approval with a building permit from~~ the City of Merced. The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name and address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify operational NO_x and PM₁₀ emissions associated with the project. This shall include the estimated operational baseline emissions (i.e., before mitigation), and the mitigated emissions for each applicable pollutant for the project, or each phase thereof, and shall quantify the off-site fee, if applicable. General mitigation requirements, as contained in the ISR rule, include the following:

- ▶ Applicants shall reduce 33.3%, of the project's operational baseline NO_x emissions over a period of ten years as quantified in the approved AIA.
- ▶ Applicants shall reduce 50% of the project's operational baseline PM₁₀ emissions over a period of ten years as quantified in the approved AIA.

The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in Mitigation Measures 4.2-2b, 4.2-2c, 4.2-2d, and 4.2-2e for emissions of CAPs and ozone precursors; and Mitigation Measures 4.2-6b and 4.2-6d for emissions of GHGs below; however, any on-site reductions of CAP and ozone precursor emissions must be both quantifiable and verifiable to be credited towards the requirements of the ISR Rule. Any off-site mitigation fees shall be paid by the Applicant to SJVAPCD prior to issuance of a building permit by the City of Merced.

Mitigation Measure 4.2-2b: Develop and Implement Design Features and Program Incentives to Reduce an Employee Commute Trips Reduction Program to Reduce Operational Emissions.

The applicant shall ~~develop and implement design features and develop program incentives that discourage employees from commuting in single occupant vehicles (SOVs) in order to reduce associated mobile-source emissions. an employee trip reduction program that minimizes the percentage of employee commute trips in single occupancy vehicles. At a minimum, the program shall ensure that at least 25% of employee commute trips occur by some other transportation mode than a single occupancy vehicle. This program~~ These measures shall be fully funded by the applicant, ~~and details of the program, including how the 25% performance standard will be measured and monitored, shall be developed in consultation with the City of Merced, the Transit Joint Powers Authority for Merced County, and SJVAPCD.~~ Measures that result in quantifiable trip reductions can also be counted as reductions in NO_x and PM₁₀ emissions with respect to compliance with the ISR rule mentioned in Mitigation Measure 4.2-2a. The program shall be managed by an on-site Employee Transportation Coordinator employed and appointed by the applicant. ~~A designated Transportation Manager shall also be on duty during each shift to manage the program. The 25% reduction in single occupancy vehicle trips by employees shall be achieved within 3 years of the opening of the distribution center. The~~ design measures and development of program incentives reduction program and its their effectiveness shall be evaluated annually and reported to the City of Merced. ~~As part of the program, the applicant shall provide a display case or kiosk that displays all of the program information in a prominent area accessible to employees (e.g., break room, cafeteria, or entrance). Elements of the~~

employee trip reduction program may include, but are not limited to, the following measures: The City recognizes that, pursuant to California Health and Safety Code Section 40717.9, no city, air district, city, or congestion management agency can *require* an employer to implement an employee trip reduction program. However, the City can require feasible mitigation measures, including design features and program incentives, that strive to reduce the total number of employee commute trips. Mitigation Measure 4.2-2b consists of a list of measures that are required, as well as a list of additional measures that shall be implemented only if determined to be feasible by the applicant and the City.

Required Design Features to Reduce Employee Commute Trips and Associated Mobile-source Emissions

The following measures are considered feasible at the time of writing this EIR and shall be implemented within one year of opening the distribution center:

- ▶ Design and provide preferential parking for HOVs carpool and vanpool vehicles. Design features may include a separate parking lot for carpool and vanpool vehicles HOVs that is closer to the employee building entrance than the parking lot for single occupancy vehicles SOVs and/or covered parking spaces for HOVscarpool and vanpool vehicles. Other potential design features include connecting the preferential parking lot for HOVs to the employee entrance of the building with shaded, landscaped walkways or with open-air, covered walkways.
- ▶ ~~Provide adequate bicycle parking/racks in a covered, secure area.~~
- ▶ Provide an adequate number of showers, changing areas, and locker facilities to accommodate employees who bike to work (typically one shower and 3 lockers for every 25 employees of a shift).
- ▶ Provide a display case or kiosk that displays up-to-date information regarding area bus transit routes, bicycle routes, and other information concerning measures designed to reduce the number of employees commuting in SOVs, in a prominent area accessible to employees (e.g., break room, cafeteria, or entrance).
- ▶ Provide on-site shops and services for employees including a cafeteria and a bank/ATM within 6 months of opening the facility.
- ▶ ~~Fund the design and installation of bikeways or bike lanes along local roads that provide access to the site.~~
- ▶ ~~Implement compressed work schedules for employees (e.g., 4 shifts per week for full time employees).~~

Additional Measures to Reduce Employee Commute Trips and Associated Mobile-source Emissions

The following additional measures may be implemented, if feasible:

- ▶ Fund the design and installation of bikeways or bike lanes along local roads that provide access to the site.
- ▶ Operate free employee shuttle or vanpool system that serves employees according to their shift times and places of residence. Low-emissions shuttle or vanpool vehicles shall be used (e.g., hybrid, CGN, or electric). Provide a covered area for the on-site employee shuttle stop or vanpool parking lot and an open-air, covered walkway connection to the employee entrance of the building to provide summertime shade and protection from rain.
- ▶ Provide incentives for employees who take their children to child daycare centers to select nearby centers and designate these centers as official stops of the free employee shuttle or vanpool system. Incentives may include, but are not limited to, the subsidization of daycare rates or the negotiation of group discounts for

children of employees at these childcare providers. An on-site child daycare center ~~shall~~ may be provided only if supported by the findings of a comprehensive HRA performed in consultation with SJVAPCD.

