APPENDIX A

Notice of Preparation and Comments Received on the NOP

NOTICE OF PREPARATION

To: State Clearinghouse
State Responsible Agencies
Other Public Agencies
Interested Organizations
General Public

From: City of Merced
Planning and Permitting Division
678 W. 18th Street
Merced, CA 95340

Subject: **Notice of Preparation of a Draft Environmental Impact Report**

Project Title: **Merced Wal-Mart Regional Distribution Center**

Project Applicant: **Wal-Mart Corporation**

The City of Merced will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. An Initial Study has not been prepared. Instead, the attached document, entitled Project Information, has been prepared in order to provide important information about the project and its probable environmental impacts.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice, no later than Friday, August 11, 2006.

Please send your response by U.S. Mail, FAX, or e-mail to Kim Espinosa, Planning Manager at the address shown below. We will need the name for a contact person in your agency.

Kim Espinosa, Planning Manager
City of Merced Planning and Permitting
678 West 18th Street
Merced, CA 95340
Tele: (209) 385-6858
FAX: (209) 725-8775
E-mail: espinosak@cityofmerced.org

Two environmental scoping meetings, one for the general public and one for public agencies, will be conducted on Thursday, July 27, 2006. The agency meeting will begin at 2:30 p.m. and the general public meting will begin at 6:00 p.m. Both meetings will be conducted in the City Council Chambers of the Merced Civic Center, 678 West 18th Street, Merced.

Date: July 7, 2006 Signature: Kim Espinosa by R Clayton

Title: Planning Manager

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

3 PROJECT INFORMATION

3.1 PROJECT OVERVIEW

The proposed project, a Wal-Mart regional distribution center, consists of a warehouse and distribution center and support facilities, located on 230 acres in the city of Merced. The support facilities include offices, a cafeteria, a fire pump house, and aerosol storage (all located within the warehouse building), as well as a truck gate, a truck maintenance garage, a truck fueling station, and parking. The underlying purpose of the project is storage and distribution of non-grocery goods to Wal-Mart retail stores located throughout the region. There are no outdoor recreational facilities, open space, retail commercial, or residential uses proposed as part of the project.

3.2 REGIONAL LOCATION

The project site is located at the southeast end of the city of Merced in eastern Merced County in the San Joaquin Valley. Merced is approximately 118 miles south of Sacramento and 130 miles east of San Francisco.

3.3 PROJECT LOCATION AND SITE DESCRIPTION

The approximately 230-acre project site is bounded on the north by Childs Avenue, on the East by Tower Road and on the South by Gerard Avenue. Kibby Road, which heads north from this area, terminates at Childs Avenue at the north end of the project site. The future Campus Parkway is approximately 975 feet west of the project site. The site is approximately three miles southeast of downtown Merced and two miles east of State Route 99 (SR 99). Campus Parkway, which is planned to commence construction in March 2007 and be complete by November 2007, would provide access between the site and SR 99 via the new Mission Avenue interchange with SR 99; the interchange is currently under construction and planned to be operational by September 2007. The proposed site plan is illustrated in Exhibit 3-1. The project location is illustrated in Exhibit 3-2. The vicinity of the project is shown in a map in Exhibit 3-3 and in an aerial photo in Exhibit 3-4.

The City of Merced General Plan designates the site for “Manufacturing Industrial” uses and the zoning map designates the site as part of a “Heavy Industrial District”. City and County General Plan land use designations are shown in Exhibit 3-5, and City zoning districts are shown in Figure 3-6.

The site consists of two parcels, Assessor’s Parcel Numbers (APNs) 061-250-035 and 061-290-047. The site is located in the northern half of Section 34 and the northern half of Section 35, Township 7 South, Range 14 East, Mt. Diablo Base and Meridian.

The land is generally flat but gently slopes to the west and ranges from 185 to 190 feet above mean sea level (msl). The site contains no structures or improvements, except for an irrigation water well. The western one-third

of the site contains a walnut orchard, and the eastern two-thirds consist of agricultural fields. The northern, southern, and part of the northeastern boundary of the fields contain irrigation ditches, which connect to the Wilson Substation (approximately one mile north of the site) along State Route 140 (SR 140). Overhead power lines run through the eastern portion of the site. The area containing these power lines will remain as an easement, and all site development will take place on the approximately 80 percent of the project site located west of this easement. Relocation of the power lines is not proposed as part of this project. The site includes right-of-way for the extension of Kibby Road between Childs Avenue and Gerard Avenue. This section of right-of-way is proposed to be abandoned to allow project uses as part of site development.

The project parcel is bounded by agricultural fields and a few rural residential dwellings across Tower Road to the east and Gerard Avenue to the south. The land east of Tower Road is designated as "Agriculture" in the Merced General Plan, and land to the north, west and south is designated as "Manufacturing Industrial". Undeveloped open lands and commercial lands are located to the north. To the west is another orchard. Also to the west is a Merced Irrigation District (MID) canal.

3.4 REQUIRED APPROVALS

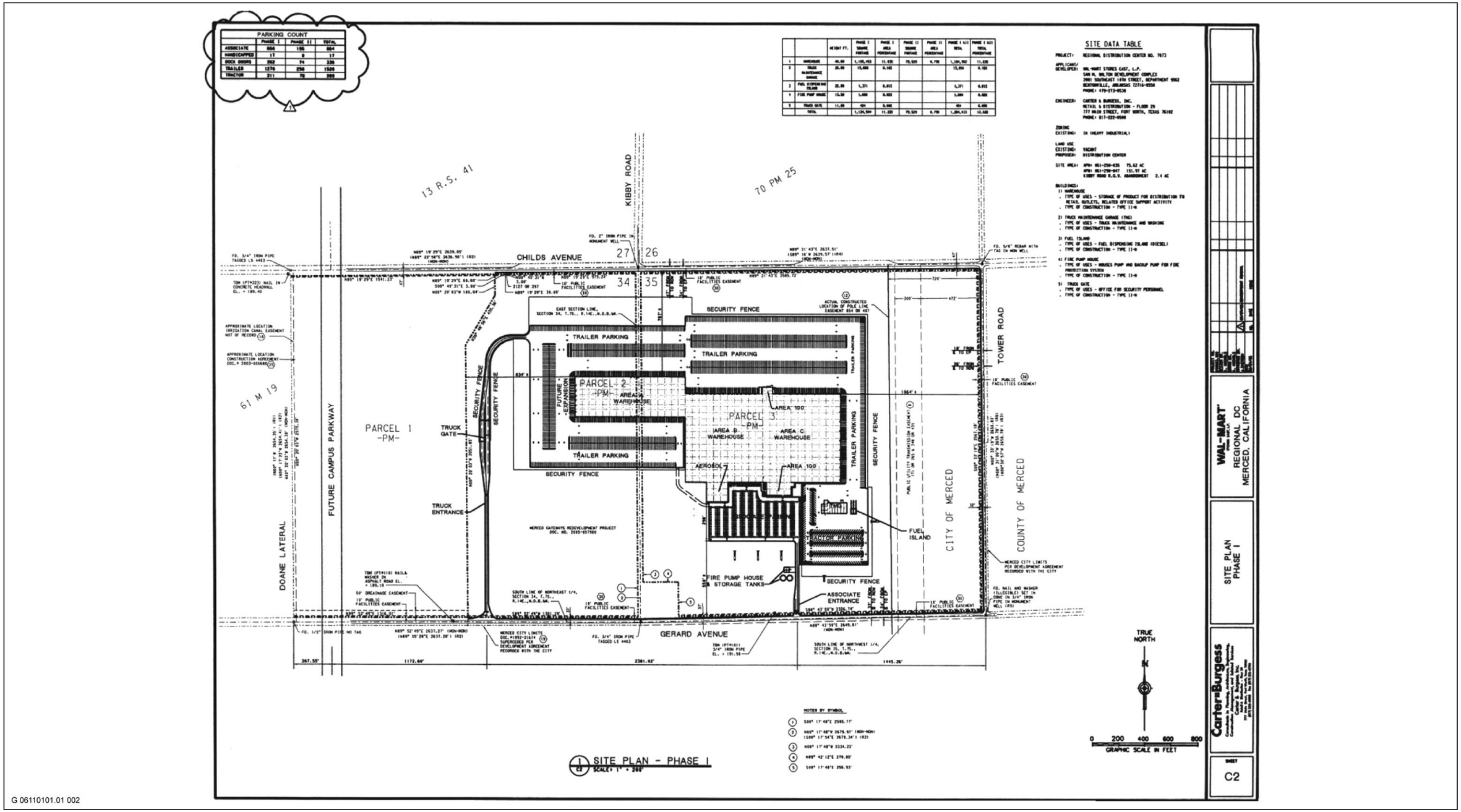
Required approvals by the City of Merced include Site Plan Approval and a General Plan Amendment (GPA). Zoning districts are shown in Exhibit 3-6. The discretionary permits required for this proposed project consist of the following:

- General Plan Amendment (For Kibby Road abandonment only)
- Site Plan Approval
- Street Abandonment (Kibby Road)

3.5 PROJECT BACKGROUND

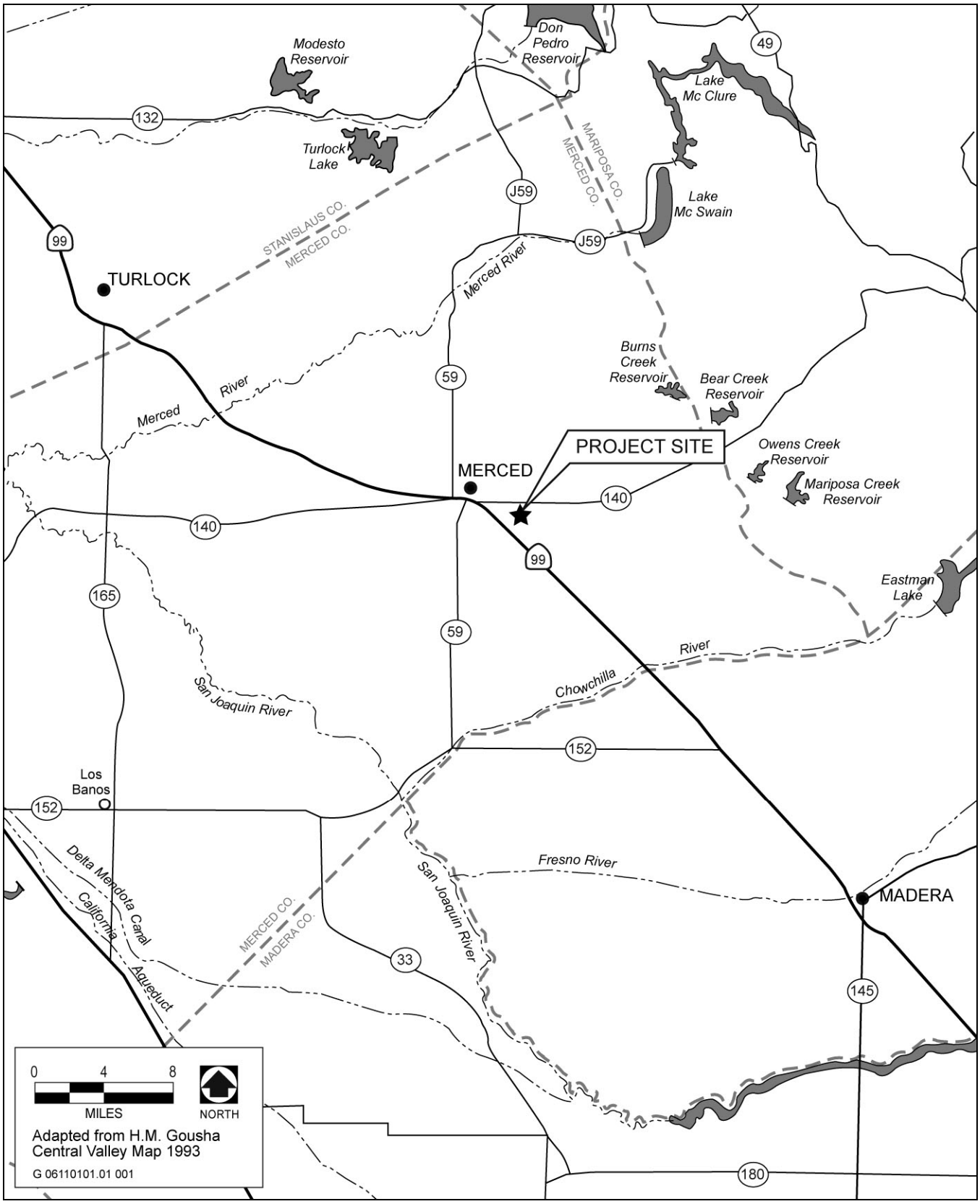
The project site is within the city limits of Merced. Land immediately to the south, north, and west of the site is also within the city limits of Merced. Land immediately to the east is in unincorporated Merced County, but is within the City's sphere of influence. As described above, the project site is designated "Manufacturing Industrial" in the Merced General Plan and "Heavy Industrial District" (I-H) in the zoning ordinance. The site has historically been used for agriculture.

Wal-Mart Corporation supplies the majority of its goods to its retail stores through regional distribution centers. A number of Wal-Mart stores are located throughout the central San Joaquin Valley. Presently, the closest distribution centers are located in Red Bluff and Apple Valley, both of which are in California and located 250 miles and 306 miles, respectively, from Merced. This results in high transportation costs, including fuel consumption.