- ▶ ~~Time-Schedule~~ employee work shifts according to the class times at nearby K–12 schools and/or have employee shuttles or vanpools make stops at nearby K–12 schools.
- ▶ Provide adequate bicycle parking/racks in a covered, secure area.
- ▶ Provide carpool ride matching assistance for employees, ~~assistance with vanpool formation, and provisions of vanpool vehicles.~~
- ▶ Provide a separate site entrance or access route exclusively for high-occupancy vehicles (HOVs) (e.g., employee shuttles, carpools, vanpools [if vanpools are used by employees, public transit [when available]], and cyclists that allows for more convenient and expedient access to and from the site during peak turnover periods (i.e., shift changes).
- ▶ ~~Make available free public transit passes to all employees if~~ public transit service is expanded to serve the project site during times of the day that serve any of the employee shifts at the facility, subsidize public transit passes to all affected employees.
- ▶ Offer and implement compressed work schedules to employees (e.g., 4 shifts per week for full time employees).
- ▶ Implement parking fees for ~~single occupancy vehicle~~ SOV commuters or a parking cash-out program for employees. A parking cash-out program consists of a financial contribution to employees who do not commute by SOV.

Mitigation Measure 4.2-2c: Implement Recommended Mitigation Measures to Reduce Operational Emissions.

The following required mitigation measures shall be implemented by the project applicant to reduce operation-related emissions regardless of whether the emission reductions can be quantified and documented for compliance with the ISR rule required by Mitigation Measure 4.2-2a or whether they result in a quantifiable reduction of employee commute trips in single occupancy vehicles. However, any emissions reductions attained by these measures that can be quantified and documented can be credited to achieve the ISR reduction goals discussed in Mitigation Measure 4.2-2a. or employee trip reduction goals discussed in Mitigation Measure 4.2-2b. These required measures are listed below.

- ▶ The applicant's participation in EPA's SmartWay Transport Partnership (EPA 2007) shall include the portion of its haul truck fleet that is based at or serves the Merced distribution center and shall continue participation of this truck fleet in the Partnership for as long as the Partnership or a similar successor program exists. This measure would apply to the 40% of truck trips generated by the project that are operated by Wal-Mart trucks. Once each year the applicant shall provide to the City of Merced a letter from EPA confirming the project's participation in the SmartWay Transport Partnership.
- ▶ The Applicant shall fully fund or contribute its fair share of funding for the development of a Class II Bike Lanes along Childs Avenue and Gerard Avenue from Parsons Avenue to the project's eastern boundary line that would connect the proposed project to nearby land uses, including the residential neighborhoods to the west along Childs Avenue and Gerard Avenue. Building bicycle lanes at these locations is consistent with the City of Merced Bicycle Plan, which was adopted on October 20, 2008 and meets requirements of the California Bicycle Transportation Act (1994) and qualifies the City of Merced to receive state funding for bicycle projects. The City shall determine the Applicant's fair share monetary contribution to the development of these bicycle lanes and the Applicant shall pay its fair share at the same time building permit fees are due to the City.

- ▶ ~~Provide on-site shops and services for employees including a cafeteria and a bank/ATM within 6 months of opening the facility.~~
- ▶ As part of its landscaping plan to be prepared for the project (which is also mentioned in Mitigation Measure 4.13-2) the Applicant shall select plant species and landscaping coverage that require minimal maintenance with mechanically-powered equipment such as gasoline-powered lawn mowers. The Applicant and/or its contractors shall not use gasoline-powered leaf blowers on site. Use only electric-powered landscape maintenance equipment for routine maintenance of to care for landscaped areas, where routine maintenance activities include mowing, leaf blowing, and other activities that occur 3 or more times per year. If this work is hired out to a landscaping company, then the contract shall prohibit the use of gasoline- or diesel-powered leaf blowers. landscape maintenance equipment.
- ▶ Building and site design shall include electrical outlets around the exterior of the units to enable use of electric landscape maintenance equipment.

Mitigation Measure 4.2-2d: Implement Additional Operational On-Site Emission Reduction Measures.

Where feasible, additional measures shall be implemented to reduce operational emissions. Such measures shall include, but are not limited to the additional measures listed below. If, however, the additional measures listed below are technologically or economically infeasible, the Applicant shall submit a written report to the City of Merced Planning & Permitting demonstrating such infeasibility. The report shall be reviewed by a sustainability expert who is selected by the City and the review costs should be funded by the Applicant. Approval of this report shall be received by the Applicant prior to ~~receiving final discretionary approval of the project from the City of Merced~~ issuing a building permit for the project.

- ▶ Purchase and operate electric or hybrid-powered yard tractors (e.g., Volk-brand tractors) to serve as “yard trucks” that move trailers to and from the trailer yard and loading docks.
- ▶ Provide electric maintenance equipment, install solar, low-emission, or central water heaters, increase building insulation beyond Title 24 requirements, orient buildings to take advantage of solar heating and natural cooling and use passive solar designs, energy efficient windows (double pane and/or Low-E), highly reflective roofing materials, cool pavement, radiant heat barrier, install photovoltaic cells, programmable thermostats for all heating and cooling systems, awnings or other shading mechanisms for windows, patio, and walkway overhangs, ceiling fans, utilize passive solar cooling and heating designs, utilize day lighting systems such as skylights, light shelves, and interior transom windows.
- ▶ The project shall include as many clean alternative energy features as possible to promote energy self-sufficiency (e.g., photovoltaic cells, solar thermal electricity systems, small wind turbines).

Mitigation Measure 4.2-2e: Implement an Emissions Reduction Agreement with SJVAPCD to Reduce Operational Emissions of ROG₁ and NO_x and PM₁₀.

The Applicant shall enter into an emissions reduction agreement with SJVAPCD to reduce net ROG and NO_x emissions to less than 10 TPY and net PM₁₀ emissions to less than 15 TPY. This agreement includes an emission reduction program, whereby the applicant funds projects in the SJVAB, such as replacement and destruction of old engines with new more efficient engines. The agreement requires the Applicant to identify and propose opportunities for the reduction of emissions to fully mitigate the project’s operational emissions of ROG and NO_x to less than 10 TPY and PM₁₀ emissions to less than 15 TPY, and includes opportunities for removal or retrofit of stationary, transportation, indirect, and/or mobile-source equipment. Each proposal requires SJVAPCD approval and verification of emission reduction prior to receiving final discretionary approval of the project from the City of Merced. The emissions reduction agreement shall be implemented *in addition to* the Employee Trip Reduction Program required by Mitigation Measure 4.2-2b, the set of Recommended Mitigation Measures to Reduce Operational Emissions required by Mitigation Measure 4.2-2c, and the set of Additional Operational On-Site

Emission Reduction Measures required by Mitigation Measure 4.2-d. However, any emission reductions achieved through these measures that are quantifiable and verifiable could effectively reduce the amount of additional, off-site reductions that must be obtained through the emissions reduction agreement. (Furthermore, any quantifiable and verifiable emissions of CAPs and ozone precursors that would result as an added benefit from implementation of Mitigation Measures 4.2-6b and 4.2-6d, which are designed to achieve GHG reductions as discussed under Impact 4.2-6 below, could also effectively reduce the amount of additional, off-site reductions that must be obtained through the emissions reduction agreement.) To the extent feasible, the selection of programs for reducing operational emissions of CAPs and ozone precursors established in the agreement shall give preference to off-site emission reduction projects that are located in or in close proximity to the City of Merced. If approved by SJVAPCD the Applicant may develop an emissions reduction agreement that also fulfills the compliance requirements of SJVAPCD's ISR Rule (Rule 9510) discussed in Mitigation Measure 4.2-2a. Development and implementation of the emissions reduction agreement shall be fully funded by the Applicant. The Applicant shall demonstrate to the City that it has successfully entered into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District be achieved before issuance of the first building permit by the City.

Implementation of Mitigation Measure 4.2-2a would result in at least the required minimum 33.3% reduction in NO_x emissions and a 50% reduction in PM₁₀. If these reductions are not attained by the on-site measures described above, they would occur through off-site reductions as a result of payment of fees collected by SJVAPCD. Implementation of Mitigation Measure 4.2-2b would result in emissions generated by employee commute trips. (Implementation of Mitigation Measure 4.2-2b may also have the added benefit of lessening traffic congestion and traffic noise levels on area roads.) According to the Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), the measures listed under Mitigation Measure 4.2-2b result in quantifiable reductions in mobile-source emissions associated with industrial land uses and these reductions have been substantiated by research. Implementation of these measures as well as Mitigation Measures 4.2-2c and 4.2-2d would reduce project-generated, operational emissions of ROG, and NO_x and PM₁₀. Implementation of Mitigation Measure 4.2-2e would ensure the additional emissions reduction necessary to reduce operational emissions of ROG and NO_x to levels below 10 TPY and operational emissions of PM₁₀ to levels below 15 TPY. As a result, this impact would be reduced to a ***less-than-significant*** level.

IMPACT 4.2-3 **Generation of Long-Term, Operation-Related (Local) Mobile-Source Emissions of CO.** *Based on SJVAPCD's screening criteria, project-generated long-term operational local mobile-source emissions of CO would not result in or substantially contribute to emissions concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm, respectively. As a result, this impact would be less than significant.*

CO concentration is a direct function of motor vehicle activity, particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, the SJVAPCD recommends analysis of CO emissions at a local rather than a regional level. Because of the fact that increased CO concentrations are usually associated with roadways that are congested and with heavy traffic volume, the SJVAPCD has established preliminary screening criteria to determine with fair certainty that, if not violated, project-generated long-term operational local mobile-source emissions of CO would not result in or substantially contribute to emissions concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm, respectively. SJVAPCD's preliminary screening criteria consist of the following:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity would be reduced to LOS E or F, or

- ▶ A traffic study for the project indicates that implementation would substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity (SJVAPCD 2002).

According to the traffic analysis prepared for this project, all affected signalized intersections would operate at LOS D or better under 2010 background plus project conditions and under cumulative plus project (2030) conditions during both AM and PM peak hours. The intersections of SR 140 and Baker Drive, Childs Avenue and the SR 99 southbound off-ramp, and Childs Avenue and the SR 99 northbound off-ramp are projected to be at LOS E or F during the AM and/or PM peak hours under 2010 background conditions with or without the project (DKS Associates 2008). However, these intersections are unsignalized (all-way stop controlled) and would not serve heavy traffic volumes that could generate substantial localized concentrations of CO. Also, traffic generated by the project would not result in excessive idling or substantially worsen any area street segments in any other way.