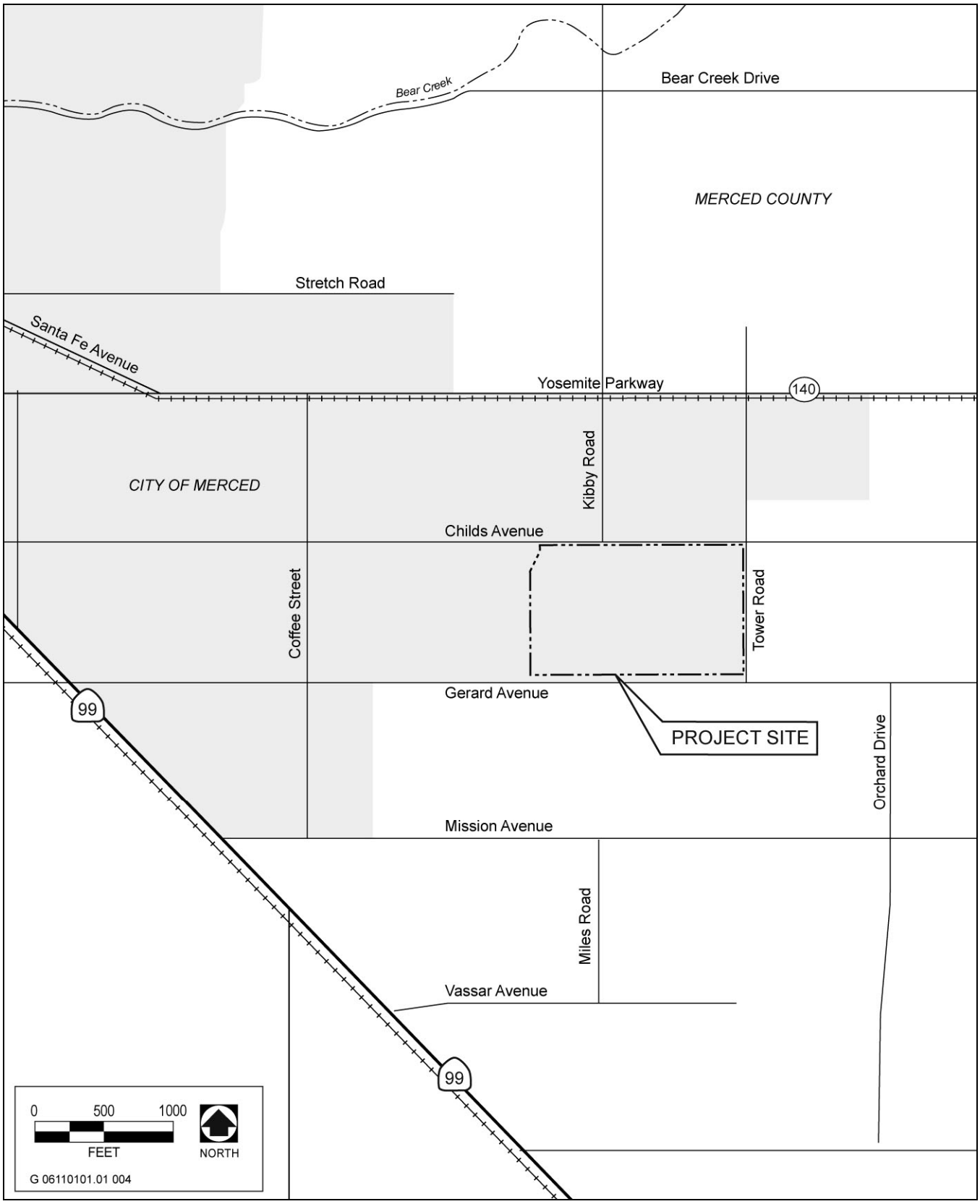


G 06110101.01 002

Proposed Project Site Plan **Exhibit 3-1**



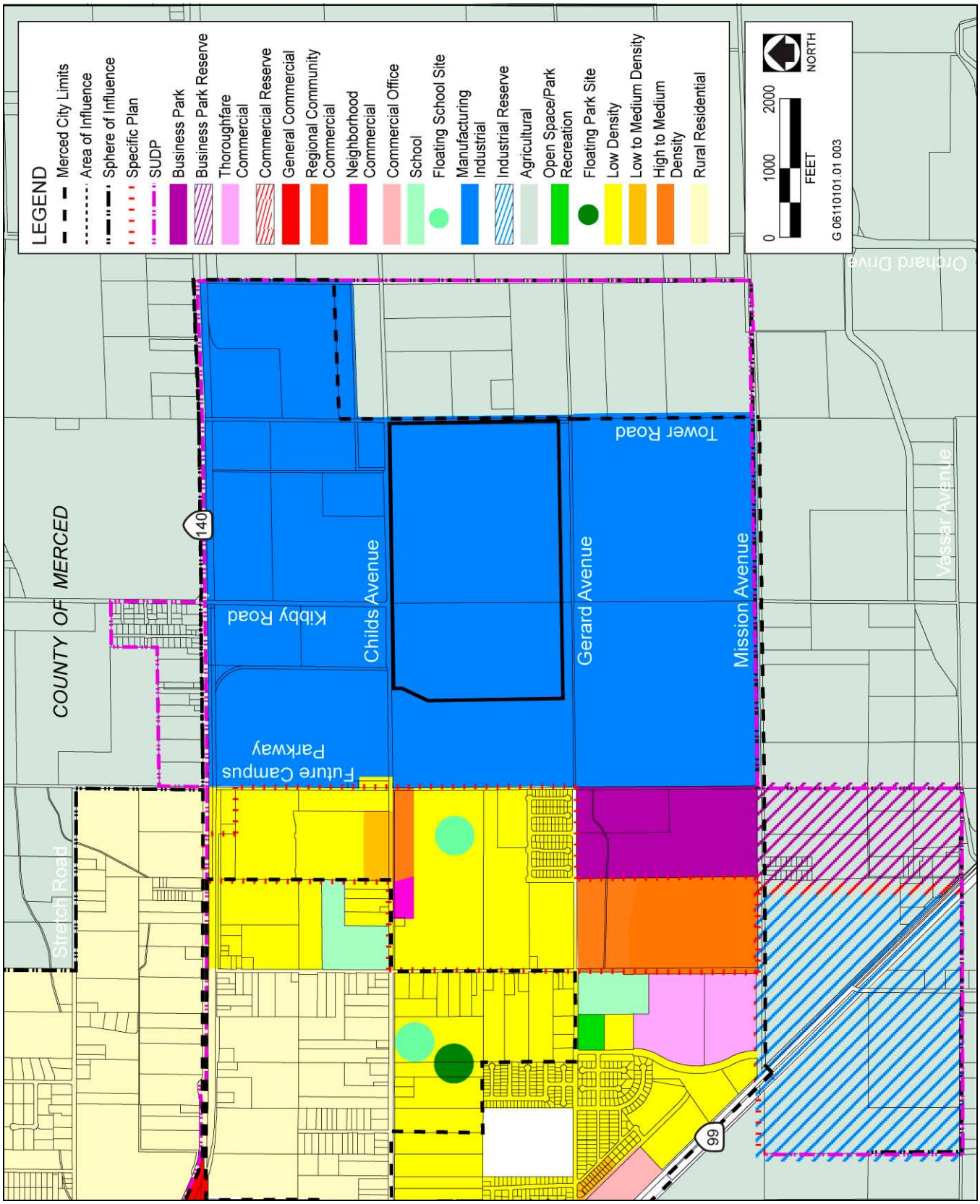
Regional Location Map **Exhibit 3-2**



Local Vicinity Map **Exhibit 3-3**

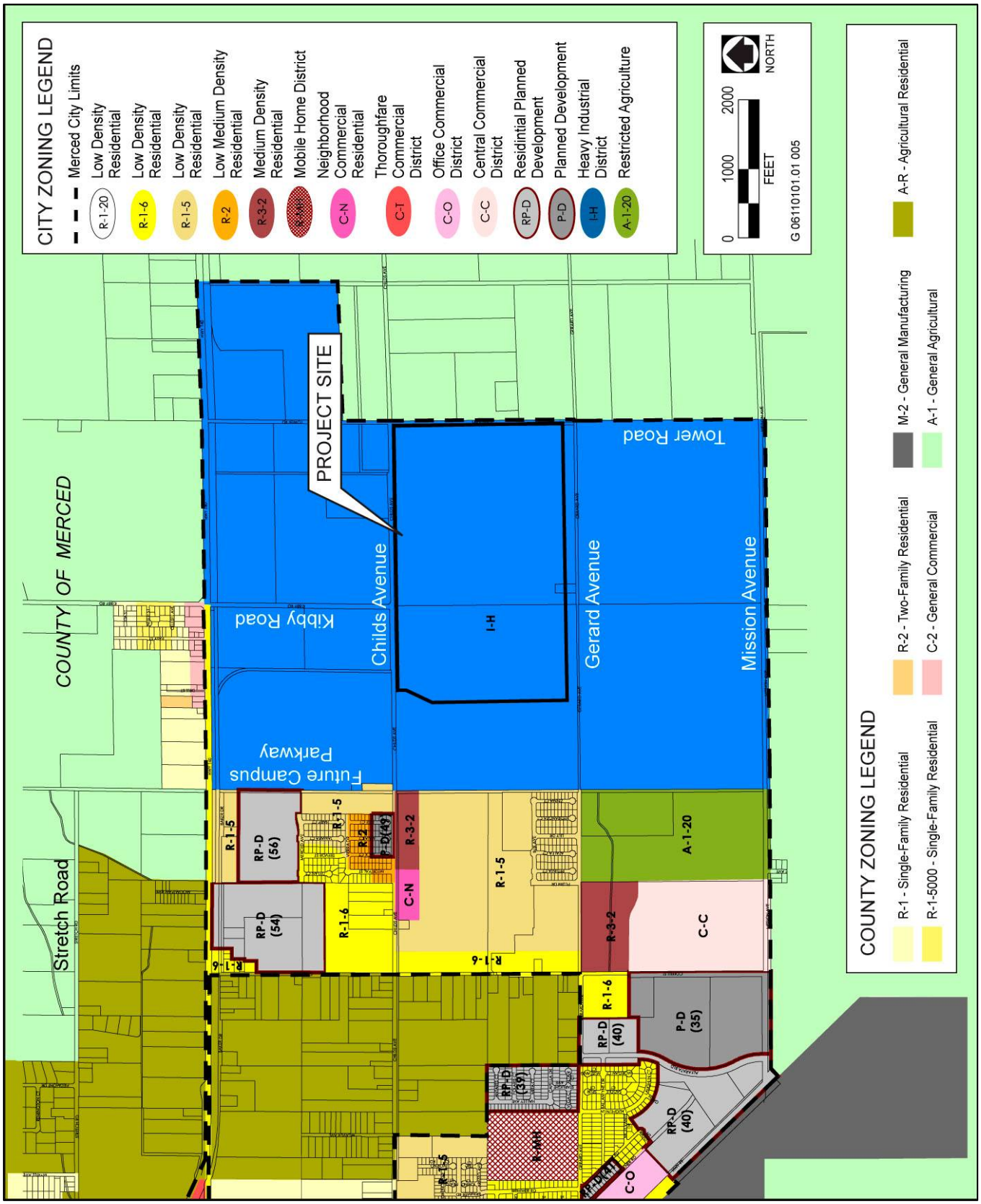
Aerial Photo of Project Vicinity

Exhibit 3-4



Source: Merced County Association of Governments 2004

General Plan Designations **Exhibit 3-5**



Source: Merced Data Special Services, Inc. 2003

Zoning Designations **Exhibit 3-6**

The project applicants conducted an extensive siting study that resulted in selection of the site for the proposed project. This site was selected for multiple reasons, including the following: The site's industrial zoning and proximity to other industrial uses; Merced's strategic location among the Central Valley's large urban centers and smaller urban and rural markets; the site's sufficient size to convey the needed building and parking space; the site's proximity to SR 99; the site's access via sufficient local roads to SR 99; the site's location allowing access to SR 99 and other highways without drivers having to drive semi-trucks through residential neighborhoods; the ability to construct sufficient access points on arterial roads adjacent to the site; and the location's proximity to the labor pool of Merced.

This EIR will "tier off" of the Merced General Plan EIR, which was adopted in 1997. The 1997 update of the Merced General Plan was the update at which the General Plan designation of Manufacturing Industrial was designated for the eastern portion (east of the Kibby Road right-of-way). The western portion (west of Kibby Road right-of-way) was designated for Industrial use at least as far back as the 1981 City General Plan.

The site is owned by Wal-Mart. The most recent owner of the site before the Wal-Mart Corporation was Lyons Investments, a California Limited Partnership.

3.6 PROJECT OBJECTIVES

The objectives of the proposed project include the following from the City of Merced and from the applicant:

3.6.1 CITY OBJECTIVES

- To develop the industrially zoned area in the City with permitted industrial uses.
- To locate industrial projects in areas with good access to major highway transportation links, and provide opportunities for buffers between industrial and non-industrially-related uses.
- To encourage development of industrial projects that will create jobs, including full-time, non-seasonal employment opportunities for local residents.
- To encourage development of projects that will contribute towards improving roadways adjacent to the proposed development site.
- To ensure that industrial areas are developed in an attractive manner.

3.6.2 APPLICANT OBJECTIVES

- To develop a project consistent with the City's General Plan and Zoning Ordinance.
- To develop a distribution/warehouse facility near other industrial uses.
- 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.
- 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.
- 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.
- To locate a distribution/warehouse facility with access to a regional roadway network including interstate, state and regional roads.
- To locate a distribution/warehouse facility in an area well served by major local thoroughfares in order to minimize truck traffic traveling through residential neighborhoods.
- To develop a site plan with access points on main thoroughfares in order to minimize traffic impacts on residential streets.
- To provide sufficient parking for trucks and employees in order to minimize impacts to the surrounding area.
- To take advantage of an existing labor pool living in the Merced area.

The alternatives analysis in Section 4.0 of this EIR uses the project objectives as its starting point. As required by CEQA, this EIR is required to analyze only those alternatives that can feasibly attain most of the project objectives.

3.7 PROJECT ELEMENTS

3.7.1 BUILDINGS AND OPERATIONS

The primary building on the site is the approximately 1.1 million square foot regional distribution warehouse. The warehouse is primarily a materials handling operation. The facility would not handle groceries, such as fruit, vegetables, dairy products, bakery goods, and meat. There would also be warehouse support space to house

administrative offices, the data processing center, and a cafeteria. Other internal office/support areas for administrative uses include an electric forklift battery charging/maintenance area and an aerosol product storage area. There would be approximately 37,000 square feet of office/support areas within the warehouse. An emergency generator would be located outside, near the warehouse. The generator would have an approximately 500-gallon aboveground diesel fuel tank.

The proposed site plan (Exhibit 3-1) includes the warehouse with related administrative and support functions, truck maintenance, fueling, fire pump house, truck gate and aerosol storage (located within the warehouse). All buildings would be single-story and constructed of pre-engineered steel components with metal panels. Maximum building height is proposed to be 40 feet above the finished floor level. On three sides of the building the finished floor would be four feet above finished grade. The main office floor would be at finished grade level.

The 17,000-square foot truck maintenance building would be used for routine maintenance of tractor/trailers serving the facility. The building would include a wash bay for trucks and trailers, service bays, break rooms, offices, storage rooms and restrooms. The truck maintenance equipment includes underground storage tanks near the building as follows: new oil storage tank (6,000 gallon capacity) and waste oil storage tank (2,500-gallon capacity). Additionally, a fuel dispensing station with two 20,000-gallon diesel fuel underground storage tanks is proposed for trucks using the distribution center.

The 1,600-square foot fire pump house will house the primary and stand-by fire pumps serving the building fire sprinkler systems and site fire hydrants. The primary fire pump is electric motor-driven and the stand-by pump is diesel engine-driven. There will be an aboveground diesel fuel storage tank located inside the fire pump house for the stand-by pump with a capacity of approximately 500 gallons. Adjacent to the fire pump house will be two 300,000-gallon steel aboveground water storage tanks. The tanks would be directly connected to the fire pumps to serve as their water source.

The truck gate would be located on the truck driveway serving the site and would contain workspace for two security officers as well as a storage closet and a restroom. This would involve approximately 500 square feet of building floor space.

3.7.2 LANDSCAPING AND LIGHTING

Site lighting would consist of pole-mounted metal halide lamps located approximately 45 feet above the ground surface. The lighting is designed so that light does not cross the property boundaries except possibly at roadway intersections. The lighting is designed for an average lighting level of 0.5 foot candles and has not been designed based on a uniformity ratio. To design based on a uniformity ratio would require more lamps than would be provided for the site. Landscaping would be provided for the public road improvements, as required by local

ordinance. Onsite landscaping would be minimal, and is not planned to be provided within any of the proposed parking areas. There would be security fencing surrounding the buildings, parking areas, and driveways.

3.7.3 ROADWAYS AND PARKING

The site would be served via two driveways connected to Gerard Avenue. One driveway is dedicated to employee traffic and the other driveway is dedicated to tractor/trailer traffic. The tractor/trailer driveway and parking area would be secured by the truck gate and by a 6-foot high chain link fence with 3 strands of barbwire. The site would have approximately 650 (initial) and 850 (ultimate) employee parking spaces, 1300 (initial) and 1600 (ultimate) tractor/trailer parking spaces, 200 (initial) and 300 (ultimate) tractor/trailer parking spaces, and 300 dock doors. There would be approximately 70 acres of pavement, in addition to the area covered by buildings.

3.7.4 PUBLIC UTILITIES AND SERVICES

The City of Merced provides wastewater, water, storm drainage, solid waste disposal, street maintenance, fire service, and police service to the project site. Either Pacific Gas and Electric (PG&E) or Merced Irrigation District (MID) can provide electricity to the site. PG&E would provide natural gas service. AT&T (formerly SBC) would provide telephone service to the site, and Comcast would provide cable television service. The project site is within the Weaver Union Elementary School District (Grades K-8) and the Merced Union High School District (Grades 9-12), although because it includes no residential uses, neither of these districts would directly serve the proposed project.

The site would be served by a series of storm water management detention ponds. These ponds and associated drainage control structures are designed to accommodate impervious area storm water runoff such that system discharge flow rates would be equal to or less than pre-development flow rates for equivalent events.

3.7.5 EMPLOYMENT

The facility would become fully operational approximately three years after opening. Once fully operational, the facility would employ approximately 1200 employees. The facility would operate 24 hours per day continuously throughout the year.

Based on the proportions of employees in different positions and shifts at an analogous Wal-Mart Distribution Center in Apple Valley in San Bernardino County, the following estimates were made based on the assumption that the project would employee approximately 1200 employees. Table 3-1 shows the number of employees total by department and title. Table 3-2 shows the number of employees on each shift.

Table 3-1 Employees by Title and Division	
Title/Division	Number of Employees
Drivers in Transportation	150
Associates in Transportation	64
Associates in Other Departments	986
Total Employees	1200

Table 3-2 Number of Employees by Shift	
Shift	Number of Employees
Tuesday-Friday 5:30 AM-4:00 PM	359
Tuesday-Friday 4:00 PM-2:30 AM	255
Tuesday-Friday 9:00 PM-7:30 AM	19
Saturday-Monday 5:30 AM-4:00 PM, plus another designated six-hour day	282
Saturday-Monday 4:00 PM-2:30 AM, plus another designated six-hour day	272
Saturday-Monday 9:00 AM-2:30 AM, plus another designated six-hour day	13
Total Employees	1200

3.7.6 CONSTRUCTION SCHEDULE

Construction is proposed to start in Spring 2007 and is planned to take 12 months for completion.

3.8 PROBABLE ENVIRONMENTAL EFFECTS

3.8.1 VISUAL RESOURCES AND NIGHTTIME LIGHTING

The largely undeveloped project site is readily visible from adjoining roadways, including Childs, Tower, and Gerard roads. It would also be visible from the proposed Campus Parkway. Development would result in a significant change in the appearance of the site, from views of orchards and agricultural fields to views of warehouse buildings, parking lots, and vehicles. Due to the development of buildings on the site, some vantage points through the site with its existing open fields may no longer provide views through the site. According to the conceptual plans, the maximum building height would be 40 feet above the finished floor level. On three sides of the building the finished floor would be four feet above finished grade. The main office floor would be at finished grade level. The large expanses of wall area would result in building elevations that are readily visible from beyond the site. In addition, building-mounted and pole-mounted lights are proposed to accommodate the 24-hour per day operating schedule.

The EIR will evaluate the extent of visibility of the proposed project from surrounding, sensitive, public viewpoints. Potential impacts resulting from light and glare emanating from the proposed facilities will be assessed qualitatively.

The EIR will analyze the project with respect to how it would comply with existing and proposed design guidance of the City, with a focus on general urban design issues such as land use transitions, and issues of bulk, height, setbacks, etc. The EIR will discuss these issues in the context of whether the proposal conforms to the context in which it is located.

3.8.2 AGRICULTURE

The project would convert land historically used for agriculture to industrial use; this land is designated for urban use (Manufacturing Industrial) by the City of Merced General Plan and is zoned for urban uses (Heavy Industrial) by the Zoning Ordinance. Land adjacent to the site to the north, west, and south is also designated for urban uses, but is presently in agricultural use. Existing agricultural resources on the project site and in the surrounding vicinity will be analyzed in the EIR, including the types of farming activities and description of on-site soils that are suitable for farming activities based on the Farmland Mapping and Monitoring Program. Implementation of the project would result in the direct conversion of agricultural land and former orchard to non-agricultural uses. The analysis will focus on impacts associated with the conversion of Farmland, and the potential for the project to conflict with or induce conversion of other area agricultural uses. The presence of the proposed project has the potential to facilitate the conversion of nearby agricultural lands to non-agricultural use due to the land use incompatibility factors that arise between adjacent urban and agricultural uses. This issue will be addressed in the EIR.

3.8.3 AIR QUALITY

The majority of the ground surface of the site will be disturbed during site development activities. The project will result in dust and exhaust emissions during the construction phase, and long-term use of the project will result in vehicle emissions by tractor/trailers and project employees. Moreover, both short-term (construction) and long-term (operational) air quality emissions will contribute to cumulative air quality impacts already present in the San Joaquin valley. This issue will be addressed in the EIR.

3.8.4 BIOLOGICAL RESOURCES

As noted above, the majority of the site will be graded during site development activities. This will result in the removal of grasses, shrubs, and trees, thus displacing various animals that may live on the site. A segment of a canal managed by MID is located to the west of the site and drainage ditches are located on some of the site's edges. The site is not expected to provide suitable habitat for any special-status plant species, but a determinant-

level biological analysis will be required to ascertain the presence or potential occurrence of special-status animal species. Agricultural land in this region of Merced County can provide important foraging habitat for Swainson's hawk, a species which is known to nest in the project area, and is potential habitat for burrowing owl. There are no Waters of the U.S. on the property, but the potential for wetlands that provide habitat for special-status species will be analyzed in the EIR.

3.8.5 CULTURAL RESOURCES

Based on preliminary research, no cultural resources have been found on site, but as is the case throughout much of central California, ground disturbance could reveal the presence of undiscovered historic and prehistoric resources on the site. This issue will be addressed in the EIR.

3.8.6 GEOLOGY AND SOILS

Near surface soils exhibit a high potential for expansion. The potential for at least one major earthquake within the project's lifetime is high. Liquefaction potential is expected to be moderate on parts of the site. Moisture movement may affect concrete slabs used for the buildings without appropriate mitigation. Significant quantities of earth are proposed to be moved to develop the site. This creates a potential for erosion-related effects. Particular attention will be given to the potential for air- or water-borne earth that is disturbed during the site development process to enter the nearby Merced Irrigation District canal or local drainage ditches and to be transported to other water bodies. Paleontology resources are known to occur in the Central Valley and may be present at the project site. These issues will be addressed in the EIR.

3.8.7 HAZARDS AND HAZARDOUS MATERIALS

A Phase 1 environmental site assessment conducted for the site did not reveal evidence of hazardous materials contamination on or adjacent to the site, but the site does potentially include pesticide residue in the soil from agricultural use. There is a well on site which has a potential for adverse impacts if not removed or filled in a proper manner. These issues and hazards related to the electric power lines on the edge of the site will be addressed by the EIR. Also, on an ongoing basis the project would have one 6,000-gallon new oil tank, one 2,500-gallon waste oil tank, and two 20,000-gallon diesel underground storage tanks and two above-ground 500-gallon diesel storage tanks, as well as a variety of potentially hazardous household chemicals that are stored in the warehouse before being distributed to retail outlets. The potential for these materials to be released to the environment will be evaluated.

3.8.8 SURFACE HYDROLOGY AND WATER QUALITY

The project would alter the ground surface and drainage patterns of the vast majority of the site. In addition to the area covered by buildings, there would be approximately 70 acres of pavement, for a total of 100 acres of impervious surface area. This increase in impervious surfaces would increase stormwater runoff patterns and volume. Also, it is possible that the construction and operation of the proposed project could adversely affect surface water or groundwater resources and groundwater quality due to the potential for infiltration of project runoff and possible leakage of underground storage tanks in the future. These issues will be analyzed in the EIR.

3.8.9 LAND USE

This proposed project, which is within the City limits of Merced, is proposed on approximately 230 acres of industrially zoned land that is zoned Heavy Industrial District (I-H) by the Zoning Code and designated by the Merced General Plan as Manufacturing Industrial for development of a warehouse and distribution center. The project abuts the unincorporated Merced County to the east. With regard to infrastructure, the proposed project is dependent upon and will utilize an extension of Campus Parkway and upgrades to certain existing roads. Water and wastewater infrastructure is present within adjoining streets and will be extended into the site.

The site adjoins a variety of land use types. The agricultural/residential land to the south is designated Manufacturing Industrial by the Merced General Plan, as are the agricultural lands to the west and partially developed lands to the north. The surrounding parcels within the city limits are zoned I-H. Lands approximately one-quarter of a mile west of the project site have been designated residential by the Merced General Plan; various residential zoning designations have been assigned to these parcels. The City's Sphere of Influence boundary is approximately one-quarter of a mile east of the project site. The unincorporated agricultural land to the east of the site on both sides of the Sphere of Influence boundary is designated A- Agricultural by the Merced County General Plan and is zoned A-1 General Agricultural by the County.

The EIR will examine the potential for land use incompatibilities based on the presence of different land uses.

3.8.10 NOISE

Short-term noise impacts would occur during site development and building construction activities as a result of heavy earthmoving equipment and the use of construction tools. Long-term noise impacts will result from trucks that visit the project and employees' motor vehicles, as well as noise from routine operations, such as HVAC units, and forklifts and landscape maintenance equipment used outside the building. When operational, the project is proposed to be operated 24 hours per day, seven days per week. The potential impacts of all-day, all-night traffic and industrial noise on nearby residences during a typical 24-hour period will also be addressed in the EIR.

3.8.11 POPULATION AND HOUSING

The project would create new employment opportunities, but no new housing units. The project's potential effect on the jobs/housing balance in the area is not known at this time, but will be analyzed as part of this EIR. Unemployment is relatively high in the area, so the question of whether the project's new jobs would generate significant population increase is not known. This issue will be analyzed in the EIR. The EIR will also compare the amount and type of growth that would occur under the existing Merced General Plan land use designations.

3.8.12 PUBLIC SERVICES AND UTILITIES

The EIR will analyze whether the development of a warehouse and distribution center employing up to 1200 people may have impacts on the local provision of electricity and natural gas, water, wastewater treatment, fire protection and emergency services, recreation and parks, law enforcement, or other public services and utilities. Energy conservation practices will be addressed. As noted in Section 3.8.9, water and wastewater infrastructure is present within adjoining streets and will be extended into the site. The development of landscaped areas on the site may affect the City's water provision systems and the local supply of groundwater. The EIR will analyze whether this will have any significant affect on public services and infrastructure or plans for expansion of such.

3.8.13 TRAFFIC

The project is expected to accommodate up to 900 tractor/trailer trips per day (450 in and 450 out) and will employ up to 1200 people. The project will directly affect traffic on Campus Parkway, Gerard Avenue, and SR 99, as these will be the project's primary traffic route through the Merced area. The proposed project may also affect levels of traffic on the roads that connect the project area to State Highway 99, which are SR 140, Childs Avenue, and Mission Avenue. Other nearby streets that may be affected by project traffic include Coffee Street, Parsons Avenue, Baker Drive, Tower Road, and Kibby Road.

The project's connection to SR 99 is proposed via Campus Parkway at the new Mission Avenue interchange. Campus Parkway construction is planned to begin in March 2007 and be complete by November 2007. the Mission Avenue interchange is now under construction and slated to become operation in September 2007. The timing of completion of the interchange relative to opening of the proposed project will be assessed. The EIR will analyze potential effects on the roads and intersections described above and the rest of the street system, describing potential impacts with and without the new SR 99/Mission Avenue interchange, which is currently an at-grade intersection. The effect on traffic in the area as a whole upon the abandonment of the Kibby Road right-of-way between Childs Avenue and Gerard Avenue proposed as part of the project will also be addressed in the EIR. Project-related traffic impacts to nearby schools will also be discussed.

3.9 ENVIRONMENTAL ISSUES THAT WILL NOT BE ADDRESSED

The City has determined that the proposed project does not have the potential to create economic blight in existing developed areas beyond the project site. This determination is based on the fact that the proposed project will not be a retail outlet for goods and will not supply groceries to Wal-Mart retail outlets. Therefore, an analysis of the potential environmental impacts associated with blight will not be included in the EIR.

Comments Received on the NOP

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

RECEIVED
JUL 13 2006
CITY OF MERCED
PLANNING DEPT.

Notice of Preparation

July 7, 2006

To: Reviewing Agencies

Re: Merced Wal-Mart Regional Distribution Center
SCH# 2006071029

Attached for your review and comment is the Notice of Preparation (NOP) for the Merced Wal-Mart Regional Distribution Center draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Kim Espinosa
City of Merced
678 W. 18th Street
Merced, CA 95340

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Senior Planner, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2006071029
Project Title Merced Wal-Mart Regional Distribution Center
Lead Agency Merced, City of

Type NOP Notice of Preparation

Description The primary building on the site will be a 1.1 million square foot regional distribution warehouse, which will be primarily a materials handling operation whereby most goods typically are conveyed through the distribution center. The facility will not handle groceries, such as fruit, vegetables, dairy products, bakery goods, and meat. There will also be warehouse support space to house administrative offices, the data processing center, and a cafeteria. Other internal office/support areas for administrative uses include an electric forklift battery charging/maintenance area and an aerosol product storage area. Approximately 37,000 square feet of floor space will be devoted to office/support.