Intersections controlled by stop signs do not experience high enough traffic volumes and associated congestion to result in violations of the AAQS; therefore, CO modeling is not recommended for unsignalized intersections (Garza et al. 1997). Because the intersections controlled by stop signs would accommodate fewer vehicles than signalized intersections, it is reasonable to conclude that congestion at the intersections controlled by stop signs would not result in CO concentrations that exceed the AAQS.

Some signalized intersections ~~in the vicinity of~~ affected by the project-generated traffic area are predicted to operate at an unacceptable LOS (i.e., LOS E or F) under cumulative conditions in the year 2030 with or without the traffic that would be generated by the proposed project (DKS Associates 2008). ~~Because of stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emission factors under cumulative conditions (analysis year 2030) would be substantially lower than those under existing conditions.~~

Thus, based on the screening criteria above, project-generated long-term operational local mobile-source emissions of CO would not result in or substantially contribute to emissions concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm, respectively. As a result, this impact would be **less than significant**.

Mitigation Measure

No mitigation is required.

IMPACT 4.2-4 Exposure of Sensitive Receptors to Emissions of Toxic Air Contaminants. *Construction and operation of the proposed project would result in increased health risk levels associated with short-and long-term emissions of diesel PM and other TACs. However, the incremental increase in health risk levels, including cancer risk and noncancer chronic risk, would not exceed applicable thresholds at nearby sensitive receptors. As a result, this impact would be less than significant.*

The exposure of sensitive receptors to emissions of TACs from on-site sources during construction and operation of the proposed project are discussed separately below.

Short-term Construction-Related Emissions

Construction-related activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., demolition, excavation, grading, and clearing); paving; application of architectural coatings; and other miscellaneous activities. As shown in Table 4.2-6, off-road diesel-powered equipment operated during project construction would generate approximately 2 tons of diesel PM exhaust emissions at the project site during the one-year construction effort (i.e., off-road diesel exhaust during site preparation, actual building construction, and asphalt paving). This

amount would be lower with implementation of Mitigation Measure 4.2-1a because the NO_x and PM₁₀ reduction measures required by the ISR rule would also result in reduced emissions of diesel PM. Diesel PM was identified as a TAC by ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003). At this time, SJVAPCD has not adopted a methodology for analyzing such impacts and does not recommended the completion of HRAs for construction-related emissions of TACs, with a few exceptions (e.g., where construction phase is the only phase of project) (Reed, pers. comm., 2007).

In January 2001, EPA promulgated a Final Rule to reduce emission standards for 2007 and subsequent model year heavy-duty diesel engines. These emission standards represent a 90% reduction in NO_x, 72% reduction of nonmethane hydrocarbon emissions, and 90% reduction of PM emissions in comparison to the 2004 model year emission standards. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after treatment-based exhaust standards NO_x and PM starting in 2011 that are more than 90% lower than current levels, putting emission factors from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project (Salinas, pers. comm., 2004). Thus, because the use of off-road heavy-duty diesel equipment would be temporary in combination with the highly dispersive properties of diesel PM (Zhu and Hinds 2002) and further reductions in exhaust emissions, project-generated, construction-related emissions of TACs would not expose sensitive receptors to substantial emissions of TACs. Compliance with the ISR rule, as required by law, would also reduce diesel PM exhaust emissions. As a result, this impact would be ***less than significant***.

Long-Term Operation-Related Emissions

A HRA was performed to assess the potential health risk associated with TACs generated by the operation of the proposed project, which would occur for an indefinite length of time. This HRA was performed, according to the recommendation of the SJVAPCD, to determine the exposure (i.e., risk levels) of existing nearby sensitive-receptors (e.g., residences, worker locations, and schools) from on-site TAC emission sources. The need to conduct a site-specific HRA was also supported by the recommendations of ARB in its Air Quality and Land Use Handbook, which suggest that an HRA be performed before locating a distribution center and sensitive receptors within 1,000 feet of each other (ARB 2005).

Implementation of the proposed project would result in TAC emissions from various operation-related activities, including diesel PM from on-site travel and idling by haul trucks and yard trucks, transport refrigeration units, the diesel-powered backup generator and fire-water pump; and naphthalene and polycyclic aromatic hydrocarbons from the grill in the employee cafeteria.

For emission sources of diesel PM, air quality dispersion modeling was conducted using the EPA AERMOD model (Version 07026) with the ISC-AERMOD View interface (Version 5.6) (Lakes Environmental Software 2007) to determine the concentration levels at existing nearby sensitive receptors. Emission rates for (on-road) haul trucks, (off-road) yard trucks, transport refrigeration units, backup generator, and the fire-water pump were based on those in the SJVAPCD Modeling Guidance, equipment manufacturer specifications, or particulate

matter standards for the pertinent class of diesel-powered internal combustion engines. To evaluate potential health risk associated with operation of the cafeteria, dispersion and risk modeling were performed using the Hotspots Analysis Reporting Program (HARP) software package (Version 1.3, updated October 2006) developed by ARB for conducting health risk assessments (ARB ~~2006~~2006c). Emissions of organic gases from the on-site cafeteria were evaluated using an air toxic pollutant surrogate for the total mass estimate for organic gases, in accordance with SJVAPCD Modeling Guidance (SJVAPCD 2007~~c~~x). In addition to emission rate information, all air dispersion modeling was based on five sequential years of hourly preprocessed meteorological data provided by SJVAPCD and terrain data from the U.S. Geological Survey (U.S. Geological Survey 2006). Variable emission correction factors were incorporated into the modeling to account for proportionally higher levels of emissions activity during peak daytime hours compared to late evening hour and early morning hours when operational activity is generally lower.