Lead Agency Contact

Name Kim Espinosa
Agency City of Merced
Phone (206) 385-6858 **Fax**
email
Address 678 W. 18th Street
City Merced **State** CA **Zip** 95340

Project Location

County Merced
City Merced
Region
Cross Streets Childs Avenue/Tower Road
Parcel No. 061-250-035 & 061-290-047
Township 7S **Range** 14E **Section** 34,35 **Base** Mtdiablo

---

Proximity to:

Highways SR 99
Airports
Railways
Waterways
Schools
Land Use The project site is designated Manufacturing Industrial in the Merced General Plan and Heavy Industrial District (I-H) in the zoning ordinance.

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Sewer Capacity; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wildlife; Growth Inducing; Landuse; Cumulative Effects

---

Reviewing Agencies Resources Agency; Department of Conservation; Department of Forestry and Fire Protection; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 4; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 6; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Bd., Region 5 (Fresno)

Date Received 07/07/2006 **Start of Review** 07/07/2006 **End of Review** 08/07/2006

Note: Blanks in data fields result from insufficient information provided by lead agency.

...or Distribution List

County: Merced

SCH# _____

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  David Johnson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [x] **Dept. of Conservation**
  Roseanne Taylor
- [ ] **California Energy Commission**
  Paul Richins
- [x] **Dept. of Forestry & Fire Protection**
  Allen Robertson
- [ ] **Office of Historic Preservation**
  Wayne Donaldson
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **Reclamation Board**
  DeeDee Jones
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Game Region 1**
  Donald Koch
- [ ] **Fish & Game Region 2**
  Banky Curtis
- [ ] **Fish & Game Region 3**
  Robert Floerke
- [x] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Tammy Allen
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section
- [ ] **Dept. of Health Services**
  Veronica Malloy
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Office of Emergency Services**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [x] **Public Utilities Commission**
  Ken Lewis
- [ ] **State Lands Commission**
  Jean Sarino
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [x] **California Highway Patrol**
  Shirley Kelly
  Office of Special Projects
- [ ] **Housing & Community Development**
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Jeff Pulverman
- [ ] **Caltrans, District 4**
  Tim Sable
- [ ] **Caltrans, District 5**
  David Murray
- [x] **Caltrans, District 6**
  Marc Birnbaum
- [ ] **Caltrans, District 7**
  Cheryl J. Powell
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Mario Orso
- [ ] **Caltrans, District 12**
  Bob Joseph

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Ravi Ramalingam
- [x] Industrial Projects
  Mike Tollstrup
- [ ] **California Integrated Waste Management Board**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Jim Hockenberry
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [x] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

Last Updated on 04/28/06

July 11, 2006

RECEIVED
JUL 17 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa Planning Manager
City of Merced
678 West 18th St
Merced, Ca 95340

Merced Wal Mart Regional Dist Center

We need to go on record opposing the allowance of this center to be approved.
I also wish to receive the "initial study" which you mentioned has not been prepared.
Please keep us on the mailing list.

I wish to be allowed to comment on the Project information and "probable environmental impacts" report you sent to us recently.

On page 3-2 you mention " a few rural residential dwellings. What is your projected density planned for the area in future? The low density and high density areas in yellow red and orange on 3-9 will be affected. We prefer a completely isolated site.

Walmart on 3-11 wants access to major highway transportation links. I should think the truck lanes on Highway 5 would allow this progress. Location near that highway would be preferable to the already impacted 99. What "buffers" will there be for the yellow, red and orange areas on 3-9? What will 1600 trucks a day (ultimate capacity) do to traffic on these roads to the 99 and for highway entry? Will stoplights on highway entry's be necessary? Will entire truck lanes need to be built around the facility?

City objectives is to create jobs- We ask what kind/ In the chart on 3-15, you mention 986 "associates". We need to see the breakdown of minimum wages. It is found that Wal Mart shifts to the country it's social costs of welfare for poverty workers including food stamps, medical and other costs. We want quality jobs to lift people out of poverty, not keep them in it. Their objective is to use the exiting labor pool. Obviously people are out of work. Is poverty work best for this labor pool?

On page 3-12 walmart mentions operation efficiency and adequate distribution which we assume means running the plant for their present and expanding operations; that is running this distribution center at maximum capacity. The are providing for 1600 trucks. They claim they want to "minimize impacts". Obviously THERE ARE

GREAT IMPACTS? HOW do they plan to minimize them. Is minimized acceptable to our LIVING environment??

On page 3-13 the 6,000 gallon oil storage and 2500 waste oil and 20,000 gallon underground fuel storage and 500 gallon above ground fuel storage is a huge environmental safety hazard. What are the guarantees and how is wal mart insured so that a huge Exxon Valdez does not happen to our water supply and our residential yellow, orange and reds? Have they presented a contingency plan and a safety review? Will there be safety personnel on staff? What is their inspection schedule? We are also concerned about the storm water management detention ponds and their part in any pollution accident..

3-13 speaks about lighting. Obviously in the movie about Wal Mart it was brough up that these areas are troublesome for gang and rape activity. What actions will be taken to prevent crime?

Agriculture mentioned on 3-16 is of great concern. When we we stop using our farmland for development? What will feed Merced in the future when there is no gas and oil, peak oil has arrived and the citizens must rely on community gardens?

WHAT HAZARDOUS MATERIALS DO YOU REFER TO ON 3-17? We need a list. We need a safety plan.

On 3-19 you discuss population and housing. What areas are planned for housing and how will this behemoth discourage housing development for citizens?

How much is the cost and usage for electricity, gas, water, wastewater, fire, emergency law and utilities? Will they have solar energy on the roof?

Traffic- They say 900 trips a day, but have arranged to have 1600 parking places. What is the absolute limit our environment can handle?

We feel a complete truck lane will need to be built and possibly an overpass merging into 99 if this project is allowed. They should pay.

BLight-We have noticed on Buhach Road that when the trucks park on the exit for the layover's they need legally, HUGE amounts of trash are generated. This is usually from one or two trucks a night. We question the amount of trash that will have to be picked up from the warehouse and on the streets surrounding the area. We expect good clean operations!

Melissa Stevenson
Tim Stevenson
2988 Buhach Rd
Merced, Ca 95340

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
P.O. BOX 2048 STOCKTON, CA 95201
(1976 E. CHARTER WAY/1976 E. DR. MARTIN LUTHER KING JR. BLVD. 95205)
TTY: California Relay Service (800) 735-2929
PHONE (209) 941-1921
FAX (209) 948-7194

RECEIVED
JUL 24 2006
CITY OF MERCED
PLANNING DEPT.

Flex your power!
Be energy efficient!

July 17, 2006

10-MER-99-PM 12.37
NOP for DEIR
Wal-Mart Distribution

Kim Espinosa
City of Merced
Planning and Permitting Division
678 W. 18th Street
Merced, CA 95340

Dear Ms. Espinosa:

The Department of Transportation (Department) appreciates the opportunity to review and comment on the Notice of Preparation of a Draft Environmental Impact Report (DEIR) for Wal-Mart Distribution Center located on 230 acres on the north by Childs Avenue, on the east by Tower Road and on the south by Gerard Avenue. The Department has the following comments:

- Please prepare and provide for the Department's review and comment a traffic impact study (TIS). A TIS is necessary to determine this proposed project's near-term and long-term impacts to State facilities – both existing and proposed – and to propose appropriate mitigation measures. The Department recommends that the study be prepared in accordance with the *Caltrans Guide for the Preparation of Traffic Impact Studies*, dated December 2002 (Guide). The Guide is available online at: http://www.dot.ca.gov/hq/tpp/planning_tools/tools.htm. Minimum contents of the TIS are listed in Appendix "A" of the TIS guide. All State owned signalized intersections affected by this project should be analyzed using the intersecting lane vehicle (ILV) procedure from the Department's Highway Design Manual, Topic 406, page 400-21.

- The Department endeavors to maintain a target level of service (LOS) at the transition between LOS C and LOS D on State highway facilities, including intersections (see Appendix "C-3" of the TIS guide). If an intersection is currently below LOS "C," any increase in delay from project-generated traffic should be analyzed and mitigated. The LOS for operating State highway facilities is based upon measures of effectiveness (MOE) (see Appendix "C-2" of the Guide). If an existing State highway facility is operating at less than this target LOS, the existing MOE should be maintained. **In-addition, the TIS should include all for the following appendices:**
  -Synchro/SimTraffic Version 6.0 input/output data
  -Synchro/SimTraffic Version 6.0 electronic files
  -Signal warrants study

-Left-turn and right-turn channelization calculations should include both storage (95th percentage queue) and deceleration lengths
-Level of Service (LOS), Queue and Delay calculation should be based on SimTraffic Summary reports

- If commercial truck traffic is anticipated as the proposed project's connections to SR-99 via Campus Parkway, SR-140, and at the new Mission Avenue interchange this traffic will need to conform to the Surface Transportation Assistance Act (STAA) truck turning radii standards at all state facilities. In-addition, plans indicating the type of truck and anticipated turning radii at access points in all directions at the SR-99/Gerard Avenue and SR-99/Childs Avenue intersections will need to be submitted to the Department illustrating conformity.

- The Department recommends that the Lead Agency encourage the developer to submit a scope of work for conducting the TIS prior to circulating the local development application for comment in order to expedite the Department's review. The Department is available to discuss assumptions, data requirements, study scenarios, and analysis methodologies prior to beginning the TIS. This will insure a quality TIS is prepared.

- We suggest that the county continue to coordinate and consult with the Department to identify and address potential cumulative transportation impacts that may occur from this project and other developments near this geographical location. This will assist us in ensuring that traffic safety and quality standards are maintained for the traveling public on existing and future state transportation facilities.

- The Department looks forward to reviewing the Draft Environmental Impact Report (DEIR) that will more clearly describe and map the locations of the potential improvement projects that are indicated in this NOP.

- Caltrans encourages contacting the Native American Heritage Commission: 915 Capitol Mall, Room 364, Sacramento, California, 95814, Telephone (916) 657-5390 for advice on consulting with Native Americans regarding any cultural concerns within the project area.

If you have any questions, please contact Dee Maddox at (209) 942-6022 (email: dee_maddox@dot.ca.gov) or me at (209) 941-1921. We look forward to continuing to work with you in a cooperative manner.

Sincerely,

TOM DUMAS, Chief
Office of Intermodal Planning

Transportation Planning, 1976 E. Charter Way. Stockton, Ca 95205
(209) 948-7647

Caltrans District 10

Fax

To:	Kim Espinosa	**From:**	Dee Maddox
Fax:	209-~~384-6805~~ 725-8775	**Pages:**	2
Phone:	209-385-6858	**Date:**	7/24/2006
Re:	NOP for DEIR Wal-Mart Distribution Center	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Dee Maddox
IGR & Intermodal Planning
(209) 942-6022

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

RECEIVED
JUL 24 2006
CITY OF MERCED
PLANNING DEPT.

July 19, 2006

Kim Espinosa
City of Merced
678 W. 18th St.
Merced, CA 95340

Dear Ms. Espinosa:

Re: SCH #2006071029; Merced Wal-Mart Regional Distribution Center

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the County be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way. Truck traffic generated by this project should be away from at-grade highway-rail crossings and routed over the existing grade-separated crossing at Childs Avenue.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the County.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Utilities Engineer
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: Jim Smith, UP
Carol Harris, UP

MARG Wal-Mart Action Team

Merced Alliance for Responsible Growth

Central Valley Hopefuls • Community Alliance with Family Farmers North San Joaquin Valley • Green Party of Merced County
Golden Valley Neighborhood Association • Merced Associated Democrats • Merced Chapter of the Sierra Club
Merced County Citizens Against the Raceway • Merced-Mariposa Labor Council • Merced-Mariposa Teachers' Uniserv •
Train Riders Association of California, Merced Group

Ms. Kim Espinosa
Planning Manager
City of Merced Planning and Permitting
678 West 18th Street
Merced, CA 95340

RECEIVED
JUL 25 2006
CITY OF MERCED
PLANNING DEPT.

July 24, 2006

Dear Ms. Espinosa,

The California Environmental Quality Act was created to give communities the opportunity to participate in the development process and contribute to the environmental review process. We are thankful for this opportunity and look forward to working with the City of Merced and EDAW, the San Francisco-based environmental consulting firm, to determine the true impacts the proposed Wal-Mart distribution center will have on our community – there are many issues that need attention.

We have thoroughly studied the Notice of Preparation (NOP) released on July 7th, 2006 and have some serious concerns with the proposed scope of the EIR and assumptions made in this initial document. The NOP fails to accurately describe the project surroundings, provides inaccurate facts and indicates a lack of attention to significant issues facing this proposed development. We hope that as you move forward through the environmental review process, that you will consider the following community concerns:

Proximity of Schools and Residential Neighborhoods
Because of their size and type of operations, Wal-Mart distribution centers are typically located away from residential areas and city centers. **The proposed site in Merced, however, is surrounded by residential neighborhoods and 3 schools** (all within one mile). The NOP mischaracterizes the surrounding land uses and downplays the amount of residential housing in the proposed project's immediate vicinity. As Merced has grown, residential areas have expanded into Southeast Merced and closer to areas zoned industrial. It was likely not the intent of the original zoning code to have dense residential border this type of development. This project will affect the quality of life for Merced residents and the study should accurately reflect the extent to which our neighborhoods and schools will be affected.

23 West Alexander Avenue, Box 34, Merced CA 95348-3404 • www.MercedAlliance.org

Public Health
Merced has some of the worst air quality in the nation. Our children and our community are already at a higher risk of asthma and other ailments associated with poor air quality. The EIR must consider not only the impacts the proposed distribution center will have on regional ambient air quality, but also the **impacts on air quality at specific locations—such as nearby schools and neighborhoods.**

Water Quality and Flooding
The NOP does not mention that most of the site falls within the FEMA flood zone! **Because the site is mostly in the 100-year flood zone and the area is prone to flooding, the likelihood of increased flooding must be studied in great detail.** This is a grave oversight of the NOP. We request that the study of water quality impacts take into account the potential impact on drinking water and the possibility of Wal-Mart's storm water system failing (in the case of a severe rainstorm like the ones we experienced this winter) and polluted runoff flowing onto neighboring properties. With residential homes and schools so close to the site, this information is critical. Once again, public health is at risk.

Additionally, Wal-Mart's past record on environmental impacts and violations should be considered, along with project-specific characteristics, when predicting the likely impacts of the distribution center. History suggests that it would be unrealistic to assume that all regulations—such as those relating to air and water pollution and hazardous materials handling—will be followed when the center is in operation.

Premature Conclusions
The NOP contains certain premature conclusions, such as the statement "lighting is designed so that light does not cross the property boundaries" and that the storm water system is "designed to accommodate impervious area storm water runoff." These are important areas that the EIR should be studying, and **the City and environmental consultants should not be drawing premature conclusions about lighting impacts, storm water impacts, or anything else** prior to the EIR being conducted.

Other Wal-Mart Distribution Centers
In addition to the mischaracterization of the surrounding land uses mentioned above, the NOP inaccurately reports that the distribution centers nearest to Merced are located in Red Bluff and Apple Valley. In fact, Wal-Mart has a fully operational distribution center in Porterville just 129 miles away. Please correct this in future analysis.

Additionally, it is our understanding that as part of the EIR process, EDAW will visit one or more existing Wal-Mart distribution centers. It is critical that when this occurs, that notice not be given to Wal-Mart prior to that date and that data collection takes place under typical operational conditions.

Thank you of your consideration of these crucial issues facing Merced residents. The impacts of a project this size will be considerable and it is essential that our community and leaders understand every aspect of the proposal and its effects. Ultimately, our local officials will have to decide on this project based on the information in the EIR, not because of any pre-existing zoning or backroom deals. The livelihood and health of our community is at stake.

Sincerely,

Marilynne Pereira Marilynne Pereira Kyle Stockard Kyle Stockard
MARG Wal-Mart Action Team Co-Chair MARG Wal-Mart Action Team Co-Chair

Thursday, July 20, 2006

Dear: City of Merced, To whom it may concern

My name is Joaquin Valencia and I currently reside at 438 Azalea CT in south Merced with is about 1500 feet away from the intentional Wal-Mart Distribution Project Site. I would like to express my concern about this project. I know the city needs more jobs, but do we have to risk public health and comfort in exchange for a few jobs. As you are aware we are the in the American Lung Association were one of the worst polluted cities in the United States (number 18 in 2005). This project will most likely shoot us up the charts because of the project 900 Trucks come in and out the site every day. In an article writing by WARN, it sites that Merced has the sixth highest levels of ozone pollution of all cities in the US and asthma among children has risen by 200% from increased pollution sources throughout the state. Wal-Mart at first said 1200 trucks but it seems that they have lower the number to make it seem more approvable, but the fact of the matter is that whether it is 900 or 1200 Trucks per days it will for a fact increase the pollution in the city. As you may know there no other vehicle on the road that pollutes more than a trailer truck and having 900 of them dry close to, my neighborhood is not something I am looking forward to.

Furthermore, aside from the pollution there is the issue of traffic, sewer and water usage among others. Traffic will be significantly greater and not just from the truck but from the projected 1200 employees due to be employ at the site. They will most likely use coffee, Gerard and Childs Ave to get to work. I know there are three existing schools and possibly a fourth coming in the area and that means many kids. Having this much increase traffic has a potential for a disastrous situation. Moreover, I believe that the main purpose of the campus parkway was to alleviate traffic through town and provide a direct path for students and visitors to the University. It seems to me that the project is being constructed more to accommodate a very large project such as the one in questions, which will more than likely will have a huge impact on the traffic of HWY 99, and Campus Parkway especially on foggy days. If and most likely when a truck gets into an accident or breaks down, there will be a lot of traffic and most of those people will choose the back roads and that means though schools sites like pioneer school on Coffee and Gerard and Golden Valley High school and Weaver School.

In Addition, I have done a lot of readings and research about other sites that do have a Wal-Mart Distribution Center and most of them say it was a bad decision. I ask you to please, look at other states and cities who have allowed such a project and the effect it had on them after a few years. Also, why does such a large project has to be design to be near a residential neighborhood and 4 blocks from a school and with the vicinity of three other schools.

I please beg you to reject such a project and listen to the thousands of petition to reject the project because it will do more bad than good to the residents of the city of Merced. Please do look closely at the project and put the health of Merced residents as the number one priority because without it a job does us no good. Please join Turlock in saying no to this project and in looking out for their resident's well being. Thank you and good luck in doing the EIR.

Sincerely;
Joaquin Valencia
Joaquin Valencia
Concern Merced Resident

RECEIVED
JUL 26 2006
CITY OF MERCED
PLANNING DEPT.

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

AMOUNT of TRUCK/EMPLOYEE/VENDOR TRAFFIC IMPACTS UPON SURROUNDING RESIDENCES/SCHOOLS/BUSINESS'ES WILL BE SERIOUS TO ENVIRONMENT/SAFETY/LIFESTYLE - PROJECT WILL UNDOUBTEDLY ATTRACT DRUG/PROSTITUTION INFLUENCES - WAL-MART SHOULD PROVIDE GOOD LOCAL SECURITY PATROL

WALMART SHOULD HAVE A CONTINUED RESPONSIBILITY TO MAINTAIN ROADS WITHIN A REASONABLE RADIUS.

I/WE ARE for THE PROJECT - BUT THERE ARE TOO MANY ISSUES THAT MAKE THIS LOCATION A POOR CHOICE.

Sincerely,

MICHAEL/SUSAN/MARJORIE DWYER
Name

1224 S. YALE AVE
Address

MERCED CAL 95340
City State Zip Code

209-722-1268
Phone Number Fax Number

E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

1. Where will trucks park waiting to enter distribution center. If local truckers are drivers will they drive their trucks to near where they live. Impact on county roads and farming / residential communities
2. Air quality can not tolerate the traffic this will generate
3. Schools and housing are too close - noise will be a concern as well as safety.
4. Safety is concern especially in winter fog if located in Merced
5. Underground storage is not allowed on farms - this is danger to water quality

Sincerely,

Jean Okuye

Name

Jean Okuye

Address

10029 W. Olive Ave

City | State | Zip Code

Livingston | Ca | 95334

Phone Number | Fax Number

(209) 394-2421 | Same

E-Mail Address

The Notice of Preparation does not mention that most of the proposed Wall-Mart site falls within the FEMA flood zone! Because the site is mostly in the 100-year flood zone the area is prone to flooding and the likelihood of increased flooding must be studied in great detail.

hard surface: asphalt roofs cement

(A) Sheet flooding

Study of water quality impacts must take into account the possibility of Wal-Mart's storm water system failing (as in an unusually severe rain-storm) and ensure that the site is "reasonably safe from flooding" and polluted runoff flowing onto neighboring properties. In fact, Wal-Mart has a history of water quality violations which should be troubling to residents near the proposed distribution center.

(B) Ponding

(*) Sheeting

Possible impacts on drinking water quality should be considered when examining effects of the project on groundwater.

Pollutants:

Vehicle exhaust Motor oil
Leaks
Waste oil
Pesticides and other hazardous materials
Diesel fuel (to be housed in above- and below-ground tanks)

1461 Bellevue Ave

I would like to begin by saying

Ladies and gentlemen ~~of the Merced City Council~~,
I don't see why there's a question at all about the location for the proposed Wal-Mart Distribution Center. Long ago it was taken by all the schools and residences that exist there. ~~You know, the good people you represent.~~

~~And as our city leaders you should see that.~~

Wal-Mart needs to find a different location for its Distribution Center, one that doesn't impact lots of people and schools that have been in an area for many years. THE AIR, NOISE ENVIRONMENTS

Now, if these ~~people~~ RESIDENCES and these ~~kids~~ SCHOOLS were moving into an area where a distribution center was already up and operating, that would be different. They would be the intruders, not Wal-Mart. But that's hardly the case in this situation.

They would accepting of impact of the warehouse

You know, there are lots of industries that could be brought into an area like this, that wouldn't have the ~~really terrible~~ impact environmentally the distribution center will have.

You've heard the numbers ABOUT TRAFFIC IMPACTS. ~~about the Distribution Center~~. Every month, 27,000 diesel big rigs and 64,000 cars will travel into & OUT OF the Merced area that don't travel here now.

It will LITERALLY add tens of thousands of cars and trucks to already traffic-clogged Merced-area streets. And one of it most unpopular attributes will likely be the horrendous traffic bottleneck it's going create FOR the future UC Campus Parkway – because it will cut off access to Highway 99. It will cause big-time road damage that taxpayers, of course, will pay for.

An automatic consequence of the Distribution Center will be decreased auto and pedestrian safety throughout the region, including around Weaver and Pioneer Elementary schools and Golden Valley High.

As a private citizen and member of Merced Alliance for Responsible Growth I ask that you say "no" to the Wal-Mart Distribution Center to help save an already traffic-clogged and polluted ~~San Joaquin Valley~~ MERCED AREA environment.

Thank you

Ag impact will be considerable

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Linda S. Adams
Secretary for Environmental Protection

Fresno Branch Office
1685 E Street, Fresno, California 93706
(559) 445-5116 • Fax (559) 445-5910
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

RECEIVED
JUL 31 2006
CITY OF MERCED
PLANNING DEPT.

27 July 2006

Kim Espinosa
City of Merced
678 W. 18th Street
Merced, CA 95340

NOTICE OF PREPARATION (NOP) FOR THE MERCED WAL-MART REGIONAL DISTRIBUTION CENTER DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)

Your request for comments on the subject project was received on 12 July 2006. The proposed project is to construct a 1.1 million square foot regional distribution warehouse. There will also be warehouse support space to house administrative offices, a data processing center and cafeteria.

As construction associated with the project will disturb one acre or more, compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 for Discharges of Storm Water Associated With Construction Activity will be required for potential discharges to surface waters, including ephemeral and intermittent drainages. Before construction begins, Wal-Mart Corporation must submit a Notice of Intent (NOI) to comply with the General permit, a site map, and appropriate fee to the State Water Resources Control Board (SWRCB) and a Storm Water Pollution Prevention Plan (SWPPP) must be prepared. The SWPPP must contain at a minimum all items listed in Section A of the General Permit including descriptions of measures that will be taken to prevent or eliminate unauthorized non-storm water discharges, and both temporary (e.g., fiber rolls, silt fences, etc.) and permanent (e.g., vegetated swales, riparian buffers, etc.) best management practices (BMPs) that will be implemented to prevent pollutants from discharging with storm water into waters of the United States.

If the project results in discharge of dredged or fill material into navigable waters, wetlands, or other waters of the U.S. (jurisdictional waters), Wal-Mart Corporation must obtain a permit pursuant to Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers (Corps) and a Section 401 Water Quality Certification from the Regional Water Board to ensure that discharges will not violate State water quality standards. If the project will result in the discharge of dredged or fill material into navigable waters or wetlands that are determined by the Corps to be non-jurisdictional, Wal-Mart Corporation will not be required to obtain a Section 401 Water Quality Certification, but may be required to submit a Report of Waste Discharge (RWD). Pursuant to California Water Code, Section 13260, all persons proposing to discharge waste that may affect the quality of waters of the State must submit to the Regional Water Board a RWD, following which the Regional Water Board will either prescribe waste discharge requirements (WDRs) or issue a waiver thereof.

Referenced in the NOP under item 3.8.7 Hazards and Hazardous Materials explains an existing well on site has a potential for adverse impacts if not removed or filled in a proper manner. Unless contained, well development dewatering discharges must be covered under the NPBES Permit No. CAG995001, General Order No. 5-00-175 for Dewatering and Other Low Threat Discharges to Surface Waters. Before discharge begins, Wal-Mart Corporation must submit an NOI to comply with the permit and a filing fee to this Regional Water Board office. The General Order is applicable only if the discharge does not contain significant quantities of pollutants and is less than four months in duration or has an average dry weather flow of less than 0.25 million gallons per day. Otherwise, Wal-Mart Corporation must apply for site-specific WDRs. A representative sample of discharge would need to be collected and analyzed to demonstrate that no constituents of concern are present in quantities that would cause an exceedance of water quality objectives.

Also referenced in the NOP under item 3.8.7 Hazards and Hazardous Materials is the project will have various new oil, waste oil and diesel above ground and below ground storage tanks, as well as a variety of potentially hazardous household chemicals that are stored in the warehouse before being distributed to retail outlets.

If the project will involve the storage of petroleum products in above ground tanks, with a single tank capacity of greater than 660 gallons or a cumulative capacity of greater than 1,320 gallons, Wal-Mart Corporation will be subject to State above ground petroleum tank regulations. Wal-Mart Corporation must file a storage statement with the SWRCB, pay a facility fee, and prepare a federal spill prevention control and countermeasure plan.

Depending on the Standard Industrial Classification (SIC) code of the final project, compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 for Discharges of Storm Water Associated With Industrial Activities may be required. The SIC codes of activities requiring coverage are listed in the General Permit. In order to obtain coverage by the General Permit, Wal-Mart Corporation must submit a Notice of Intent (NOI) to comply with the permit, a site map, and appropriate fee to the SWRCB and a SWPPP must be prepared.

Thank you for the opportunity to comment on this Notice of Preparation. If you have any questions regarding our comments, please call me at (559) 445-6071.

Dan Lynch

Dan Lynch
Environmental Scientist
Storm Water Unit

cc: State Clearinghouse, Sacramento

Espinosa, Kim

From: Lucas, Terri on behalf of planningweb
Sent: Tuesday, August 01, 2006 10:36 AM
To: Espinosa, Kim
Subject: FW: wal mart dc issue

-----Original Message-----
From: blueeyesmo [mailto:blueeyestx53@yahoo.com]
Sent: Friday, July 28, 2006 6:47 PM
To: planningweb
Subject: wal mart dc issue

I am a Wal Mart 15 Yr+ associate, I have been watching Merced with this issue of letting Wal Mart become a family .. Though I really don't understand the problem as I have been in 2 openings and I have to say much smaller towns and the impact in your minds are so out of per portion.. I want to transfer to Mered if you will except it.. It will only benefit Mered more then you know. Now as far as sound, pollution..etc.. Why don't you send someone to the nearest DC.. being Porterville or Redbluff..and spend a day or 3 and see what the sound does to neighboring ppl and etc etc.. You will find nothing as Wal Mart will build mounts to deterrent light from homes and to block sounds..plus more.. I have seen increases in property for those who are afraid if Wal Mart comes in you wont be able to sell your home for what you bought it for.. well ppl need to get real.. Wal Mart only in proves the area HONEST.. it give so much to the community.. The contributions is outta site..

But don't take if from me contact the real source.. aka other towns who have a Wal Mart DC IN them and ask them... They are living facts..
Barbara Flowers
603 Kyle
St.James,Mo. 65559
573-265-1648

If you dont like something,
Change it...
If you can't change it,
Change your attitude...
Don't complain

Espinosa, Kim

From: Lucas, Terri on behalf of planningweb
Sent: Tuesday, August 01, 2006 10:34 AM
To: Espinosa, Kim
Subject: FW: walmart

-----Original Message-----
From: Geoffrey W Bromfield [mailto:bromfield@sbcglobal.net]
Sent: Friday, July 28, 2006 1:52 PM
To: planningweb
Subject: walmart

The city planning commission should consider at least four major reasons to block Walmart's D.C. Taken together they should be enough to give pause and each stands on its own merits. 1) Degradation of air quality. The amount of added air pollution to an already overburdened air basin would impact thousands particularly the ones with preexisting lung disorders like asthma. 2) The roads are not designed for the increase of traffic, particularly state route 99. Voters recently did not approve a bond measure to improve them. 3) Where are the increased populace going to live? Rents are already sky high and I submit on Walmart wages the new people will not be owners, but renters. Schools in Merced are at the bursting point as it is, where will these new students go to school? 4) Walmart's past is prologue when it comes to paying fair wages. Many full time employees cannot make it on what is paid and as a result full time employees are forced to seek public assistence. Before allowing this monster in our community please take a long, hard look at past practice with respect to worker rights. I personally would recommend that anyone voting on the proposed Distribution Center be made to watch "The High Price of Low Cost". You should also recognize that if the new D.C. does not work out, it will be forever a landmark of shame for the entire city an a gigantic white elephant. Please take a very close look at this, because the few tax dollars generated will be off set by the worstening of the general conditions of our community.
Jeff Bromfield

Espinosa, Kim

From: Lucas, Terri on behalf of planningweb
Sent: Tuesday, August 01, 2006 10:36 AM
To: Espinosa, Kim
Subject: FW: Walmart

-----Original Message-----
From: Pamela Tamez [mailto:ptamez@camerced.org]
Sent: Monday, July 31, 2006 2:29 PM
To: planningweb
Subject: Walmart

I believe that the amount of trucks going on and coming off of highway 99 will create even a bigger backup flow. Anyone who has to take the Martin Luther King , Yosemite/Mariposa, and Child's exit every morning, knows all to well how long they have had to sit on the off ramp with their car tails hanging out on 99 just to get to work, while all along, praying that they don't get hit. the walmart trucks will even further the congestion.

Thank you

Pamela M Tamez

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG - 1 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

1) Will Wal-Mart be a good corporate citizen? Please check Cal-OSHA violations, DFEH, EEOC, Labor Commissioner. How many millions of dollars has Walmart been fined, & has it learned??
Does Merced have a standard for its citizen?
2) Do we need more trucking jobs? Sysco is paying employees finder fees. Other companies are having a hard time filling trucker position.
How many truck / FL drivers are out of work?
3) True unemployment figure after "welfare professionals" are factored out (also those who would not pass drug screening)??

Sincerely,

Suzanne Miles
Name

40 El Portal Drive
Address

Merced CA 95340
City State Zip Code

722-8513
Phone Number Fax Number

MSSmiles@aol.com
E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG - 1 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

Air quality
Effect on other employers V
Children's health
Increased temperatures
Noise pollution
Hospital needs
light pollution
roads upkeep/repair
congestion
property values
Schools - effect on students
crime ~~etc etc etc~~

greed
$ $
growth for growth's sake

Sincerely,

Suzanne Miles
Name

40 El Portal Dr.
Address

Merced | CA | 95340
City | State | Zip Code

722-8513
Phone Number | Fax Number

MSSmiles@aol.com
E-Mail Address

To whom it may concern:

People of Merced are crazy to try to stop Wal Mart what an opportunity for Merced look at the jobs it would create and the income for the county. This money can go to help schools roads libraries the poor and so on. These people in Merced need to look at the big picture not just what they think is important and if they don't build it here they will build it somewhere else

No name or address given

RECEIVED
AUG - 1 2006
CITY OF MERCED
PLANNING DEPT.

MID MERCED IRRIGATION DISTRICT

RECEIVED
AUG 3 2006
CITY OF MERCED
PLANNING DEPT.

July 26, 2006

Kim Espinosa, Planning Manager
City Of Merced
678 West 18th Street
Merced, California 95340

Subject: Notice of Preparation of a DEIR for Wal-Mart Distribution Center – APN's 61-250-35, 61-290-47

Dear Ms. Espinosa:

The Merced Irrigation District (MID) has reviewed the above referenced notice and offers the following comments:

MID operates and maintains the Doane Lateral adjacent to, and west of the west property line of the project. Residential developers have already undergrounded said lateral.

MID respectfully requests that the City require the following, as conditions of approval upon development, the following:

1. If storm water is to be discharged to any MID facility, the owner/applicant shall enter into a "Storm Drainage Agreement" with the Merced Irrigation District Drainage Improvement District No. 1 (MIDDID No. 1), paying all applicable fees.

2. That the property owner must execute a "Non-exclusive Driveway License Agreement" for all crossings over or under any MID facilities, including utilities, bridges and pipelines.

3. A signature block will be provided for MID on all Improvement Plans.

4. A "Construction Agreement" between the owner and the MID shall be executed for any work associated with MID facilities.

5. MID requests a copy of the final, signed CEQA documents.

744 West 20th Street P.O. BOX 2288 Merced, California 95344-0288
Administration / Electric Services (209) 722-5761 / FAX (209) 722-6421 / Water Resources Engineering (209) 722-5761 / FAX (209) 726-4176
Finance \ Billing Dept. (209) 722-3041 / FAX (209) 722-1457 / Irrigation Operations (209) 722-2720 / FAX (209) 722-1457

MID is a local provider of electrical services and was granted such rights as an irrigation district through the California Water Code as of 1919. As of today, MID-Electric Services has over 4500 meters including 3500 residential customers with a system load over 80 MW's. As the developer, should you choose MID electric services and install energy efficient appliances, windows, air conditioners, etc., you may qualify for MID-Electric Services Energy-Rebate Programs to offset your costs and deliver to your clients an energy efficient product resulting in a win-win situation. For more information, please contact Isaias Franco at 722-5761.

Thank you for the opportunity to comment on the above referenced notice. If you have any questions, please contact me at 722-5761.

Sincerely,

Rory Randol
Facilities Specialist

cc: Garith Krause, General Manager
Ted Selb, Deputy General Manager
Robert Acker, Director of Facilities and Streams
Hicham ElTal, Assistant General Manager - Water Resources Engineering
Ron Price, Associate Engineer - Water Resources
Larry Williams, MIDDID No. 1
Vanessa Lara, Account Representative - Electrical Services

Espinosa, Kim

From:	city, council
Sent:	Friday, August 04, 2006 8:15 AM
To:	Bill Spriggs (E-mail); Carl Pollard (E-mail 2); Cortez, Joseph; Ellie Wooten (E-mail 2); Ellie Wooten (E-mail); Gabriault, Michele; Jim Sanders (E-mail); Joe Cortez (E-mail); Marshall, Jim; Michele Gabriault-Acosta (E-mail); Osorio, Rick; Pollard, Carl; Reynolds, Nobie; Rick Osorio (E-mail); Sanders, Jim; Spriggs, Bill
Cc:	Espinosa, Kim
Subject:	FW: Super Wal-Mart Location
Importance:	High
Follow Up Flag:	Follow up
Flag Status:	Flagged

From the web site.

Nobie

Nobie Reynolds
Executive Secretary
City Manager's Office
Email: reynoldsn@cityofmerced.org
Telephone: (209) 385-6834; Fax (209) 723-1780

-----Original Message-----
From: Valencia, Joaquin [mailto:JJV7@pge.com]
Sent: Friday, August 04, 2006 7:30 AM
To: Espinosa, Kim
Cc: city, council; city, manager; Wooten, Ellie
Subject: RE: Super Wal-Mart Location
Importance: High

Kim/Council/Mayor:

I am writing in hopes to change your mind of approving the Wal-Mart Distribution Center. The project will do more harm than good. With the construction of the Campus parkway, you have already seen what 1000 trucks per day can do to a road. Just look at Childs, Gerard and Parsons Street around the vicinity to get a feel for what I am talking about. Please also take the time to read the article in the Merced Sun Star to get a feel for what 1000 trucks per day can do http://www.mercedsunstar.com/local/story/12543596p-13255904c.html . I urge you tom please reject the project as the city of Turlock did. See I have been a resident of Merced for about 5 years and I am commuting from here to San Jose because I like the small town feeling of the city and the house affordability. If a distribution center is build here (god forbid) it will most certainly affect the way of life and traffic on the hwy 99 and campus parkway. I live at 438 Azalea Ct in the Sandcastle community and most of my neighbors are already selling there homes and moving to another city and if this distribution center happens I might have to do the same. I beg of you to reject the project, please help in cleaning the air pollution not make it worse. As it is right now my son has Asthma and

for sure I will not stick around if this thing happens which I pray it does not. Please put more emphasis on residents health's and well been than in the property taxes you might get from Wal-Mart. We are the residents that support this city and most of us if not all feel we deserve better than this. I would like you to consider the impact it will have on Merced residents short and long term because there is no guarantee that Wal-Mart will be here when problems start to come up and even if they are, they will not be held liable for any damages (pollution, road damage, drainage, increase climate temperature for trucks pollution, etc). I know you people are trying to make the right decision but please put health of the residents of Merced before anything else, because with no residents living in the city there will not be a city. Please do not bring such a large development to residential neighborhoods that are about 1000 feet away, not to mention the four schools in the vicinity. Right now, my son and many other asthma kids miss school a lot specially during summer because of unhealthy air and this is costing a lot of money to both the city and county. In addition this absent days will increase dramatically if the distribution center is built (I pray it does not) because of increase unhealthy days due to air pollution from the trucks.

I know most of you have kids and would not want to have such a project close to your neighborhoods so please don't put it in mine. I just do not understand why Wal-Mart distribution center has to be so close to neighborhoods they have plenty of unpopulated land around highway 5 and Highway 99. Please send Wal-Mart away to a site remotely located not anywhere near close to residential neighborhoods. I want to live in this city until I retire (I am 30 now) and I hope this distribution center is not anywhere near in sight. I am a planning engineer as well for PG&E and as such I work with many cities and I have seen what large projects such as this do to property values, resident's way of life and traffic. Therefore, I beg you to PLEASE PLEASE PLEASE send them somewhere very far away from MERCED. I will keep attending the council meeting but if I may ask for a favor please gets more people involve in the meeting because there was many residents all over Merced who did not receive a notice for the council meeting addressing the Wal-Mart issue. If you need to contact me, please do so at (209) 722-7482.
Joaquin Valencia

Thank You all in advance
Joaquin
Merced Resident

From: Espinosa, Kim [mailto:ESPINOSAK@cityofmerced.org]
Sent: Tuesday, February 14, 2006 10:51 AM
To: Valencia, Joaquin
Subject: RE: Super Wal-Mart Location

Mr. Valencia,
You may direct any letters of opposition to this (or any development project) to the City Council c/o the City Clerk's office at 678 West 18th Street, Merced, CA 95340. Or you may direct your inquiries to me and I will see that they are forwarded to the Council. Please note that an environmental impact report (EIR) will be prepared on the project to evaluate its impacts on traffic, air quality, and the other issues you discussed. That report will be made available to the public (it will likely take at least 6-8 months to prepare) and the City Council to help them make their decision on the project. It appears that you were not aware when you bought your home that the property where the project is located is zoned for industrial development (such as the Walmart project) as is most of the land east of the Doane Hartley Lateral, south of Highway 140. If you have any more questions or concerns, please let me know. Thanks!
--Kim
Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: espinosak@cityofmerced.org

-----Original Message-----
From: Valencia, Joaquin [mailto:JJV7@pge.com]
Sent: Tuesday, February 14, 2006 10:40 AM
To: Espinosa, Kim
Cc: city, council; city, manager

Subject: RE: Super Wal-Mart Location
Importance: High

Kim,

Are you the correct person to contact about opposing such a development? I am very concern about this new proposed development because I just moved into my new house about 8 months ago and now aside from the campus parkway I have to deal with the increase traffic, noise and pollution, not to mention the 55,000 gallons of sewer per day, which this distribution center will bring. I live at 438 Azalea Ct in the new sandcastle community. I just do not want the city to be greedy and basically screw every resident and schools that reside close to this proposed facility. I move from Gerard and G st to this location because I thought I was getting away from highway 59 traffic and now I have to deal with these. On top of all the traffic what concerns me the most is all the air pollution that this facility will bring with its trucks, tractors, etc because there is a lot of children in the community including my son that have asthma and of course this will greatly affect their way of life. Please let me know if you are the right person to complain and oppose this project or provide me with the name of person that I can direct my complaint to. I plan to gather signatures and have people write letters to the city council because this is a not a good place for such a development. Thank You for your help.

Joaquin

From: Espinosa, Kim [mailto:ESPINOSAK@cityofmerced.org]
Sent: Tuesday, February 14, 2006 9:24 AM
To: Valencia, Joaquin
Subject: RE: Super Walmart Location

Oops--yes, I did. Here it is... Sorry about that.
--Kim

-----Original Message-----
From: Valencia, Joaquin [mailto:JJV7@pge.com]
Sent: Tuesday, February 14, 2006 9:17 AM
To: Espinosa, Kim
Subject: RE: Super Walmart Location

Sorry, to bother you again, but did you forget to the attachment? Thanks.

Joaquin

From: Espinosa, Kim [mailto:ESPINOSAK@cityofmerced.org]
Sent: Tuesday, February 14, 2006 9:10 AM
To: Valencia, Joaquin
Subject: RE: Super Walmart Location

Joaquin,
The Walmart project is a distribution center, not a retail store. It is located between Gerard and Childs Avenues from the Doane Hartley Lateral to Tower Road (see attached site plan). If you have any more questions, please let me know. Thanks!
--Kim

Kim Espinosa, Planning Manager

City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: espinosak@cityofmerced.org

-----Original Message-----
From: Lesch, Jack
Sent: Tuesday, February 14, 2006 8:43 AM
To: Espinosa, Kim
Subject: FW: Super Walmart Location
Importance: High

-----Original Message-----
From: Valencia, Joaquin [mailto:JJV7@pge.com]
Sent: Tuesday, February 14, 2006 7:17 AM
To: Lesch, Jack
Subject: Super Walmart Location
Importance: High

HI!

My name is Joaquin Valencia and I live at the new sandcastle community on the corner of Coffee and Gerard on the opposite corner of Pioneer school. I saw on the newspaper that there was a proposed super Walmart for an area close to my house. Can you please send me a link or provide me with an exact location where this proposed super Walmart is going to be located at. Is this going to be where all that apple fields are at. Any information you can provide will be greatly appreciated. Thank You.

Joaquin

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG - 7 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

The location and extremely large size of this proposed project causes my concern for the quality of life for the surrounding neighborhoods and schools. NOT withstanding the city of Merced and the entire central valley we call home. Being we have some of the worst air quality in the entire nation, I feel the air pollution of a huge distribution center will bring needs to be carefully and fully evaluated. Also important . . . Traffic and noise. Finally property values to surrounding neighborhoods should be considered. Buying a home is one of the largest investments hard working families make and have already done in the proposed area. I feel this falls into the economic blight consideration.

Sincerely,

Daralene W. Silveira
Name

2171 Pebble Beach Ct.
Address

Merced CA 95340
City State Zip Code

209) 723-5203
Phone Number Fax Number

Dwsilveira@sbcglobal.net
E-Mail Address

Espinosa, Kim

From: Franco, Leonard
Sent: Wednesday, August 09, 2006 1:58 PM
To: Espinosa, Kim
Cc: Mitten, Kenneth
Subject: Wal-Mart Distribution Center

Kim Espinosa, Planning Manager
City of Merced

Re: Merced Wal-Mart Regional Distribution Center

After review of the Project Information provided for the Center, the Fire Department has the following comments regarding the Buildings/Operations (3.7.1) and Public Services (3.8.12).