The HRA evaluated increased cancer risk and chronic noncancer health hazards at specific nearby locations where people may be exposed to emissions of TACs, including residences, schools, and worker sites (A detailed map of these discrete receptor locations is shown in Figure 2 of Appendix C. Carcinogenic risks and potential chronic noncancer health effects were assessed using the dispersion modeling, as described in the preceding sections, and numerical values of toxicity provided by OEHHA (OEHHA 2003). The HRA evaluated cancer and noncancer health effects from inhalation exposure at individual sensitive receptors, including nearby residences, worker sites, and schools. Exposure levels at both existing and future planned sensitive receptors were assessed. Because the pollutants of concern do not have published toxicity factors for short-term (acute) exposure, this HRA evaluated only potential long-term health impacts.

Health risk impacts were identified at actual locations of residential and worker receptors within a 1-mile radius of the proposed project site. A summary of maximum cancer risk and noncancer health impacts values is shown in Table 4.2-8.

Of the 10 residential locations identified (as shown in Figure 2 of the HRA in Appendix C) for evaluating the maximum increase in individual health risk impacts, the incremental increase in cancer risk at the Maximum Exposed Individual Receptor (MEIR) was determined to be 7.3 in 1 million (Table 4.2-8). The HI for increased noncancer chronic risk at the MEIR was determined to be 0.0086 (Table 4.2-8). Both the MEIR for increased cancer risk and highest HI for noncancer chronic risk occurred at the same residential receptor, an existing residence located less than a mile southwest of the proposed project site.

Table 4.2-8		
Summary of Modeled Maximum Health Risk Impacts by Individual Receptor		
Individual Receptor Type	Health Risk Impact¹	
	Cancer Risk	Noncancer Risk
Residential Receptors		
Maximum Exposed Individual Receptor (MEIR)	7.3	0.0086
Worker (Occupational) Receptors		
Maximum Exposed Individual Worker (MEIW)	2.4	0.0034
School Receptors		
Maximum Exposed Individual Child (MEIC)	0.18 ^(c) , 1.3 ^(w)	0.000054 ^(c) , 0.0019 ^(w)
Threshold	10	1.0
¹ Cancer risk shown is total cancer risk, expressed in cases per million people, from diesel particulate matter, polycyclic aromatic hydrocarbons, and naphthalene. Cancer risk for residential receptor is based on a 70-year exposure. Cancer risk for worker receptors is based on an adjusted worker exposure in accordance with OEHHA (OEHHA 2003) and the SJVAPCD Modeling Guidance (SJVAPCD 2007 <u>2007c</u>). Two cancer risk impacts were estimated for the schools. The first cancer risk shown (c) is based on a 9-year student exposure using inhalation and body weight factors developed by OEHHA for children. The second (w) cancer risk is based on a 40-year worker exposure. See Appendix C for detailed input parameters and modeling results. Sources: Modeling performed by ENSR 2007		

Two worker locations were identified for evaluating the maximum increased individual health risk impacts at the Maximum Exposed Individual Worker (MEIW). As shown in Table 4.2-8, increased cancer risk at the MEIW, based on worker exposure assumptions, was determined to be 2.4 in one million. The HI for increased noncancer chronic risk at the MEIW was 0.0034. This worker receptor occurs north of the proposed project site along Childs Avenue.

Four schools were identified within 2.5 miles of the proposed project site, all of which are located to the west. For evaluating school receptors, two health risk analyses were conducted. The first was to evaluate the increase in potential health risk impacts to children that attend the schools using the 9-year exposure scenario available in the HARP model to estimate health risk for children. This exposure scenario accounts for the higher breathing rate to body mass ratio of a child compared to an adult and is appropriate for use in estimating exposure to children. The second assessment treated the schools as worker receptors, similar to the analysis performed for identification of impacts at the MEIW, to account for adult staff employed at the schools.

The levels of increased cancer risk at all receptors estimated in this health risk analysis were less than the SJVAPCD significance level of 10 in one million. In addition, operation of the project would not result in HIs for noncancer chronic risk at any receptor that would exceed SJVAPCD's recommended threshold of 1.0. In summary, based on the results of this HRA, human health risks and effects from long-term operational on-site emissions associated with the proposed project would not result in the exposure of any off-site sensitive receptors to levels that exceed applicable thresholds. As a result, this is a ***less-than-significant*** impact.

Mitigation Measure

No mitigation is required.

IMPACT 4.2-5 **Exposure of Sensitive Receptors to Emissions of Odors.** *Construction and operation of the proposed project would not result in the frequent exposure of receptors to substantial objectionable odor emissions. As a result, this impact would be ***less than significant***.*

The project site currently consists of undeveloped and fallow farmlands and orchards with no buildings or sensitive receptors on-site. The nearest off-site sensitive receptors to the project site include the new housing development located approximately 1,250 feet west of the project site (across an existing almond orchard zoned for future industrial development), a farm house located across Gerard Avenue approximately 450 feet from the southwest corner of the project site, a farm house located over 700 feet from the project site's southeast corner, and a farm house located approximately 100 feet east of the project site (across Tower Road). The exposure of sensitive receptors to odors from project construction and operation are discussed separately below.