Building-
It appears the building will comply with all requirements of the Fire Code adopted by the City. The report indicates that fire protection systems and water storage for fire suppression is provided.

Once completed, the facility will generate the requirement for annual inspections and Fire Permits. This impact will be offset with the collection of Permit Inspection Fees established by local ordinance.

The site plan indicates open areas that will need to comply with the City of Merced Weed Abatement Ordinance. All areas must be maintained free of weeds and other combustible debris.

Services-
The proposed facility and operation will generate additional calls for service. A significant impact is not anticipated due to the type of facility and fire detection/protection systems provided.

Kim, If there are any questions please give me a call.

Leonard Franco, Division Chief/Fire Marshal
Merced City Fire Department
99 E. 16th. Street
Merced, CA. 95340
(209) 385-8872

JoAnne Clarke Armstrong
2823 Oleander Ave.
Merced, CA 95340

August 9, 2006

Kim Espinosa, Planning Manager
City of Merced Planning and Permitting
678 West 18th Street
Merced, CA 95340
Fax: (209)725-8775
E-mail: espinosak@cityofmerced.org

Dear Ms. Espinosa:
In Re: Merced Wal-Mart Regional Distribution Center

Thank you for the opportunity to offer my comments regarding the Notice of Preparation of a Draft Environmental Impact Report for the Merced Wal-Mart Regional Distribution Center.

3.4 Required Approvals
The General Plan Amendment for the Kibby Road abandonment should be seriously reconsidered. Merced has few arteries that run East to West. Abandoning the right of way extension for Kibby Road will add to future stress of existing East-West arteries. The General Plan allows for this extension to address future growth in the area. By amending the General Plan to eliminate this proposed extension additional stress will be added to our already congested, existing East-West thoroughfares.

3.6.1 City Objectives
To encourage development of industrial projects that will contribute towards improving roadways adjacent to the proposed development site. Will this objective be met, or will the Merced area residents bear the burden of the cumulative impacts of 900 semi-trucks per day traveling on our already worn roadways? As an example, I call to your attention the reported $1million plus damages created by the earth transport in construction of the Mission Avenue Interchange.

3.7.1 Buildings and Operations
Included in the proposed 17,000 square foot truck maintenance building is a wash bay for trucks and trailers. Will solvents be used in washing these trucks? If so, what steps are being taken to prevent these solvents from entering our ground water system?

The truck maintenance equipment includes underground storage tanks: A 6,000 gallon new oil storage tank, 2,500 gallon waste oil storage tank, two 20,000 gallon diesel fuel dispensing station tanks. What assurances do we have that leaks and spillage from these

tanks will be contained and prevented from entering our ground water system? Consideration should be given to those residents in the area who still depend on well water for their homes. The risk of contamination to the ground water is great and could be devastating to those existing property owners.

3.7.3 Roadways and Parking
How can we maintain our ground water percolation if 70 acres of ground is covered with asphalt? This 70 acres is in addition to the 1.1 million square feet of warehouse. Serious consideration should be given to the consequences of paving over such a large expanse of area. Such issues as storm run off, loss of wet lands, loss of agricultural land, the heat generation of asphalt and the interception of rainwater percolation should all be seriously considered.

3.8.2 Agriculture
The project would convert land historically used for agriculture to industrial use. Implementation of this project will result in the direct conversion of agricultural land and former orchard to non-agricultural uses. The presence of the proposed project has the potential to facilitate the conversion of nearby agricultural lands to non-agricultural use due to the land use incompatibility factors that arise between adjacent urban and agricultural uses.

No where else in the world is there a place that has a growing season that exceeds over 200 days per year. We have an enormous resource here in our agricultural lands. Progress in the name of jobs and economic growth is eating up our farm land at an alarming pace. We need to do whatever possible to retain and conserve our agricultural lands. The proposed project will be eliminating existing agricultural resources. A distribution center such as this would be much better placed on non-productive lands. Serious consideration must be given to the future economic cost as a result of the loss of 230 acres of farm land.

3.8.3 Air Quality
It is noted that both short-term and long-term air quality emissions will contribute to cumulative air quality impacts already present in the San Joaquin valley. It is Wal-Mart's practice to have trucks loaded and unloaded based on scheduled times. This means a number of trucks will be idling while awaiting their scheduled time. With at least 900 trucks per day idling, serious consideration must be given to the affects on our already poison air.

3.8.7 Hazards and Hazardous Materials
Please refer to my comments under 3.7.1. The danger from spills of stored fuels and oils as well as from solvents used in the cleaning of equipment must be considered. Our ground water must be protected at all cost.

3.8.8 Surface Hydrology and Water Quality
Please see my comments under 3.7.3. With 100 acres of impervious surfaces intercepting our rain water not only is storm water runoff a serious issue but eliminating the natural

percolation of surface water could dramatically affect or ground water system and it's ability to renew itself during our rainy season. Scientific research should be mandatory in determining the feasibility of this project.

3.8.13 Traffic
Please see my comments under 3.6.1. How can 900 semi-trucks per day not have a serious impact on our already congested roadways? Eliminating the proposed extension of Kibby road will only add to those impacts.

3.9 Environmental issues that will not be addressed
The potential to create economic blight in existing developed areas beyond the project needs to be addressed. Under 3.7.2, Landscaping and Lighting, 3.8.1 Visual Resources and Nighttime Lighting, and 3.8.10 Noise, it is indicated that there will be 24 hours per day, 365 days per year impacts to existing areas. There is no doubt that these impacts will reduce property values in this area. How will property owners be compensated?

I have many more concerns and will appreciate the opportunity to comment further upon the release of the draft environmental report.

Thank you,
Sincerely,

JoAnne Clarke Armstrong

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG 10 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

(1) underground tank storage leakage potential to pollute the ground water
(2) solid waste disposal costs and the effects on the land fill costs to taxpayers? WASTEWATER ANALYSIS + COST
(3) Analysis of potential economic blight is necessary
Need for written commitment to specific number of jobs for MERCED RESIDENTS
DISCLOSER OF HOW MANY JOBS WILL GO TO "OUTSIDERS"
WALMART STATED TRUCK DRIVER + MANAGEMENT JOBS WILL NOT BE GIVEN TO MERCED RESIDENTS INITIALLY - SO HOW MANY ACTUAL JOBS WILL GO TO MERCED RESIDENTS WITH A WRITTEN GUARANTEE

Sincerely,

Marilynne Pereira
Name

Marilynne Pereira
Address

505 Mustang Ct — CA — 95340
City — State — Zip Code

Merced
Phone Number — Fax Number

209 723-6053
E-Mail Address

marilynnep@gmail.com

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

RECEIVED
AUG 10 2006
CITY OF MERCED
PLANNING DEPT.

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

DEMAND ON HOSPITAL EMERGENCY ROOM ANALAYSIS BECAUSE WALMART EMPLOYEES WITH LOW WAGES CAN NOT AFFORD MEDICAL INSURANCE I BELIEVE LESS THAN HALF OF WALMART EMPLOYEES HAVE MEDICAL COVERAGE

ALSO HOW THAT FACT MAY EFFECT ALL HEALTH INSURANCE COSTS IN MERCED e.g. Blue Cross Blue Shield
ALL HEALTH GROUPS ARE AFFECTED BY INCREASES IN UNINSURED MEMBERS OF THE MERCED COMMUNITY DRIVING UP HOSPITAL COSTS + THEREFORE HEALTH INSURANCE COSTS

Sincerely,

Name: ROBERT C MARTINEZ

Address: 416 LILY Dr.

City: MERCED State: CA Zip Code: 95340

Phone Number: (209) 383-1985 Fax Number:

E-Mail Address: RCMartinez@BOP.Com

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG 10 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

WRITTEN COMMITMENT FROM WALMART NOT TO HAVE ANY GROCERY ITEMS IN THE PROPOSED DISTRIBUTION CENTER.
IF NO WRITTEN LEGALLY BINDING PROHIBITION OF STORING GROCERY STORE ITEMS THEN ECONOMIC EFFECTS ANALYSIS IS ABSOLUTLY REQUIRED

ALSO EFFECTS OF ECONOMIC BLIGHT IF WALMART ABANDONS THE FACILITY IN A FEW YEARS AS THEY HAVE ABANDONED WAL MART STORES THROUGHOUT THE U.S.

Sincerely,

Kyle Hoskins
Name

2499 E. Gerard Av. #12
Address

Merced CA 95340
City State Zip Code

(209) 726-9114
Phone Number Fax Number

kyle@mercednet.com
E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

RECEIVED
AUG 11 2006
CITY OF MERCED
PLANNING DEPT.

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

My home is located directley downwind of building site. I will be getting Dust - fumes - suit and any other air borne particles from Wall Mart and construction of Site. How will they be Contained?

At present it is generally quiet except for occasional ag. noise. I am told Wall mart will operate around the clock every day - trucks docking - hooking up - honking Loud speakers. How will noise be Contained?

Trucks Waiting at McClain already are congected.

I have no air conditioning and wind comeing across asphalt and metal roofs will raise the wind tempature at my house by how much.?

Sincerely,

John Englert
Name

855 S. Orchard Dr.
Address

Merced CA 95340
City State Zip Code

(209) 722-1323
Phone Number Fax Number

E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

RECEIVED
AUG 11 2006
CITY OF MERCED
PLANNING DEPT.

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

During Construction of the Mission Interchange we have had peroids of trucks running 12 hrs a day 6 days a week. The noise has been terrable. The roads are not wide enough and the intersections are not big enough for the trucks to stay on there side of the road. The roads are falling apart and dangerous. I have been run off of the road many times. I have lost one windshield from loose road being kicked up by trucks. I am told Wall Mart will have as many trucks running per day plus as many more non Wall Mart trucks

Sincerely,

John Englert
Name

855 S. Orchard Dr.
Address

Merced CA 95340
City State Zip Code

209 722-1323
Phone Number Fax Number

E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

RECEIVED
AUG 11 2006
CITY OF MERCED
PLANNING DEPT.

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

I Do not understand how you can exclude Economic Blight.
This Project have a huge impact on residences around WalMart.
There will be Visual - Noise - Exhaust - ~~Conj~~ traffic - trucks parked where ever they can find a spot.
I do not see how this Project could keep ~~from~~ lowering ~~the~~ houseing values and makeing them hard to sell

Sincerely,

John Englert
Name

855 S. Orchard Dr.
Address

Merced CA 95340
City State Zip Code

209 722-1323
Phone Number Fax Number

E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG 1 1 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

Please see attached document of comments - 3 pages

Sincerely, Roderick H. Webster

Name Roderick H. Webster

Address 345 E. 20th St

City Merced State CA Zip Code 95340

Phone Number 209-723-4747 Fax Number

E-Mail Address rwebster@elite.net

Dear Ms. Espinosa,

I am pleased that the City Planning Dept. recognizes the far-reaching and serious impacts that the proposed Wal-Mart distribution center will have on the Merced community. The notice of preparation catalogs many environmental and "quality of life" concerns that will be addressed in the E.I.R. I trust that alternatives to the current proposal will be found that will speak to the threat to local air quality, water quality, noise and light pollution, traffic and safety issues. At the very least the citizenry anticipates significant mitigations for any degradation that cannot be corrected.

Without restating the overriding concerns already outlined in the NOP, here are a few parenthetical comments and details about facets of the proposal that I hope the E.I.R. will address:

3.5 Red Bluff and Apple Valley are identified as the closest distribution centers. This is only the last leg in a journey for merchandise that comes from all over the nation and in fact the world. Regardless of how close the last leg is the same total distance must be covered. Additionally no mention is made of the Porterville distribution center only 128 miles away.

A siting study by the applicant is referred to which mentions proximity to other industrial uses as a benefit to the site. Proximity to nearby residential zones and both elementary and high schools nearby should have been a more prominent consideration since this creates some major safety and health conflicts with a facility of this magnitude.

Also cited as a positive for the site location is access to Hwy. 99 without driving through residential neighborhoods. I hope for the sake of the neighborhoods assurances would be given that semis will not be found on residential arteries. Even if the Mission interchange is not in place for the opening of a distribution center, exceptions should not be made.

3.6.1 One of the city's objectives is listed a' homes and nearby schools certainly would qualify as "non-industrial uses". When this land parcel was rezoned in '97 was a facility of this magnitude and with these kind of traffic demands what the planning department envisioned as appropriate in this kind of proximity. More specifically, if you personally lived in this area of town would you eagerly embrace such development- in fact would anybody?

Another of the five objectives that the city says they anticipate from the proposed project is that it "will contribute towards improving roadways adjacent to the site". I am anxious to see how the distribution center would achieve such a goal. Was the Mission exchange designed with the projected volume of Wal-Mart truck traffic in mind? How would they not crowd and deteriorate local roadways, much less have a positive effect. I hope there would be some commitment on Wal-Mart's part to maintain the roads they use proportionate to the effects a fleet of large trucks would have.

A third city objective that the proposed Wal-Mart distribution center does not meet even by their own admission is "to ensure that industrial areas are developed in an attractive manner". Acres of roof and blacktop, much surrounded by security fencing, will clearly not be sightly.

The proposed Wal-Mart distribution center seems to have trouble meeting 3 out of 5 objectives that the city has for that site. Hopefully some creative solutions or mitigation will meet those expectations.

3.6.2 One of the applicants objectives is "to minimize impacts on residential streets". I'm sure local residents as well as other drivers through the area will echo that. Of particular concern are what assurances can be made that this goal will be adhered to. Residents near the Porterville distribution center provide alarming cautionary anecdotes of detrimental impacts on their neighborhoods. Who and how will it be decided that indeed the maximum effort is being made to meet this goal. What contingencies or mitigations can be built in if there are violations. If the Mission interchange construction is not completed on a timetable to meet Wal-Mart needs would this commitment to stay off residential streets hold firm?

Another objective that is desirable but needs clarification on how it would be monitored and assured is "to provide sufficient parking for trucks and employees to minimize impacts on the surrounding area". The nearby residents should have some input on what intrusions are acceptable and which would not be. A concern that has come to light, again from the experiences of Porterville residents, is when trucks are "down" where would they park? Also would trucks waiting for their scheduled time to unload be parked/idling on the Wal-Mart site and if not where? Hopefully not "impacting" the surrounding community.

3.7.1 The chemical and fuel storage structures need to be safe and reliable. The quantities of fuel, oil, and other chemicals are huge. Again, proximity to homes and schools magnifies the necessity of insuring protection of the environment and the safety of those in the area.

3.7.2 I could not help noting that "lighting is designed so that light does not cross property boundaries". How will the light from 40 foot polls that floods the work area throughout the night be contained. I would hope that such a technology will be specified. Also "average lighting" doesn't seem the critical measurement but instead the actual amount that emanates out into the surrounding neighborhood across the borders of the property's perimeter.

3.7.4 It is not clear who pays for the providing of city utilities and services to the facility. One would hope/ assume that this could not fall on taxpayers but would be the applicant's responsibility.

3.8.1 The change from "views of orchards and agricultural fields to views of warehouse buildings, parking lots, and vehicles" is obviously an aesthetic sacrifice, but it seems like a particularly unacceptable one given that campus parkway will be the main introduction that many will receive to our campus community and U.C. Merced. That along with being part of a convoy of trucks exiting the freeway will indeed make a definite impression. Is this the one we had in mind when the campus parkway was envisioned?

Why are the impacts of light and glare to be assessed qualitatively, and how will this be done? Finding a comparable facility and spending an overnight nearby with a bedroom window facing toward the source would be a start. Definitive quantitative measurements might be useful indicators too.

3.8.2 I do appreciate the recognition that nearby ag lands might later be impacted by this facility- a definite consideration from a long range perspective. How does this fit with the General Plans (both current and evolving) of both the City and the bordering County lands?

3.8.3 This section is extremely short- hopefully because the concept "air quality" has a

broad meaning and application. Clearly this is an area of grave concern both to local residents, nearby schools, and to all those who share our air basin. While long term vehicle emissions are indeed the most threatening to air quality and hence human health dust also is likely to be a serious problem long term. Again, measuring the future conditions is hard but other facilities with a similar intensity of truck traffic would be logica places to investigate.

3.8.7 It is hoped that all possible technologies and procedures would be used to ensure that hazardous materials are handled properly and utmost containment design and equipment would be used to avert potential accidents and their impact.

3.8.8 Water is one of our Valley's most precious resources. Runoff from 100's of acres of blacktop and roof line should be considered with gravity. The applicant should address dangers with specific plans for protection of surface water downstream and groundwater fed by the facility's runoff. There should also be some contingency plans and specified consequences if protection measures fail.

3.8.9 Surrounded by residences, schools and farmlands the city should rethink its industrial designation of this site,. Farmland until recently, the distribution center with its traffic noise, pollution, could clearly find another more suitable, less offensive location.

3.8.10 A major noise consideration not mentioned in the NOP is "trailer drops". Porterville residents who live near the distribution center there have described these as loud, invasive metallic clangs that occur throughout the night as well as during the day. I expect these will be quite an intrusion on home life and may also be a problem at the schools nearby. What can be done to address such a problem?

3.8.13 The NOP is wise to recognize traffic impacts in both the context of the Mission Av interchange being complete and the possibility that it might not be up and functioning. Certainly it will not be so during the construction phase and there is that possibility even after the Wal-Mart facility is up and running. Given the volume of anticipated truck traffic this is a major consideration. Also, what of employee comings and goings? How will shift changes overlap traffic from buses and cars accessing the loc schools?

3.9 "Blight" should certainly be considered in the context of the effect the proposed facility will have on the quality of life of residents in the area. This will also be reflected in economic impacts on their property values. Which of us would willingly choose to move to such a neighborhood much less lay comparable dollar value as for a similar house in a less impacted neighborhood. Especially owners who move to the area when the site like its surroundings were agricultural have a real right to object. it is rumored that even new homes being sold nearby are not receiving proper disclosure about their potential new neighbor. Why would such facts be hidden if they did not in fact diminish the value of the properties?

In conclusion, the impacts of the proposed Wal-Mart Regional Distribution Center at the intersection of Childs Avenue and Tower Road are sever and far-reaching. The Notice of Preparation that the city planning department has issued recognizes many of these and will hopefully see that the applicant reduces them to the full degree possible and mitigates them when not possible. Please notify me of any further opportunity for input and future progress of this project.

Sincerely,

Roderick H Webster

Draft Environmental Impact Report -

8-9-06

Dear Ken

Sorry I am so late. I have had my good & bad days.

My concern is the impact I see the trucks & back ups & traffic on 99 & on Cranston - There will be alot of trucks not so much to interfere with City traffic but for 99 Freeway & those going to North East Merced to College & East Roads -

I still say they should be long to a union to guarantee wages & Benefits. Pottsville is having problems with Wal-Mart at their distribution Center - why I read & forgot -

Marie Louise Moschitto

Marie Louise Moschitto
1318 Devonwood Dr.
Merced, CA 95348-1775

Thomas C. Grave
3425 Sueno Court
Merced, CA 95348

RECEIVED
AUG 1 1 2006
CITY OF MERCED
PLANNING DEPT.

August 11, 2006

Kim Espinosa, Planning Manager
City of Merced
Planning and Permitting Division
678 W. 18th Street
Merced, CA 95340

RE: Merced Wal-Mart Distribution Center

Dear Ms. Espinosa,

I appreciate the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the proposed Wal-Mart Distribution Center. Please take my comments into consideration during the EIR process, as required by the California Environmental Quality Act.

3.8.1 Visual Resources and Nighttime Lighting

The project would be in operation twenty-four hours per day, necessitating building-mounted and pole-mounted lights to accommodate this schedule. It is expected that the light and glare would have an impact on the residential areas nearby. Specifically, the EIR must assess the psychological impact on area residents as they try to cope with not only the aesthetics of all-night light but also the possible adverse health effects of interruptions in their normal diurnal cycles.

3.8.2 Agriculture

The Wal-Mart project would convert land historically used for agriculture to industrial use. Although the land in question is currently zoned to permit industrial uses, the decision to eradicate farmland should not be made lightly. The state of California is losing agricultural land at an alarming rate, occasioned by increasing population and attendant urbanization. We have a collective responsibility to protect San Joaquin Valley land, which is among the most productive in the world. The EIR process must consider alternative sites for the Wal-Mart Distribution Center that would not jeopardize productive farmland. Indeed, the Notice of Preparation document states that "... the proposed project has the potential to facilitate the conversion of nearby agricultural lands

to non-agricultural use due to the land use incompatibility factors that arise between adjacent urban and agricultural uses." Not only would we lose productive land to the project itself, but we would risk the loss of surrounding farmlands as well.

3.8.3 Air Quality

The San Joaquin Valley basin has some of the most polluted air in the nation. The proposed project would introduce new sources of pollution. One particular area of concern is the reported idling of engines as trucks wait for their turn to load or unload cargo at distribution centers. The EIR process should make a detailed analysis of the impact of idling truck engines by conducting on-site observations at the Wal-Mart Distribution Centers located in Red Bluff, Porterville, and Apple Valley, all in California. There are also reports of trucks idling in order to operate heaters for drivers who might be sleeping in their trucks. This practice should be investigated.

3.8.9 Land Use

Conversion of 230 acres of farmland to buildings and paved parking areas would likely contribute to the "heat island" phenomenon currently under study in selected urban areas of California, including Fresno. The implications for the City of Merced should be carefully assessed through the EIR process. Would alternative sites be better?

3.8.10 Noise

Acoustical studies should be performed to assess the decibel levels of noise associated with traffic and industrial activities at the proposed Center. Additionally, the health and psychological effects of all-day, all-night noise on nearby residents must be evaluated.

In conclusion, please keep me informed of any and all meetings, hearings and publications associated with the Wal-Mart Distribution Center proposal.

Yours truly,

Thomas C. Grave

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

RECEIVED
AUG 1 1 2006
CITY OF MERCED
PLANNING DEPT.

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

Why not find out what has taken place where Wal-Mart Distribution Centers are functioning? Porterville would be a close location to check for answers to questions such as:

- What is the number of trucks coming and going?
- What are the heaviest traffic periods of these trucks?
- How does their traffic impact local traffic patterns?
- What has this traffic done to the condition of the roads (consider the deterioration problems already experienced east of Merced by construction equipment starting the access road to UC Merced)?
- What have been the changes in property values?

cont'd

Sincerely,

Name

Address

City State Zip Code

Phone Number Fax Number

E-Mail Address

Comment on the Notice of Preparation
For Merced Wal-Mart Regional Distribution Center
Response Deadline: 5:00 p.m., August 11, 2006

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340
Phone: (209) 385-6858
Fax: (209) 725-8775
Email: planningweb@cityofmerced.org

Subject: Notice of Preparation for Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa,

I understand that the City of Merced is preparing an Environmental Impact Report (EIR) for the proposed Wal-Mart Regional Distribution Center, located at the intersection of Childs Avenue/Tower Road. I have reviewed the Notice of Preparation your City has prepared for this project and would like to suggest that you consider the following issues as you prepare the EIR:

- What concerns have the nearby residents expressed?
- What are the noise levels?
- What type of lighting and its effect on the area?
- How many local people are actually employed?
- What is the wage for beginning hires?

A really helpful action would be to find out what reasons Turlock had for the decision to deny a Center in their town.

Please investigate fully so Merced won't be saddled with a possible negative enterprise.

Sincerely,

Frances Saunders
Name

441 W 20th St.
Address

MERCED CA 95340
City State Zip Code

722-2662
Phone Number Fax Number

E-Mail Address

(2)

Community Systems Associates, Inc.

RECEIVED
AUG 11 2006
CITY OF MERCED
PLANNING DEPT.

August 11, 2006

Ms. Kim Espinoza, Planning Manager
Planning and Permitting
City of Merced
678 West 18th Street
Merced, California 95340

Subject: **Comments of the Merced Union High School District**

Notice of Preparation of Draft Environmental Impact Report
Site Plan
General Plan Amendment
Kibby Road Street Abandonment

Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinoza;

This letter is submitted by Community Systems Associates, Inc. on behalf of the Merced Union High School District ("MUHSD"), and is presented as the formal position of the District on the project as described herein. Community Systems Associates, Inc. is the retained consultant of the Merced Union High School District and this letter has been authorized to be presented to the City of Merced.

The District is in receipt of the City of Merced ("City") Notice of Preparation of Draft Environmental Impact Report ("Notice") with regards to the proposed Site Plan and General Plan Amendment for the Merced Wal-Mart Regional Distribution Center ("Proposal") consisting of 230-acres and which is intended as a warehouse and distribution center for Wal-Mart Corporation ("Project"). The Project is generally bounded by Childs Avenue on the north, Tower Road on the east, and Gerard Avenue on the south. The Project is approximately two miles east and north of State Route 99.

The Project is located in the following school districts:

Merced Union High School District
Weaver Union School District

The Project is to accompany the following entitlement applications:

1. General Plan Amendment
2. Site Plan
3. Environmental Impact Report

The Notice provides that the City of Merced will be the Lead Agency and will prepare an environmental impact report for the Project. The City seeks the views of the District as to the scope and content of the environmental information which is germane to the District's statutory responsibilities in connection with the Project. The Notice provides that the responses are to be sent to the City no later than 30-days after receipt of the Notice, but not later than August 11, 2006.

The District has had several telephone conversations with Mr. Colby Tanner, Real Estate Manager, Distribution Centers Wal-Mart Stores, Inc. The District is enthusiastic with the response by Mr. Tanner to investigate and pursue the formation of a public/private partnership that would enhance the educational and facility programs of the District through the implementation of the Project. To this end, the District and Wal-Mart are continuing discussions and are looking at options and alternatives that would lead to an agreement that would serve the interests of all parties. We view these discussions as favorable and trust that as they progress, a relationship will be formed to address the concerns of the District, introduce the Project in the Community as a benefit to the District and schools, and will enable the District to fully support the Project. We look forward to the continuation of these discussions and it is hoped that the District and Wal-Mart will enter into an agreement prior to the completion of the Draft EIR so that the terms of the agreement can be made a part of the Draft EIR.

In the interim of an agreement, the District has a fiduciary responsibility to respond to the Notice.

The District is a responsible and affected agency that will be impacted by the development of the Property by the proposed Project. This letter is intended to be entered into the public record of the City on the Project to address this Proposal, and is further intended to present the District's comments with regards to the impacts and consequences that should be contemplated in the Draft EIR, in order to protect the District's administrative and legal remedies.

It is the District's request that the Notice of Preparation be filed with the Office of Planning and Research and that a State Clearinghouse number be issued. This Project has the potential to impact the resources and assets of the State of California Department of Transportation, the California Air Resources Board, the California Water Quality Control Board, Water Resources Control Board, California Department of Water Resources, California Department of Food and Agriculture, California Environmental Protection Agency, Integrated Waste Management Board, and California Highway Patrol, to name a few.

The City has requested the scope and content of the environmental information which is germane to the District's statutory responsibilities in connection with the Project. The District's response is required to identify significant environmental issues and reasonable alternatives and mitigation measures that the District will need to have explored in the Draft EIR. The following is a response to the Notice in conformance with the applicable provisions of the CEQA Guidelines.

Draft EIR Issues

The District is currently overcrowded. The Draft EIR needs to provide a full disclosure of the impacts of the Project on the District in terms of growth inducing impacts, and direct and indirect impacts on the operations of the District and the conditions of the environment surrounding the Project. The following is a list of the impact areas and areas of concern that in the judgment of the District needs to be addressed in the Draft EIR:

1. The direct, indirect, and cumulative impacts on the increased enrollments, increased required employees, increased school facilities, increased District-wide facilities, increased interim facilities, and increased transportation facilities and services required by the students generated by the growth inducing aspects of the Project, needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

2. The direct, indirect, and cumulative impacts on the circulation and traffic patterns throughout the Community as a result of overall traffic generated by the Project (employee traffic and tractor/trailer traffic), and the impacts of this traffic on the schools and the surrounding areas need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

3. The direct, indirect, and cumulative impacts on the rail transportation systems (if any) within the Community and the surrounding areas as a result of distribution of products transported to the Project needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

4. The direct, indirect, and cumulative impacts on the routes and safety of students traveling to schools by vehicles, District busing, walking and using bicycles in conflict with the traffic to and from the Project, need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

5. In order for the District to accommodate the students generated from the growth inducing aspects of the Project, the District will have to modify attendance area boundaries, program double-session schedules, load classrooms with students in excess of District and State standards, and house students in inadequate and inappropriate school facilities, etc., throughout the District. This effect on the overall operation and administration of the District, and the students, employees, and constituents affected by such actions need to be addressed in the Draft EIR. This will have physical, social, financial, and psychological effects on the students, employees, and constituents of the District. These potential impacts need to be addressed in the EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

6. In the event that the growth inducing impacts of the Project are not mitigated, students and employees will experience overcrowding conditions in the schools that are impacted by the Project. This may result in operational and administrative modifications that would be necessary to accommodate the increased overcrowded enrollments. This may have physical, social, financial, and psychological effects on the students, employees, and constituents of the District. These potential impacts need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

7. In order to accommodate students generated by the growth inducing impacts of the Project, permanent and interim classrooms and support facilities may need to be installed, constructed, and developed on the school sites. The impacts of these additional facilities on school site utilization, wastewater treatment, water and utility services, parking, traffic and circulation, loss of parking, open space, and field areas, and State site and design compliance needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

8. SB 50 places limitations on the statutory development fees to be paid by the development for the Project. The Draft EIR needs to address the deficiencies in the fees paid versus the revenues required to fund the permanent and interim school facilities, and the District-wide support facilities to accommodate the students generated by the growth inducing impacts of the Project. In the event the SB 50 limitations result in financial deficits that would result in facilities not being fully funded, then the Draft EIR should identify the measures that will be taken to address the unfunded facilities to accommodate the students generated by the growth inducing impacts of the Project. If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the Project as proposed, the effects of the mitigation measure should be discussed.

Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

9. The Draft EIR should evaluate the "growth inducing" impacts of the Project on the Community and the region, including but not limited to the direct and indirect environmental impacts of the growth inducement on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, and land use. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

10. The increased traffic of the Project will have an impact on increased traffic on the surrounding collector and arterial streets, State Highway 99, and the on- and off-ramps. These traffic increases will impact the District's busing and transportation timing and routes. The Draft EIR should address these impacts on the District. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

11. The Draft EIR should identify the significant environmental effects on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use which cannot be avoided if the Project is implemented, together with the direct and indirect consequences of the unavoidable environmental effects.

12. The Draft EIR should identify the significant irreversible environmental changes on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use, which would be caused by the Project should the Project be implemented.

13. The Draft EIR should address the air quality, noise, and vibration, traffic impacts on surrounding land uses along the routes that the traffic from the Project will use to and from the Project.

14. The Draft EIR should address the impacts and consequences on local street and roads, on- and off-ramps, and State Route 99 as a result of traffic accidents involving the trucks going to and from the Project, and offer alternative detours as a result of such occurrences.

15. The Draft EIR should address the deterioration of local streets, on-and off-ramps, and State Route 99 roadway surfaces as a result of the continued truck vehicle usages over time, and the physical and financial consequences to the Community, the City of Merced, and the State of California.

16. The Draft EIR should address the impacts associated with the nighttime lights and glare that might affect the ambient light of the area and the impacts and consequences of this lighting on the surrounding areas.

17. It is acknowledged that the Project will conduct operations 24 hours per day, seven days per week. The Draft EIR shook address all impacts as they may be intensified during the normal non-working hours of the day and on weekends.

18. The Draft EIR should address the impacts of hazardous materials being stored and/or used on the Project site including, but not limited to refrigeration materials, diesel fuel, and other chemicals that are combustible, toxic, or hazardous.

19. The Draft EIR should address how the Project is consistent with the land use map, and the ALL goals, polices, and implementation programs of the City of Merced General Plan and the County of Merced General Plan, including but not limited to schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use.

20. The Draft EIR should identify the primary truck routes for access/egress to the Project along with alternative routes in the vent that the designated routes are inaccessible and unavailable. The Draft EIR should address all of the impact areas that are relevant to the primary routes, including but not limited to traffic, noise, air quality, etc.

21. SB 50 provides:

    a. Section 65995 (e) "The Legislature finds and declares that the *financing of school facilities and the mitigation of the impacts* of land use approvals, whether legislative or adjudicative, or both, on the need for school facilities are *matters of statewide concern*. For this reason, *the Legislature hereby occupies the subject matter of requirements related to school facilities levied or imposed in connection with, or made a condition of, any land use approval, whether legislative or adjudicative act, or both, and the mitigation of the impacts of land use approvals, whether legislative or adjudicative, or both, on the need for school facilities, to the exclusion of all other measures, financial or non-financial, on the subjects*. For purposes of this subdivision, "school facilities" means any school-related consideration relating to a school district's ability to accommodate enrollment.

    b. Section 65995 (h) "The payment or satisfaction of a fee, charge, or other requirement levied or imposed ... are hereby *deemed to be full and complete mitigation of the impacts* of any legislative or adjudicative act, or

both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization ..., on the provision of adequate school facilities."

c. Section 65996 (a) "....the following provisions shall be the *exclusive methods of considering and mitigating impacts on school facilities* that occur or might occur as a result of any legislative or adjudicative act, or both, by any state or local agency involving, but not limited to, the planning, use, or development of real property or any change of governmental organization or reorganization..."

d. Section 65996 (b) The provisions of this chapter are hereby *deemed to provide full and complete school facilities mitigation* and, notwithstanding Section 65858, or Division 13 (commencing with Section 21000) of the Public Resources Code, or any other provision of state or local law, a state or local agency *may not deny or refuse to approve* a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property or any change in governmental organization or reorganization,... on the basis that school facilities are inadequate..."

The Draft EIR needs to identify the deficiencies and inadequacies between the legal provisions of SB 50 and the actual implementation of the provisions with regards to the Project. In addition, the Draft EIR needs to identify any and all impacts that have not been mitigated by the provisions of SB 50.

22. The cumulative impacts of the Project on traffic and circulation, noise, schools, public facilities and services, wastewater treatment, water and water table, air quality, and utilities need to be evaluated in the Draft EIR based on the build-out of the City of Merced General Plan and the County of Merced General Plan, the build-out of the land uses within the Sphere of Influence of the City of Merced, and the build-out of the land within the jurisdiction of the public agencies providing service to the Project. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

23. The Draft EIR should identify all federal, State, and local agencies, other organizations, and private individuals consulted in preparing the draft EIR, and the persons, firm, or agency preparing the Draft EIR by contract or other authorization.

24. The Draft EIR should identify the economic or social information relative to the impacts of the Project. The Draft EIR should trace the chain of cause and effect from a proposed decision on a Project through anticipated economic or social

changes resulting from the Project to physical changes caused in turn by the economic or social changes. The economic and social analysis should focus the analysis on the physical changes that will result on the District from the Project. Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a Project are feasible to reduce or avoid the significant effects on the environment identified in the Draft EIR.

25. The Draft EIR should identify the inadequacies contained in the City of Merced General Plan and the consequences of compliance or lack of compliance of the current General Plan with the applicable provisions of Section 65300 et. seq. of the Government Code.

Following the completion of the Draft EIR, the District does hereby request the maximum time permitted by law to review the Daft EIR and offer any comments. We further hereby request that a copy of the Draft EIR be forwarded to the following for review:

Dr. Robert Fore, Superintendent
Merced Union High School District
3430 "A" Street
Atwater, California 95301

Mr. Marshall B. Krupp
Community Systems Associates, Inc.
3367 Corte Levanto
Costa Mesa, California 92626

The District looks for to a favorable relationship with Wal-Mart and anticipates that this letter will further the discussion between Wal-Mart and the District as the Project progresses and a partnership is reached between the Parties.

Thank you for your assistance and consideration.

Sincerely,

Community Systems Associates, Inc.

Marshall Krupp
Mr. Marshall B. Krupp
President

MBK:mbk
Merced –Wall Mart Plan Notice of Preparation 08-11-06 MUHSD

Cc: Dr. Robert Fore, Superintendent
Merced Union High School District
3430 "A" Street
Atwater, California 95301

Community Systems Associates, Inc.

RECEIVED
AUG 11 2006
CITY OF MERCED
PLANNING DEPT.

August 11, 2006

Ms. Kim Espinoza, Planning Manager
Planning and Permitting
City of Merced
678 West 18th Street
Merced, California 95340

Subject: **Comments of the Weaver Union School District**

Notice of Preparation of Draft Environmental Impact Report
Site Plan
General Plan Amendment
Kibby Road Street Abandonment

Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinoza;

This letter is submitted by Community Systems Associates, Inc. on behalf of the Weaver Union School District ("WUSD"), and is presented as the formal position of the District on the project as described herein. Community Systems Associates, Inc. is the retained consultant of the Weaver Union School District and this letter has been authorized to be presented to the City of Merced.

The District is in receipt of the City of Merced ("City") Notice of Preparation of Draft Environmental Impact Report ("Notice") with regards to the proposed Site Plan and General Plan Amendment for the Merced Wal-Mart Regional Distribution Center ("Proposal") consisting of 230-acres and which is intended as a warehouse and distribution center for Wal-Mart Corporation ("Project"). The Project is generally bounded by Childs Avenue on the north, Tower Road on the east, and Gerard Avenue on the south. The Project is approximately two miles east and north of State Route 99.

The Project is located in the following school districts:

Merced Union High School District
Weaver Union School District

The Project is to accompany the following entitlement applications:

1. General Plan Amendment
2. Site Plan
3. Environmental Impact Report

The Notice provides that the City of Merced will be the Lead Agency and will prepare an environmental impact report for the Project. The City seeks the views of the District as to the scope and content of the environmental information which is germane to the District's statutory responsibilities in connection with the Project. The Notice provides that the responses are to be sent to the City no later than 30-days after receipt of the Notice, but not later than August 11, 2006.

The District has had several telephone conversations with Mr. Colby Tanner, Real Estate Manager, Distribution Centers Wal-Mart Stores, Inc. The District is enthusiastic with the response by Mr. Tanner to investigate and pursue the formation of a public/private partnership that would enhance the educational and facility programs of the District through the implementation of the Project. To this end, the District and Wal-Mart are continuing discussions and are looking at options and alternatives that would lead to an agreement that would serve the interests of all parties. We view these discussions as favorable and trust that as they progress, a relationship will be formed to address the concerns of the District, introduce the Project in the Community as a benefit to the District and schools, and will enable the District to fully support the Project. We look forward to the continuation of these discussions and it is hoped that the District and Wal-Mart will enter into an agreement prior to the completion of the Draft EIR so that the terms of the agreement can be made a part of the Draft EIR.

In the interim of an agreement, the District has a fiduciary responsibility to respond to the Notice.

The District is a responsible and affected agency that will be impacted by the development of the Property by the proposed Project. This letter is intended to be entered into the public record of the City on the Project to address this Proposal, and is further intended to present the District's comments with regards to the impacts and consequences that should be contemplated in the Draft EIR, in order to protect the District's administrative and legal remedies.

It is the District's request that the Notice of Preparation be filed with the Office of Planning and Research and that a State Clearinghouse number be issued. This Project has the potential to impact the resources and assets of the State of California Department of Transportation, the California Air Resources Board, the California Water Quality Control Board, Water Resources Control Board, California Department of Water Resources, California Department of Food and Agriculture, California Environmental Protection Agency, Integrated Waste Management Board, and California Highway Patrol, to name a few.

The City has requested the scope and content of the environmental information which is germane to the District's statutory responsibilities in connection with the Project. The District's response is required to identify significant environmental issues and reasonable alternatives and mitigation measures that the District will need to have explored in the Draft EIR. The following is a response to the Notice in conformance with the applicable provisions of the CEQA Guidelines.

Draft EIR Issues

The District is currently overcrowded. The Draft EIR needs to provide a full disclosure of the impacts of the Project on the District in terms of growth inducing impacts, and direct and indirect impacts on the operations of the District and the conditions of the environment surrounding the Project. The following is a list of the impact areas and areas of concern that in the judgment of the District needs to be addressed in the Draft EIR:

1. The direct, indirect, and cumulative impacts on the increased enrollments, increased required employees, increased school facilities, increased District-wide facilities, increased interim facilities, and increased transportation facilities and services required by the students generated by the growth inducing aspects of the Project, needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

2. The direct, indirect, and cumulative impacts on the circulation and traffic patterns throughout the Community as a result of overall traffic generated by the Project (employee traffic and tractor/trailer traffic), and the impacts of this traffic on the schools and the surrounding areas need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

3. The direct, indirect, and cumulative impacts on the rail transportation systems (if any) within the Community and the surrounding areas as a result of distribution of products transported to the Project needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

4. The direct, indirect, and cumulative impacts on the routes and safety of students traveling to schools by vehicles, District busing, walking and using bicycles in conflict with the traffic to and from the Project, need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

5. In order for the District to accommodate the students generated from the growth inducing aspects of the Project, the District will have to modify attendance area boundaries, program double-session schedules, load classrooms with students in excess of District and State standards, and house students in inadequate and inappropriate school facilities, etc., throughout the District. This effect on the overall operation and administration of the District, and the students, employees, and constituents affected by such actions need to be addressed in the Draft EIR. This will have physical, social, financial, and psychological effects on the students, employees, and constituents of the District. These potential impacts need to be addressed in the EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

6. In the event that the growth inducing impacts of the Project are not mitigated, students and employees will experience overcrowding conditions in the schools that are impacted by the Project. This may result in operational and administrative modifications that would be necessary to accommodate the increased overcrowded enrollments. This may have physical, social, financial, and psychological effects on the students, employees, and constituents of the District. These potential impacts need to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

7. In order to accommodate students generated by the growth inducing impacts of the Project, permanent and interim classrooms and support facilities may need to be installed, constructed, and developed on the school sites. The impacts of these additional facilities on school site utilization, wastewater treatment, water and utility services, parking, traffic and circulation, loss of parking, open space, and field areas, and State site and design compliance needs to be addressed in the Draft EIR. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

8. SB 50 places limitations on the statutory development fees to be paid by the development for the Project. The Draft EIR needs to address the deficiencies in the fees paid versus the revenues required to fund the permanent and interim school facilities, and the District-wide support facilities to accommodate the students generated by the growth inducing impacts of the Project. In the event the SB 50 limitations result in financial deficits that would result in facilities not being fully funded, then the Draft EIR should identify the measures that will be taken to address the unfunded facilities to accommodate the students generated by the growth inducing impacts of the Project. If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the Project as proposed, the effects of the mitigation measure should be discussed.

Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

9. The Draft EIR should evaluate the "growth inducing" impacts of the Project on the Community and the region, including but not limited to the direct and indirect environmental impacts of the growth inducement on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, and land use. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

10. The increased traffic of the Project will have an impact on increased traffic on the surrounding collector and arterial streets, State Highway 99, and the on- and off-ramps. These traffic increases will impact the District's busing and transportation timing and routes. The Draft EIR should address these impacts on the District. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

11. The Draft EIR should identify the significant environmental effects on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use which cannot be avoided if the Project is implemented, together with the direct and indirect consequences of the unavoidable environmental effects.

12. The Draft EIR should identify the significant irreversible environmental changes on schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use, which would be caused by the Project should the Project be implemented.

13. The Draft EIR should address the air quality, noise, and vibration, traffic impacts on surrounding land uses along the routes that the traffic from the Project will use to and from the Project.

14. The Draft EIR should address the impacts and consequences on local street and roads, on- and off-ramps, and State Route 99 as a result of traffic accidents involving the trucks going to and from the Project, and offer alternative detours as a result of such occurrences.

15. The Draft EIR should address the deterioration of local streets, on-and off-ramps, and State Route 99 roadway surfaces as a result of the continued truck vehicle usages over time, and the physical and financial consequences to the Community, the City of Merced, and the State of California.

16. The Draft EIR should address the impacts associated with the nighttime lights and glare that might affect the ambient light of the area and the impacts and consequences of this lighting on the surrounding areas.