Short-Term Construction-Related Emissions

The predominant source of power for construction equipment is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings may be considered offensive to some individuals. However, because odors would be temporary and would disperse rapidly with distance from the source, construction-generated odors would not result in the frequent exposure of off-site receptors to objectionable odor emissions.

Long-Term Operation-Related Emissions

The primary odor source from project operations would be diesel exhaust from on-site travel and idling of haul trucks and yard trucks. With the exception of trucks checking in at the truck entrance on the west side of the project site, most truck activity would occur near the center of the project site. The truck gate area would be located approximately 100 feet from the project site's west boundary and the closest off-site receptor would be the new housing development located across the almond orchard at a distance of approximately 1,350 feet. Because this is a substantial distance with respect to the rapid dispersion rate of diesel exhaust and because an ARB air

toxic control measure limits truck idling to 5 minutes (13 CCR Chapter 10 Section 2485), on-site diesel emissions are not expected to generate odor complaints at off-site receptors.

Odor may also be generated by the charcoal grill in the employee cafeteria. During a 2-day site visit to the Wal-Mart distribution center in Apple Valley, CA odors from the charcoal grill were not observed from any location on the site, including indoor and outdoor areas near the employee cafeteria. In addition, because the employee cafeteria is located near the center of the project site in the warehouse building any noticeable odors would likely disperse to an unnoticeable level before reaching the site boundary.

Both project construction and project operations are not expected to result in the frequent exposure of off-site receptors to substantial objectionable odor emissions. As a result, this impact would be considered ***less than significant***.

Mitigation Measure

No mitigation is required.

IMPACT 4.2-6 **Generation of Emissions of Greenhouse Gases.** *Construction- and operation-related activities of the proposed project would result in a considerable net increase in emissions of CO₂ and other greenhouse gases. These levels would constitute a considerable net increase in GHG emissions. In addition, this increase would conflict with the state's AB 32 goals, which require reductions in statewide emissions levels of GHGs. As a result, this impact would be considered **significant**.*

Construction- and operation-related emissions of CO₂ associated with implementation of the proposed project were estimated using URBEMIS 2007 Version 9.2.2 computer program (ARB ~~2007x2007g~~), which is designed to model construction and operational emissions for land use development projects. Construction emissions were estimated based on default parameters of the URBEMIS 2007 model and SJVAPCD-recommended parameters for composition of the construction equipment fleet, ground disturbance acreage, worker trips, and material haul trips (SJVAPCD ~~2007x2007a~~). The URBEMIS 2007 model does not account for CO₂ emissions associated with the production of concrete or other building materials used in project construction. Operation-related emissions were estimated based on the proposed land uses type and size, vehicle trip information from the traffic analysis prepared for this project (DKS Associates 2008), Section 4.11 "Traffic and Transportation," truck trip information from an existing Wal-Mart distribution centers in California (McAlexander, pers. comm., 2007), electricity and natural gas consumption from the Wal-Mart distribution center in Porterville, CA (Gordon, pers. comm., 2007), and SJVAPCD's recommended standard changes to URBEMIS Default Values (SJVAPCD ~~2007x2007b~~). In addition, emissions from on-site activity by on-road haul trucks and off-road yard trucks were estimated separately using assumptions about on-site travel distances and idling times, and indirect-source GHG emissions were estimated using the California Climate Action Registry Protocol, Version 2.2 (CCAR 2007) and electricity consumption data for the existing Wal-Mart distribution center in Porterville, CA (Gordon, pers. comm., 2007). Modeled construction and operational emissions of CO₂ are summarized in Tables 4.2-9 and 4.2-10, respectively.

Table 4.2-9 Summary of Modeled Project-Generated Construction-Related Emissions of Carbon Dioxide	
Source	Carbon Dioxide Emissions (Tons/Year) ¹
Grading	
Fugitive Dust	0.0
Off-Road Diesel Exhaust	984.9
On-Road Diesel Exhaust	0.0
Worker Trips	30.6
Subtotal Unmitigated	1,015.4
Asphalt	
Off-Gas Emissions	0.00
Off-Road Diesel Exhaust	21.8
On-Road Diesel Exhaust	41.8
Worker Trips	1.6
Subtotal Unmitigated	65.2
Building Construction	
Off-Road Diesel Exhaust	1,329.8
Vendor Trips	1,722.09
Worker Trips	1,079.0
Subtotal Unmitigated	4,130.8
Architectural Coatings	
Off-Gas Emissions	0.0
Worker Trips	15.3
Subtotal Unmitigated	15.3
Total	5,226.7
Notes: See Appendix C for detailed input parameters and modeling results. ¹ Emissions generated by construction were estimated using URBEMIS 2007 Version 9.2.2 (ARB 2007 <u>2007g</u>) and SJVAPCD-recommended input parameters (SJVAPCD 2007 <u>2007a</u>). The URBEMIS 2007 model does not account for CO ₂ emissions associated with the production of concrete or other building materials used in project construction. Source: Modeling performed by EDAW 2007	

Table 4.2-10 Summary of Modeled Project-Generated Operation-Related Emissions of Carbon Dioxide	
Source	Carbon Dioxide Emissions (Tons/Year) ¹
Area Source²	
Natural Gas ³	344.2
Landscaping	0.0
Architectural Coatings	0.3
Mobile Source	
Employee Commute Trips	2,619.1
Outbound Delivery Truck Trips⁴	
Proposed Project ⁵	24,170.7
Existing ⁶	21,108.4
Net ⁷	3,062.3
Inbound Receivable Truck Trips⁴	
Proposed Project ⁸	37,995.2
Existing ⁸	37,995.2
Net ⁷	0.0
On-Site Truck Activity	
Haul Truck Idling ⁹	311.3
Haul Truck Travel ⁹	296.6
Yard Truck Idling ¹⁰	578.1
Yard Truck Travel ¹⁰	132.9
Indirect Sources	
Electricity Consumption ¹¹	5,363.7
Total Unmitigated¹²	12,708.4
¹ Emissions were modeled using the URBEMIS 2007 Version 9.2.2 computer model, based on trip generation rates obtained from the traffic analysis, and implementing SJVAPCD's Recommended Standard Changes to URBEMIS Default Values (SJVAPCD 2007x2007b). ² Emissions from the periodic testing of the back-up generator and fire-water pump are not included because the amount of operation from periodic testing and maintenance would be nominal at an estimated 52 hours per year. ³ Emissions from natural gas usage were calculated using recent natural gas usage rates at the Porterville distribution center, as provided by Wal-Mart staff (Gordon, pers. comm., 2007). ⁴ According to the traffic analysis, a total of 644 truck trips would be generated by the proposed Merced Distribution Center. It is assumed that half of these truck trips would be associated with truck deliveries from the distribution center to retail stores (322 <i>outbound</i> delivery truck trips) and that the other half of trips would be associated with deliveries of goods to the distribution center (322 <i>inbound</i> receivable truck trips). The emission estimates for outbound and inbound truck trips do not account for Wal-Mart's participation in EPA's SmartWay Transport Partnership, which aims to increase energy efficiency and reduce emissions from ground freight carriers (EPA 2007). ⁵ It is assumed that the average trip distance for all 322 outbound delivery truck trips would be equal to the average trip distance (in and beyond the San Joaquin Valley Air Basin) from the proposed distribution center to the 49 existing Wal-Mart stores that would be served by the Merced Distribution Center, which is 109.1 miles per trip, as provided by Wal-Mart (McAlexander, pers. comm., 2007). ⁶ The trip generation rate and average trip distance (171.5 miles in and beyond the San Joaquin Valley Air Basin) for existing outbound delivery trucks are based on existing conditions data provided by Wal-Mart for the 49 existing stores that would be supplied by the Merced Distribution Center (McAlexander, pers. comm., 2007). ⁷ Net emissions are equal to emissions generated by the proposed project minus existing emissions. ⁸ It is assumed that the average trip distance for all inbound receivable truck trips (in and beyond the San Joaquin Valley Air Basin), with and without the proposed project, would be equal to the average existing trip distance of 171.5 miles between the 49 existing Wal-Mart stores that would be served by the Merced Distribution Center and their existing distribution center in Red Bluff or Porterville. ⁹ Emissions generated by on-site travel and idling by haul trucks were estimated separately using default emission factors derived from the EMFAC2007 Version 2.3 model (ARB 2006x2006b). ¹⁰ Emissions generated by on-site travel and idling by off-road yard trucks were estimated using emission factors derived from URBEMIS 2007 Version 9.2.2 (ARB 2007x2007g). ¹¹ Carbon dioxide (CO ₂) emissions associated with electricity consumption were estimated according to methodologies of the <i>California Climate Action Registry General Reporting Protocol, Version 2.2</i> (CCAR 2007). According to the Protocol an additional 1.03 CO ₂ -equivalent/year of CH ₄ and 7.65 CO ₂ -equivalent/year of N ₂ O would be generated by electricity consumption. ¹² The SJVAPCD has not identified mass emissions thresholds for CO ₂ emissions. This estimate total does not account for the depletion of carbon sequestration associated with the removal of the existing on-site almond orchard. See Appendix C for detailed input parameters, calculations, and modeling results. Source: Modeling performed by EDAW 2007	

As shown in Table 4.2-8, construction of the project would generate approximately 5,226.7 tons of CO₂ during the 12-month construction period. Though the construction period is projected to last for one year, the CO₂ emissions generated during that year-long period would persist in the atmosphere for much longer periods of time, on the order of tens to hundreds of years. As shown in Table 4.2-9, operation of the project would generate annual emissions of approximately 12,595 tons of CO₂ during each year of the life of the project. There are no adopted numeric thresholds above or below which a significant increase in greenhouse gas emissions would occur. Absent this type of guidance, and given the cumulative nature of contribution of these emissions to global climate change, these levels would constitute a considerable net increase in GHG emissions. In addition, this increase could conflict with the state's AB 32 goals, which require reductions in statewide GHG emission levels. As a result, this impact would be *significant*.

Mitigation Measure 4.2-6a: Implement Mitigation Measures 4.2-1a and 4.2-1b.

The applicant shall implement Mitigation Measures 4.2-1a and 4.2-1b, which will have the added benefit of reducing construction-related emissions of CO₂.