17. It is acknowledged that the Project will conduct operations 24 hours per day, seven days per week. The Draft EIR shook address all impacts as they may be intensified during the normal non-working hours of the day and on weekends.

18. The Draft EIR should address the impacts of hazardous materials being stored and/or used on the Project site including, but not limited to refrigeration materials, diesel fuel, and other chemicals that are combustible, toxic, or hazardous.

19. The Draft EIR should address how the Project is consistent with the land use map, and the ALL goals, polices, and implementation programs of the City of Merced General Plan and the County of Merced General Plan, including but not limited to schools, public facilities, wastewater treatment, water availability and water table, traffic and circulation, noise, air quality, land use.

20. The Draft EIR should identify the primary truck routes for access/egress to the Project along with alternative routes in the vent that the designated routes are inaccessible and unavailable. The Draft EIR should address all of the impact areas that are relevant to the primary routes, including but not limited to traffic, noise, air quality, etc.

21. SB 50 provides:

    a. Section 65995 (e) "The Legislature finds and declares that the *financing of school facilities and the mitigation of the impacts* of land use approvals, whether legislative or adjudicative, or both, on the need for school facilities are *matters of statewide concern*. For this reason, *the Legislature hereby occupies the subject matter of requirements related to school facilities levied or imposed in connection with, or made a condition of, any land use approval, whether legislative or adjudicative act, or both, and the mitigation of the impacts of land use approvals, whether legislative or adjudicative, or both, on the need for school facilities, to the exclusion of all other measures, financial or non-financial, on the subjects*. For purposes of this subdivision, "school facilities" means any school-related consideration relating to a school district's ability to accommodate enrollment.

    b. Section 65995 (h) "The payment or satisfaction of a fee, charge, or other requirement levied or imposed ... are hereby *deemed to be full and complete mitigation of the impacts* of any legislative or adjudicative act, or

both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization ..., on the provision of adequate school facilities."

c. Section 65996 (a) "....the following provisions shall be the *exclusive methods of considering and mitigating impacts on school facilities* that occur or might occur as a result of any legislative or adjudicative act, or both, by any state or local agency involving, but not limited to, the planning, use, or development of real property or any change of governmental organization or reorganization..."

d. Section 65996 (b) The provisions of this chapter are hereby *deemed to provide full and complete school facilities mitigation* and, notwithstanding Section 65858, or Division 13 (commencing with Section 21000) of the Public Resources Code, or any other provision of state or local law, a state or local agency *may not deny or refuse to approve* a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property or any change in governmental organization or reorganization,... on the basis that school facilities are inadequate..."

The Draft EIR needs to identify the deficiencies and inadequacies between the legal provisions of SB 50 and the actual implementation of the provisions with regards to the Project. In addition, the Draft EIR needs to identify any and all impacts that have not been mitigated by the provisions of SB 50.

22. The cumulative impacts of the Project on traffic and circulation, noise, schools, public facilities and services, wastewater treatment, water and water table, air quality, and utilities need to be evaluated in the Draft EIR based on the build-out of the City of Merced General Plan and the County of Merced General Plan, the build-out of the land uses within the Sphere of Influence of the City of Merced, and the build-out of the land within the jurisdiction of the public agencies providing service to the Project. Mitigation measures need to be offered to reduce the impacts to a less than significant impact.

23. The Draft EIR should identify all federal, State, and local agencies, other organizations, and private individuals consulted in preparing the draft EIR, and the persons, firm, or agency preparing the Draft EIR by contract or other authorization.

24. The Draft EIR should identify the economic or social information relative to the impacts of the Project. The Draft EIR should trace the chain of cause and effect from a proposed decision on a Project through anticipated economic or social

changes resulting from the Project to physical changes caused in turn by the economic or social changes. The economic and social analysis should focus the analysis on the physical changes that will result on the District from the Project. Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a Project are feasible to reduce or avoid the significant effects on the environment identified in the Draft EIR.

25. The Draft EIR should identify the inadequacies contained in the City of Merced General Plan and the consequences of compliance or lack of compliance of the current General Plan with the applicable provisions of Section 65300 et. seq. of the Government Code.

Following the completion of the Draft EIR, the District does hereby request the maximum time permitted by law to review the Daft EIR and offer any comments. We further hereby request that a copy of the Draft EIR be forwarded to the following for review:

Mr. Steven Becker, Superintendent
Weaver Union School District
3076 East Childs Avenue
Merced, California 95340

Mr. Marshall B. Krupp
Community Systems Associates, Inc.
3367 Corte Levanto
Costa Mesa, California 92626

The District looks for to a favorable relationship with Wal-Mart and anticipates that this letter will further the discussion between Wal-Mart and the District as the Project progresses and a partnership is reached between the Parties.
Thank you for your assistance and consideration.

Sincerely,

Community Systems Associates, Inc.

Marshall B. Krupp
Mr. Marshall B. Krupp
President

MBK:mbk
Merced –Wall Mart Plan Notice of Preparation 08-11-06 WUSD

Cc: Mr. Steven Becker, Superintendent
Weaver Union School District
3076 East Childs Avenue
Merced, California 95340

San Joaquin Valley
Air Pollution Control District

August 11, 2005

RECEIVED
AUG 1 1 2006
by Email
CITY OF MERCED
PLANNING DEPT.

Reference No. C200601610

Kim Espinosa
City of Merced
Planning & Permitting
678 W. 18th Street
Merced, CA 95340

Subject: NOP Draft Environmental Impact Report – Merced Wal-Mart Regional Distribution Center

Dear Ms. Espinosa:

The entire San Joaquin Valley Air Basin is classified non-attainment for ozone and fine particulate matter (PM10 and PM2.5). This project will contribute to the overall decline in air quality due to construction activities in preparation of the site, and ongoing traffic and other operational emissions. This project may generate significant air emissions and it will reduce the air quality in the San Joaquin Valley. The project will make it more difficult to meet mandated emission reductions and air quality standards. A concerted effort should be made to reduce project-related emissions as outlined below:

The District recommends that the air quality section of the EIR have four main components:

1. **A description of the regulatory environment and existing air quality conditions impacting the area.** This section should be concise and contain information that is pertinent to analysis of the project. The District has several sources of information available to assist with the existing air quality and regulatory environment section of the EIR. The District's *Guide for Assessing and Mitigating Air Quality Impacts, 2002 Revision* (GAMAQI) contains discussions regarding the existing air quality conditions and trends of the San Joaquin Valley Air Basin, including those pollutants of particular concern: ozone, PM10, and carbon monoxide. In addition, it provides an overview of the regulatory environment governing air quality at the federal, state, and regional levels. The GAMAQI provides air monitoring data and other relevant information for PM-10 and other pollutants. The most recent air quality data for the District is available at the California Air Resources Board (ARB) website at http://www.arb.ca.gov/html/age&m.htm. The air quality section of EPA's Region 9 (which includes information on the San Joaquin Valley Air Basin) can be found at http://www.epa.gov/region09/air/index.html. Additionally, this section should also contain a discussion regarding growth projections that the City of Merced provided to the District (through Merced County Association of Governments) for inclusion in the Ozone and PM10 Attainment Plans and any impacts this project will have on Federal Conformity for Merced County and the San Joaquin Valley Air Basin. Lastly, this section should clearly describe the air pollution regulatory authority of the District and ARB for the various emission sources at the project site.

2. **Estimates of existing emissions and projected pollutant emissions related to the increase in project source emissions and vehicle use, along with an analysis of the effects of these increases.** The EIR should include the methodology, model assumptions, inputs and results for pollutant emissions. The cumulative impact analyses should consider current existing and planned development both within the project area and in surrounding areas. The EIR needs to address the short-term and long term, local and regional adverse air quality impacts associated with the operation of construction equipment (reactive organic gases (ROG), nitrogen oxides (NOx), carbon monoxide

(CO), and PM10) and emission generated from stationary, area and mobile sources. Additionally, the EIR should quantify emissions that are individually small but cumulatively significant sources of pollution.

Preliminary analysis indicated that the potential emissions from this project exceed the District's operational thresholds of significance for ozone precursors. These thresholds are 10 tons per year for either of the following two ozone precursor emissions: ROG or NOx. In addition, the project is near a location of sensitive receptors. The proposed project should be analyzed to see if Hazardous Air Pollutants are a concern. The District's thresholds of significance for HAPs are the probability of contracting cancer for the Maximally exposed Individual (MEI) exceeds 10 in one million or ground level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.

The District recommends the preparation of an Air Quality Impact Assessment (AQIA) and a Traffic Impact Study to determine impacts when projects are of this size, unless an analysis has been accomplished for a recent previous approval such as a general plan amendment or zone change. Please indicate if the project has been analyzed and what the results were from any previous study.

Ozone Precursors – The District recommends using the regional transportation model to quantify mobile source emissions, but in some cases it may be possible to use the URBEMIS 2002 Version 8.7 program to calculate project area and operational emissions. Merced County Association of Governments may be able to provide assistance with the regional transportation model. The District recommends using the URBEMIS 2002 Version 8.7 program to calculate project area and operational emissions and to identify mitigation measures that reduce impacts. URBEMIS can be downloaded from http://www.urbemis.com/ or the South Coast Air Quality Management District's website at http://www.aqmd.gov/ceqa/urbemis.html. If the analysis reveals that the emissions generated by this project will exceed the District's thresholds, this project may significantly impact the ambient air quality if not sufficiently mitigated. The project applicant or consultant is encouraged to consult with District staff for assistance in determining appropriate methodology and model inputs.

Hazardous Air Pollutants (HAPs) – The air analysis should discuss District regulations for identifying and reducing HAPs and should describe how the City of Merced would address future projects with sensitive receptors near existing HAP sources and the siting of new HAP sources in the plan area. Potential HAPs sources include project equipment, operations, and vehicles (the ARB has designated diesel particulate emissions as a toxic air contaminant). On page 43 of the District's Guide for Assessing and Mitigating Air Quality Impacts, 2002 Revision (GAMAQI), the District addresses and defines sensitive receptors with respect to CEQA. If the project is near sensitive receptors and HAPs are a concern, the project developer should perform a Health Risk Assessment (HRA). HRA guidelines promulgated by the California Office of Environmental Health Hazard Assessment (OEHHA) and OEHHA toxicity criteria must be used. The District recommends use of the latest version of the Hot Spots Analysis and Reporting Program (HARP) released by CARB for an HRA because it is the only software that is compliant with the OEHHA guidelines. An HRA should include a discussion of the toxic risk associated with the proposed project, including project equipment, operations, and vehicles. The GAMAQI defines the significance levels for toxic impacts as a cancer risk greater than 10 in a million and/or a hazard index (HI) of 1.0 or greater for chronic non-carcinogenic or acute risks. The project consultant should contact the District to review the proposed modeling approach before modeling begins. For more information on HAPs analyses, please contact Mr. Leland Villalvazo, Supervising Air Quality Specialist, at (559) 230-6000 or hramodeler@valleyair.org.

Carbon Monoxide Hotspot Analysis – Results of the traffic study should be used to identify intersections and corridors with high levels of congestion that may result in a carbon monoxide (CO) hot spot. CO hot spots should be screened using a protocol developed by the Institute of Transportation Studies at University of California Davis entitled Transportation Project-Level Carbon Monoxide Protocol. Locations that are predicted by the CO Protocol to experience high levels of CO should be modeled using the dispersion model CALINE4. The procedure for using EMFAC 2002 to

calculate emission factors to be used in the CALINE4 modeling can be downloaded at the Caltrans Division of Environmental Analysis site http://www.dot.ca.gov/hq/env/air/pages/calinesw.htm.

Odor Analysis – The proposed project should be analyzed to see if it is considered near a location of sensitive receptors (including residences) and if odor is a concern. The procedure outlined in the "Guide for Assessing and Mitigating Air Quality Impacts" (GAMAQI) includes the following:

- Identify the location of sensitive receptors (including residences).
- Compare the distance to the nearest sensitive receptor to the distances in Table 4.2 of the GAMAQI. If the sensitive receptors are further away than the distances given in Table 4.2, no further analysis is required. The results should be documented in the EIR.
- Obtain any odor complaints against the facility or similar facilities from the local District office and the county's environmental health department.
- Review the complaints to determine the location of complainants relative to the facility.
- Identify any sensitive receptors at similar distances.
- Determine if emissions of odoriferous compounds will increase or decrease with implementation of the project.
- Draw any reasonable conclusions as to the probability that the project will generate odor complaints based on this analysis of complaint history.

Note that the emission of odiferous compounds should be mitigated as much as feasible if it is anticipated that the project will have a significant impact. For more information on odor impact analyses, please contact Mr. Leland Villalvazo, Supervising Air Quality Specialist, at (559) 230-6000, or hramodeler@valleyair.org.

3. **Identify and discuss all existing District regulations that apply to the project.**
It should identify and discuss all existing District regulations that apply to the project. It would be appropriate to discuss proposed rules that are being developed that would apply to the proposed project. Current rules and regulations are available on the District's website at http://www.valleyair.org/rules/1ruleslist.htm. District rules and regulations are periodically revised, and new regulations are promulgated. The District strongly advises the City to contact the District for any rule updates and new rules when the project development begins. Current District rules and regulations applicable to the proposed project are requirements.

This project may be subject to the permitting requirements of the District and require a Permit to Operate (PTO). Any equipment subject to the District's PTO requirements must obtain an Authority to Construct (ATC) from the District. Construction of equipment, which requires an ATC, and intimately related appurtenances such as foundations and utility hookups for the equipment, cannot begin until an ATC is obtained. Construction of equipment not requiring a District permit is not subject to this ATC requirement. Depending upon the nature and complexity of the application and staff workload, ATC approval can take several months. For further information, the applicant should contact the District's Small Business Assistance Office at (209) 557-6446, or our Permit Services Section at (209) 557-6400.

Based on the information provided, the proposed project will be subject to the following District rules. The following items are rules that have been adopted by the District to reduce emissions throughout the San Joaquin Valley, and are required. This project may be subject to additional District Rules. To identify additional rules or regulations that apply to this project, or for further information, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (209) 557-6446. Current District rules can be found at http://www.valleyair.org/rules/1ruleslist.htm.

Regulation VIII (Fugitive PM10 Prohibitions) Rules 8011-8081 is a series of rules designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, etc. If a non-residential project is 5.0 or more acres in area, a Dust Control Plan must be submitted as specified in Section 6.3.1 of Rule 8021. If a non-residential site is 1.0 to less than 5.0 acres, an owner/operator must provide written notification to the District at least 48 hours prior to his/her intent to begin any earthmoving activities (see section

6.4.2). A compliance assistance bulletin has been enclosed for the applicant. A template of the District's Dust Control Plan is available at http://www.valleyair.org/busind/comply/PM10/forms/DCP-Form%20-%2010-14-2004.pdf

Rule 2201 (New and Modified Stationary Source Review Rule) This rule applies to all new stationary sources and all modifications of existing stationary sources which are subject to the District permit requirements and after construction emit or may emit one or more affected pollutant.

Rule 4101 (Visible Emissions) This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

Rule 4102 (Nuisance) applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to District enforcement action.

Rule 4601 (Architectural Coatings) limits volatile organic compounds from architectural coatings. This rule specifies architectural coatings storage, clean up and labeling requirements.

Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants) This rule limits VOC emissions from stationary gasoline storage tanks with capacity greater than 250 gallons (except for tanks subject to Rule 4623), gasoline delivery vessels, and tanks with capacity than 250 gallons, but not exceeding 19,800 gallons located at gasoline bulk plants.

Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks) limits emissions of gasoline vapors from the transfer of gasoline into motor vehicle fuel tanks.

Rule 4623 (Storage of Organic Liquids) limits VOC emissions from tanks with a capacity of 1,100 gallons or more used to store organic liquids.

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). If asphalt paving will be used, then paving operations of this project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

Rule 9510 (Indirect Source Review) This rule was adopted to reduce the impacts of growth in emissions from all new development in the San Joaquin Valley. Rule 9510 requires applicants subject to the rule to provide information that enables the District to quantify construction, area and operational PM10 and NOx emissions, and potentially mitigate a portion of those emissions. An application must be filed with the District no later than concurrent with application with a local agency for the final discretionary approval. For more information and instruction, please contact the District's ISR staff by phone at (559) 230-5800 or by email at ISR@valleyair.org.

4. **Identify and discuss all feasible measures that will reduce air quality impacts generated by the project.** "Feasible" means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors: (California Code of Regulations (CCR § 15364)). The California Environmental Quality Act (CEQA) requires that EIRs "describe measures which could minimize significant adverse impacts" (CCR §15126(c)). Additionally, the CCR requires that "a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures that would substantially lessen any significant effects that the project would have on the environment " (CCR § 15021(a)(2)). For each potential adverse impact, mitigation measures should be identified to reduce impacts below air quality threshold levels of significance. Therefore, the EIR should identify which mitigation measures will be included in the project, and how each mitigation measure will be implemented. The reduction of air quality impacts from implementation of mitigation measures should be quantified to the extent possible. If a measure cannot be quantified a qualitative discussion should be provided

explaining the benefits of the proposed mitigation measure. The EIR should discuss how project design modifications could reduce project impacts

Mitigation measures are emission reduction measures beyond those required in Section 3. The section should identify which mitigation measures will be included in the project, and how each mitigation measure will be implemented. Site design, equipment alternatives, construction and operational measures that would reduce emissions should be identified. It should also analyze opportunities to mitigate urban heat island effects. The reduction of air quality impacts from implementation of mitigation measures should be quantified when possible. The EIR should discuss how the project design would encourage alternative transportation (including car pool parking), pedestrian and bicycle access/infrastructure, smart growth design, energy efficient project and building design, reduce urban heat island impacts, and include business programs that further reduce air pollution in the valley (such as carpooling).

There are a number of features that could be incorporated into the design/operation of this project to provide additional reductions of the overall level of emissions. (Note: Some of the measures may already exist as City development standards. Any measure selected should be implemented to the fullest extent possible.) The suggestions listed below should not be considered all-inclusive and remain options that the agency with the land-use authority should consider for incorporation into the project.

- Trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions, and to shade paved areas. Trees should be selected to shade paved areas that will shade 50% of the area within 15 years. Structural soil should be used under paved areas to improve tree growth. For Structural Soil see http://www.hort.cornell.edu/uhi/outreach/csc/. For Tree Selection see http://www.ufei.org/. For Urban Forestry see http://www.coolcommunities.org, http://wcufre.ucdavis.edu, and http://www.lgc.org/bookstore/energy/downloads/sjv_tree_guidelines.pdf

- The District encourages the applicant and fleet operators using the facility to take advantage of the District's Heavy-Duty Engine program to reduce project emissions. The Heavy Duty program provides incentives for the replacement of older diesel engines with new, cleaner, fuel-efficient diesel engines. The program also provides incentives for the re-power of older, heavy-duty trucks with cleaner diesel engines or alternative fuel engines. New alternative fuel heavy-duty trucks also qualify. For more information regarding this program contact the District at (559) 230-5858 or visit our website at http://www.valleyair.org/transportation/heavydutyidx.htm.

- The applicant/tenant(s) should implement measures to reduce the amount of single occupancy vehicle employee traffic to and from the project area that further reduce air pollution in the valley. This could include such provisions as encouraging employees to rideshare or carpool to the project site through preferential parking spaces for employees who participate in carpooling or vanpooling, incorporating a compressed workweek schedule, guaranteed ride home, carpool matching programs, shower/changing facilities, providing free transit passes, providing an alternative-transit information center, and having a dedicated employee transportation coordinator. Check out the "Spare the Air" section of our website www.valleyair.org

- Idle reduction technologies save fuel and reduce diesel emissions from idling trucks and construction equipment. The applicant should incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies. Examples of such technologies can be found on the U.S. Environmental Protection Agency's website http://www.epa.gov/otaq/smartway/idlingtechnologies.htm. Idle reduction mitigation measures include:
  - The applicant/tenant(s) should require that all diesel engines be shut off when not in use on the premises to reduce emissions from idling.
  - If Truck Refrigeration Units (TRU's) will be utilized, provide an alternative energy source for the TRU to allow diesel engines to be completely turned off.

- Electrify truck-parking areas to allow trucks with sleeper cabs to use electric heating and cooling to eliminate the need to idle their diesel engines.

- Light Duty Cars and Trucks should be alternative fueled or hybrids.

- Construction activity mitigation measures include:
  - Limit area subject to excavation, grading, and other construction activity at any one time
  - Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use
  - Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set)
  - Require that all diesel engines be shut off when not in use to reduce emissions from idling.
  - Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways, and "Spare the Air Days" declared by the District.
  - Implement activity management (e.g. rescheduling activities to reduce short-term impacts)
  - During the smog season (May through October), lengthen the construction period to minimize the number of vehicles and equipment operating at the same time.
  - Off road trucks should be equipped with on-road engines when possible.
  - Minimize obstruction of traffic on adjacent roadways.

- Construction equipment may be powered by diesel engines fueled by alternative diesel fuel blends or Ultra Low Sulfur Diesel (ULSD). The California Air Resources Board (CARB) has verified specific alternative diesel fuel blends for NOx and PM emission reduction. Only fuels that have been certified by CARB should be used. Information on biodiesel can be found on CARB's website at http://www.arb.ca.gov/fuels/diesel/altdiesel/altdiesel.htm and the EPA's website at http://www.epa.gov/oms/models/biodsl.htm. The applicant should also use CARB certified alternative fueled engines in construction equipment where practicable. Alternative fueled equipment may be powered by Compressed Natural Gas (CNG), Liquid Propane Gas (LPG), electric motors, or other CARB certified off-road technologies. To find engines certified by the CARB, see their certification website http://www.arb.ca.gov/msprog/offroad/cert/cert.php. For more information on any of the technologies listed above, please contact Mr. Chris Acree, Senior Air Quality Specialist, at (559) 230-5829.