Mitigation Measure 4.2-6b: Ensure On-Site Yard Trucks are Maintained and Meet On-Road Truck Emissions Standards.

The applicant shall ensure that all on-site "yard trucks" have ARB-approved on-road truck engines that meet on-road truck emissions standards and are maintained in proper working condition according to manufacturer specifications. The applicant shall provide an inventory list of all on-site yard trucks to SJVAPCD prior to operating the facility and the applicant shall grant SJVAPCD permission to verify the inventory at the project site if desired by SJVAPCD.

Mitigation Measure 4.2-6c: Implement Mitigation Measures 4.2-2a, 4.2-2b, 4.2-2c, and 4.2-2d.

The applicant shall implement Mitigation Measures 4.2-2a, 4.2-2b, 4.2-2c, and 4.2-2d, which will have the added benefit of reducing project-generated, operation-related emissions of CO₂.

Mitigation Measure 4.2-6d: Implement Effective Mitigation Measures.

The following measures, as well as any other effective mitigation measures, shall be implemented by the project applicant to further reduce operation-related emissions of CO₂.

- ▶ Install solar panels or other types of alternative energy sources (e.g., wind turbines) in all available areas of the project site, including the roof of the warehouse building, the buffer areas surrounding the paved truck yards and employee parking lot, and covered parking areas, walkways and outdoor areas, to supply electricity for on-site use. This measure would be consistent with the Merced Vision 2015 General Plan Policy SD-3.1, which is to promote the use of solar energy technology (City of Merced 1995). Wal-Mart shall submit a plan to achieve this measure prior to the first day of project operations and this measure shall be achieved within one year after the first day of project operations.
- ▶ ~~Determine which local electricity provider, Pacific Gas and Electric Company or Merced Irrigation District, produces electricity with the lowest CO₂-equivalent output emission rate (lb/MWh) and select this provider to meet remaining electricity demand of on-site operations.~~
- ▶ If the applicant purchases electricity and/or natural gas from PG&E for operation of the proposed project then it shall participate in PG&E's ClimateSmart® program for the purchase of any and all electricity and natural gas consumed on-site by the proposed facility. Participation in PG&E's ClimateSmart® program shall commence prior to receiving its first monthly energy bill from PG&E. Participation in the ClimateSmart® program shall continue for as long as the program, or similar program offered by PG&E, is in existence.

- ▶ Retain the portion of the existing almond orchard located between the proposed truck gate and future Campus Parkway. For all almond trees that are subject to removal, participate in an urban and community forestry program (such as the UrbanWood program managed by the Urban Forest Ecosystems Institute [Urban Forest Ecosystems Institute 2007]) in which tree wood is harvested for an end-use that would retain its carbon sequestration (e.g., furniture building, cabinet making). For all nonharvestable almond trees that are subject to removal, develop an off-site tree program that includes a level of tree planting that, at a minimum, increases carbon sequestration by an amount equivalent to what would have been sequestered by the almond orchard during its lifetime. This program shall be funded by the applicant and reviewed for comment by an independent Certified Arborist unaffiliated with the Applicant. Final approval of the program shall be provided by the City prior to tree removal. Components of the program may include, but not be limited to, providing urban tree canopy in the City of Merced, or reforestation in suitable areas outside the City. Upon its completion, the California Urban Forestry Greenhouse Gas Reporting Protocol shall be used to assess this mitigation program. At the time of writing this document, the Center for Urban Forest Research expects to complete the California Urban Forestry Greenhouse Gas Reporting Protocol with the California Climate Action Registry sometime in 2008 (Center for Urban Forest Research 2007). All unused vegetation and tree material shall be shipped to the nearest composting facility, or landfill that is equipped with a methane collection system, or biomass power plant. Tree and vegetative material should not be burned on or off-site unless used as fuel in a biomass power plant.
- ▶ The applicant shall inventory all emissions of GHGs associated with operation of the project according to the most recently established methodologies of the CCAR, the Climate Registry, or ARB. The inventory shall be verified by a verifier who is accredited by the applicable registry within one year of opening the facility and the inventory and verification shall be shared with the City of Merced. This inventory shall include mobile-source GHG emissions associated with trips by Wal-mart trucks traveling to and from the distribution center, and on-site vehicles that are part of Wal-mart's vehicle fleet. At the time of writing this report the most recently established methodology is the California Climate Action Registry's General Reporting Protocol, Version 2.2 (CCAR 2007).

Implementation of the Mitigation Measures 4.2-6a through 4.2-6d above would result in reductions of emissions of CO₂ and offsets; however, at the time of writing this EIR these reductions cannot be fully quantified. In addition, implementation of Mitigation Measure 4.2-1c and Mitigation Measure 4.2-2e, which require the Applicant to implement an emissions reduction agreement with SJVAPCD to reduce construction and operational emissions of ROG and NO_x to less than the SJVAPCD-established threshold for ROG and NO_x 10 TYP, will have the added benefit of reducing construction and operational GHG emissions. However, the size of the associated GHG reduction cannot be quantified at the time of writing this EIR and, more significantly, there is not established methodology for verifying the associated GHG reductions from emission reduction agreements. Moreover, the net increase in GHG emissions would ~~may~~ still be of an amount that would be considered substantial. Because the project would potentially still result in a net increase in CO₂ emission levels and conflict with the state's AB 32 goals, this impact would be remain ***significant and unavoidable***.

This page intentionally blank.