- Construction equipment may be used that meets the current off-road engine emission standard (as certified by the California Air Resources Board (CARB), or be re-powered with an engine that meets this standard. Tier I, Tier II and Tier III engines have significantly less NOx and PM emissions compared to uncontrolled engines. To find engines certified by the CARB, see http://www.arb.ca.gov/msprog/offroad/cert/cert.php. This site lists engines by type, then manufacturer. The "Executive Order" shows what Tier the engine is certified as. Rule 9510 requires construction exhaust emissions to be reduced by 20 percent for NOx and 45 percent for PM10 when compared to the statewide fleet average or to pay an in lieu mitigation fee. For more information on heavy-duty engines, please contact Mr. Thomas Astone, Air Quality Specialist, at (559) 230-5800.

In addition to the above measures, the District has entered into Air Quality Mitigation Agreements (Mitigation Agreement) with several developers. These agreements require the District and the applicant to quantify operational emissions, and identify on-site mitigation to reduce the proposed project's net impact on air quality. The developer commits to providing funding on a per ton of emissions basis to the District to purchase emission reductions through its grant and incentive programs to fully mitigate the net emissions. The District commits to reduce the net emissions and to manage and monitor the emission reduction projects over time.

The District asks that developers interested in a Mitigation Agreement to meet with District staff to discuss the specifics of the project and the contract. District staff is available to meet with project proponents to discuss Mitigation Agreements for specific projects. Examples of Air Quality Mitigation

Agreements have been included. For more information, or questions concerning this topic, please call Mr. Dave Mitchell, Planning Manager, at (559) 230-5800.

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call me at (559) 230-5818 or Mr. Dave Mitchell, Planning Manager, at (559) 230-5807 and provide the reference number at the top of this letter.

Sincerely,

Jessica R. Willis

Jessica R. Willis
Air Quality Specialist
Central Region

c: file

ENGINEERING

RECEIVED
AUG 14 2006
By Email
CITY OF MERCED
PLANNING DEPT.

August 11, 2006

Ms. Kim Espinosa, Planning Manager
City of Merced, Planning and Permitting
678 W. 18th Street
Merced, CA 95340

Dear Ms. Espinosa,

For your information, Lyons Investments and Lyons Land and Cattle have retained O'Dell Engineering for consultation pertaining to the Environmental Impact Report (EIR) relative to the proposed Wal-Mart distribution center. As you are aware, the Lyons' entities own nearly 600 acres of undeveloped industrial property surrounding the proposed distribution site. All of this undeveloped industrial property is annexed to the City of Merced and eligible to receive City services. While the Lyons' support the proposed distribution center and the hundreds of needed jobs it will bring to Merced, they do have concerns regarding the infrastructure, City services and overall impacts to the surrounding developed and undeveloped industrial property.

After our review of the Notice of Preparation provided by the City of Merced for the EIR and attending the meeting on July 27, 2006, we are concerned about the ability of the existing sewer, water and drainage system capacity in light of the proposed distribution center demand for these services. Therefore, on behalf of the Lyons' entities, we respectfully request that the EIR address the proposed distribution center's direct and indirect sewer, water, storm drain, transportation and public utilities usage as it relates the City of Merced's Master Plan for said services. The EIR should answer the question of whether the expected demand for service from the undeveloped industrial property plus the Wal-Mart distribution center will be accommodated by the current capacity. The EIR should also address the future service requirements of the proposed distribution center as well as future development that is set forth by the City of Merced Vision 2015 General Plan. If it is determined the required usage of the distribution center exceeds the current capacities or would result in the inability to provide for future commercial and industrial growth, the EIR should outline mitigation measures which incorporate the requirements of the distribution center and future growth.

When analyzing the drainage impacts of the proposed distribution center, it would also be helpful to understand how the developer/user will participate in the master plan facilities as set forth in the City of Merced Storm Water Master Plan (Eco:Logic 12/02), and how this impacts the neighboring industrial tenants and undeveloped property. Since the proposed distribution center will likely be the largest facility in the University Industrial Park, it is critical that the City of Merced analyze the water discharge of the facility and the anticipated discharge of the industrial park at build-out to ensure adequate facilities and capacity will be available for present and future development.

1165 Scenic Drive, Suite A
Modesto CA 95350
Ph 209.571.1765
Fax 209.571.2466
odellengineering.com

In addition, it is very important that the vehicle access to the subject distribution center property be designed to accommodate the approved access points (ingress and egress) on both Childs Avenue and Gerard Avenue for the 57.2 acre parcel located west of the subject property. This issue was addressed in the lot split necessary to create the parcel for the proposed distribution center. This will ensure that the transportation patterns for the industrial park are efficient and expeditious for all businesses sharing the same transportation systems.

Again, on behalf of Lyons Investments and Lyons Land and Cattle, we are very supportive of the proposed distribution center and what it represents in terms of economic prosperity to the region. We thank you in advance for integrating the concerns and requests of this letter into the Wal-Mart distribution center EIR and look forward to reviewing the upcoming document.

Should you have any questions regarding the content of this letter, please contact me at (209) 571-1765.

Regards,

O'DELL ENGINEERING

Randy O'Dell, President

cc: Lyons Investments
Lyons Land and Cattle
Mark Purdom – AIM Property Management

APPENDIX B

California Agricultural Land Evaluation and Site Assessment Model

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual

For further information, please contact:

California Department of Conservation
Office of Land Conservation
801 K Street, MS 13-71
Sacramento, CA 95814-3528
(916) 324-0850
FAX (916) 327-3430

© California Department of Conservation, 1997

The Department of Conservation makes no warranties as to the suitability of this product for any particular purpose.

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual
1997

Department of Conservation
Office of Land Conservation

TABLE OF CONTENTS

Page

Executive Summary 1

Introduction 2

Defining the Land Evaluation and Site Assessment System 2
Background on Land Evaluation and Site Assessment Nationwide 2
Development of the California Agricultural Land Evaluation and Site Assessment Model 3

The California Agricultural Land Evaluation and Site Assessment Model 6

Section I. Required Resources and Information 6
Section II. Defining and Scoring the California Agricultural Land Evaluation and Site Assessment Factors 7

A. Scoring of Land Evaluation Factors 7
1. The Land Capability Classification Rating 10
2. The Storie Index Rating 12
B. Scoring of Site Assessment Factors 13
1. The Project Size Rating 13
2. The Water Resources Availability Rating 16
3. The Surrounding Agricultural Land Rating 23
4. The Surrounding Protected Resource Land Rating 28

Section III. Weighting of Factors and Final Scoring 29
Section IV. Scoring Thresholds for Making Determinations of Significance under CEQA 31
Bibliography 32
Appendix A. Abridged set of California LESA step-by-step scoring instructions A-1
Appendix B. Application of the California LESA Model to a hypothetical proposed project B-1

EXECUTIVE SUMMARY

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of a California Agricultural LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

The California Agricultural LESA Model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100 point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds. This Manual provides detailed instructions on how to utilize the California LESA Model, and includes worksheets for applying the Model to specific projects.

INTRODUCTION

Defining the LESA System

The Land Evaluation and Site Assessment (LESA) system is a point-based approach that is generally used for rating the relative value of agricultural land resources. In basic terms, a given LESA model is created by defining and measuring two separate sets of factors. The first set, Land Evaluation, includes factors that measure the inherent soil-based qualities of land as they relate to agricultural suitability. The second set, Site Assessment, includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. While this dual rating approach is common to all LESA models, the individual land evaluation and site assessment factors that are ultimately utilized and measured can vary considerably, and can be selected to meet the local or regional needs and conditions for which a LESA model is being designed to address. In short, the LESA methodology lends itself well to adaptation and customization in individual states and localities. Considerable additional information on LESA may be found in *A Decade with LESA - the Evolution of Land Evaluation and Site Assessment* (8).

Background on LESA Nationwide

In 1981, the federal Natural Resources Conservation Service (NRCS), known then as the Soil Conservation Service, released a new system that was designed to provide objective ratings of the agricultural suitability of land compared to demands for nonagricultural uses of lands. The system became known as Land Evaluation and Site Assessment, or LESA. Soon after it was designed, LESA was adopted as a procedural tool at the federal level for identifying and addressing the potential adverse effects of federal programs (e.g., funding of highway construction) on farmland protection. The Farmland Protection Policy Act of 1981 (5) spells out requirements to ensure that federal programs, to the extent practical, are compatible with state, local, and private programs and policies to protect farmland, and calls for the use of LESA to aid in this analysis. Typically, staff of the NRCS is involved in performing LESA scoring analyses of individual projects that involve other agencies of the federal government.

Since its inception, the LESA approach has received substantial attention from state and local governments as well. Nationwide, over two hundred jurisdictions have developed local LESA methodologies (7). One of the attractive features of the LESA approach is that it is well suited to being modified to reflect regional and local conditions. Typical local applications of LESA include assisting in decision making concerning the sitting of projects, changes in zoning, and spheres of influence determinations. LESA is

also increasingly being utilized for farmland protection programs, such as the identification of priority areas to concentrate conservation easement acquisition efforts.

Because of the inherent flexibility in LESA model design, there is a broad array of factors that a given LESA model can utilize. Some LESA models require the measurement of as many as twenty different factors. Over the past 15 years, the body of knowledge concerning LESA model development and application has begun to indicate that LESA models utilizing only several basic factors can capture much of the variability associated with the determination of the relative value of agricultural lands. In fact, LESA models with many factors are increasingly viewed as having redundancies, with different factors essentially measuring the same features, or being highly correlated with one another. Additional information on the evolution and development of the LESA approach is provided in, A *Decade with LESA -The Evolution of Land Evaluation and Site Assessment* (8).

Development of the California Agricultural LESA Model

In 1990 the Department of Conservation commissioned a study to investigate land use decisions that affect the conversion of agricultural lands in California. The study, conducted by Jones and Stokes Associates, Inc., was prepared in response to concerns about agricultural land conversion identified in the *California Soil Conservation Plan* (1) (developed by the ad hoc Soil Conservation Advisory Committee serving the Department of Conservation in 1987). Among these concerns was the belief that there was inadequate information available concerning the socioeconomic and environmental implications of farmland conversions, and that the adequacy of current farmland conversion impact analysis under the California Environmental Quality Act (CEQA) was not fully known. The findings of this study are included in the publication, *The Impacts of Farmland Conversion in California* (2).

Currently, neither CEQA nor the State CEQA Guidelines contains procedures or specific guidance concerning how agencies should address farmland conversion impacts of projects. The only specific mention of agricultural issues is contained in Appendix G of the State CEQA Guidelines, which states that a project will normally have a significant effect on the environment if it will “convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land”.

Among the conclusions contained in *The Impacts of Farmland Conversion in California* study was that the lack of guidance in how lead agencies should address the significance of farmland conversion impacts resulted in many instances of no impact analysis at all. A survey of environmental documents sent to the Governor's Office of Planning and Research (OPR) between 1986 and 1988 was performed. The survey

showed that among projects that affected at least 100 acres of land and for which agriculture was a project issue, nearly 30 percent received Negative Declarations, and therefore did not did not receive the environmental impact analysis that would be provided by an Environmental Impact Report (EIR).

Of those projects involving the conversion of agricultural lands and being the subject of an EIR, the study found a broad range of approaches and levels of detail in describing the environmental setting, performing an impact analysis, and providing alternative mitigation measures. The only agricultural impacts found to be significant in the EIRs were those involving the direct removal of prime agricultural lands from production by the project itself. The focus on prime farmland conversion in the projects surveyed was deemed to be related to the narrow direction provided in Appendix G of the State CEQA Guidelines.

The formulation of a California LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095). This legislation authorizes the Department of Conservation to develop a California LESA Model, which can in turn be adopted as the required amendment to Appendix G of the CEQA Guidelines.

Presentation of the California LESA Model

The California LESA Model is presented in this Manual in the following sections:

Section I. provides a listing of the information and tools that will typically be needed to develop LESA scores for individual projects.

Section II. provides step-by-step instructions for scoring each of the six Land Evaluation and Site Assessment factors that are utilized in the Model, with an explanation of the rationale for the use of each factor.

Section III. defines the assignment of weights to each of the factors relative to one another, and the creation of a final LESA score for a given project.

Section IV. assigns scoring thresholds to final LESA scores for the purpose of determining the significance of a given project under CEQA where the conversion of agricultural lands is a project issue.

Additionally:

Appendix A. provides an abridged set of step-by-step LESA scoring instructions that can be used and reproduced for scoring individual projects.

Appendix B. demonstrates the application of the California LESA Model to the scoring of a hypothetical project.

The California Agricultural LESA Model

Section I. Required Resources and Information

The California Land Evaluation and Site Assessment (LESA) Model requires the use and interpretation of basic land resource information concerning a given project. A series of measurements and calculations is also necessary to obtain a LESA score. Listed below are the materials and tools that will generally be needed to make these determinations.

Land Evaluation and Site Assessment calculations will require:

1. A calculator or other means of tabulating numbers

2. An accurately scaled map of the project area, such as a parcel map

3. A means for making acreage determinations of irregularly shaped map units. Options include, from least to most technical:

    - A transparent grid-square or dot-planimeter method of aerial measurement

    - A hand operated electronic planimeter

    - The automatic planimetry capabilities of a Geographic Information System (GIS)

4. A modern soil survey, generally produced by the USDA Natural Resources Conservation Service, which delineates the soil-mapping units for a given project. [Note: If modern soil survey information is not available for a given area of study, it may be necessary to draw upon the services of a professional soil scientist to perform a specific project survey].

5. Maps that depict land uses for parcels including and surrounding the project site, such as the Department of Conservation's Important Farmland Map series, the Department of Water Resources Land Use map series, or other appropriate information.

6. Maps or information that indicate the location of parcels including and surrounding the project site that are within agricultural preserves, are under public ownership, have conservation easements, or have other forms of long term commitments that are considered compatible with the agricultural use of a given project site.

Section II. Defining and Scoring the California Land Evaluation and Site Assessment Model Factors

This section provides detailed step-by-step instructions for the measurement and scoring of each of the Land Evaluation and Site Assessment factors that are utilized in the California Agricultural LESA Model, and is intended to serve as an introduction to the process of utilizing the Model. Once users are familiar with the Model, a more streamlined set of instructions and scoring sheets is available in Appendix A. In addition, the scoring of a hypothetical project is presented using these scoring sheets in Appendix B.

Scoring of Land Evaluation Factors

The California LESA Model includes two Land Evaluation factors that are separately rated:

1. The Land Capability Classification Rating
2. The Storie Index Rating

The information needed to make these ratings is typically available from soil surveys that have been conducted by the federal Natural Resources Conservation Service (formerly known as the Soil Conservation Service). Consultation should be made with NRCS staff (field offices exist in most counties) to assure that valid and current soil resource information is available for the project site. Copies of soil surveys are available at local field offices of the NRCS, and may also be available through libraries, city and county planning departments, the Cooperative Extension, and other sources. In addition, a Certified Professional Soil Scientist (CPSS) may also be consulted to obtain appropriate soil resource information for the project site. A directory of CPSS registered soil consultants is available through the Professional Soil Scientists Association of California, P.O. Box 3213, Yuba City, CA 95992-3213; phone: (916) 671-4276.

1) The USDA Land Capability Classification (LCC) - The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receive the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. An expanded explanation of the LCC is included in most soil surveys.

2) The Storie Index - The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are

considered in the index rating. The factors are: profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity).

In some situations, only the USDA Land Capability Classification information may be currently available from a given published soil survey. However, Storie Index ratings can readily be calculated from information contained in soil surveys by qualified soil scientists. Users are encouraged to seek assistance from NRCS staff or Certified Professional Soil Scientists to derive Storie Index information for the soils as well. If, however, limitations of time or resources restrict the derivation of Storie Index ratings for the soils within a region, it may be possible to adapt the Land Evaluation by relying solely upon the LCC rating. Under this scenario the LCC rating would account for 50 percent of the overall LESA factor weighting.

Identifying a Project's Soils

In order to rate the Land Capability Classification and Storie Index factors, the evaluator must identify the soils that exist on a given project site and determine their relative proportions. A **Land Evaluation Worksheet** (Table 1A.) is used to tabulate these figures, based upon the following:

Step 1.
Locate the project on the appropriate map sheet in the Soil Survey.

Step 2.
Photocopy the map sheet and clearly delineate the project boundaries on the map, paying close attention to the map scale.

Step 3.
Identify all of the soil mapping units existing in the project site (each mapping unit will have a different map unit symbol) and enter the each mapping unit symbol in **Column A** of the **Land Evaluation Worksheet** (Table 1A).

Step 4.
Calculate the acreage of each soil mapping unit present within the project site using any of the means identified in **Section 1**, **Required Resources and Information**, and enter this information in **Column B**.

Step 5.

Divide the acres of each soil mapping unit by the total project acreage to determine the proportion of each unit that comprises the project, and enter this information in Column C.

1. Land Evaluation - The Land Capability Classification Rating

Step 1.
In the Guide to Mapping Units typically found within soil surveys, identify the Land Capability Classification (LCC) designation (e.g., IV-e) for each mapping unit that has been identified in the project and enter these designations in **Column D** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
From Table 2., **The Numeric Conversion of Land Capability Classification Units**, obtain a numeric score for each mapping unit, and enter these scores in **Column E**.

Step 3.
Multiply the proportion of each soil mapping unit (**Column C**) by the LCC points for each mapping unit (**Column E**) and enter the resulting scores in **Column F**.

Step 4.
Sum the LCC scores in **Column F** to obtain a single LCC Score for the project. Enter this LCC Score in **Line 1** of the **Final LESA Worksheet** (Table 8)

Table 2. Numeric Conversion of Land Capability Classification Units

Land Capability Classification	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Totals		(Must Sum to 1.0)		***LCC Total***		***Storie Index Total***	

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
Total Acres			
Project Size Scores			

Highest Project Size Score

2. Land Evaluation - The Storie Index Rating Score

Step 1.
From the appropriate soil survey or other sources of information identified in Appendix C, determine the Storie Index Rating (the Storie Index Rating is already based upon a 100 point scale) for each mapping unit and enter these values in **Column G** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
Multiply the proportion of each soil mapping unit found within the project (**Column C**) by the Storie Index Rating (**Column G**), and enter these scores in **Column H**.

Step 3.
Sum the Storie Index Rating scores in **Column H** to obtain a single Storie Index Rating score for the project. Enter this Storie Index Rating Score in **Line 2** of the **Final LESA Worksheet** (Table 8)

Scoring of Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated:

1. **The Project Size Rating**
2. **The Water Resources Availability Rating**
3. **The Surrounding Agricultural Land Rating**
4. **The Surrounding Protected Resource Land Rating**

1. Site Assessment - The Project Size Rating

The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating in Table 1A. The Project Size rating is based upon identifying acreage figures for three separate groupings of soil classes within the project site, and then determining which grouping generates the highest Project Size Score.

Step 1.
Using information tabulated in **Columns B** and **D** of the **Land Evaluation Worksheet** (Table 1A), enter acreage figures in **Site Assessment Worksheet 1. - Project Size** (Table 1B) using either **Column I, J,** or **K** for each of the soil mapping units in a given project.

Step 2.
Sum the entries in **Column I** to determine the total acreage of Class I and II soils on the project site.

Sum the entries in **Column J** to determine the total acreage of Class III soils on the project site.

Sum the entries in **Column K** to determine the total acreage of Class IV and lower rated soils on the project site.

Step 3.
For each of the three columns, apply the appropriate scoring plan provided in Table 3, **Project Size Scoring**, and enter the **Project Size Score** for each grouping in the **Site Assessment Worksheet 1. - Project Size** (Table 1B). Determine which column generates the highest score. The highest score becomes the overall **Project Size Score**. Enter this number in **Line 3** of the **Final LESA Scoresheet** (Table 8).

Table 3. Project Size Scoring

LCC Class I or II soils		LCC Class III soils		LCC Class IV or lower	
Acres	***Score***	***Acres***	***Score***	***Acres***	***Score***
80 or above	100	160 or above	100	320 or above	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
fewer than 10	0	20-39	30	fewer than 40	0
		10-19	10		
		fewer than 10	0		

Explanation of the Project Size Factor

The Project Size factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3).

The inclusion of the measure of a project's size in the California Agricultural LESA Models is a recognition of the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon support industries (e.g., fertilizers, farm equipment, and shipping) and food processing industries.

While the size of a given farming operation may in many cases serve as a direct indicator of the overall economic viability of the operation, The California Agricultural LESA Model does not specifically consider the issue of economic viability. The variables of economic viability for a specific farm include such factors as the financial management and farming skills of the operator, as well as the debt load and interest rates being paid by an individual operator, which are issues that cannot readily be included in a statewide LESA model.

In terms of agricultural productivity, the size of a farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the Land Capability Classification ratings that were previously determined in the Land Evaluation analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also be derived, provided there is a sufficiently large acreage present. Acreage figures utilized in scoring are the synthesis of interviews that were conducted statewide for growers of a broad range of crops. In the interviews growers were queried as to what acreage they felt would be necessary in order for a given parcel to be considered attractive for them to farm.

The USDA LCC continues to be the most widely available source of information on land quality. Project Size under this definition is readily measurable, and utilizes much of the same information needed to score a given project under the Land Evaluation component of the methodology. This approach also complements the LE determination, which, while addressing soil quality, does not account for the total acreage of soils of given qualities within a project.

This approach allows for an accounting of the significance of high quality agricultural land as well as lesser quality agricultural lands, which by virtue of their large area can be considered significant agricultural resources. In this way, no single acreage figure for a specific class of soils (e.g., soils defined as “prime”) is necessary.

2. Site Assessment - The Water Resources Availability Rating

The Water Resources Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. **Site Assessment Worksheet 2. - Water Resources Availability Worksheet** (Table 4) is used to tabulate the score.

Step 1.
Identify the different water resource types that are used to supply the proposed project site (for example, irrigation district water, ground water, and riparian water are considered to be three different types of water resources). Where there is only one water source identified for the proposed project, skip to Step 4.

Step 2.
Divide the proposed project site into portions, with the boundaries of each portion being defined by the irrigation water source(s) supplying it. A site that is fully served by a single source of water will have a single portion, encompassing the entire site. A site that is fully served by two or more sources that are consistently merged together to serve a crop's needs would also have a single portion. (e.g., a portion of the proposed project may receive both irrigation district and groundwater). If the project site includes land that has no irrigation supply, consider this acreage as a separate portion as well. Enter the water resource portions of the project in **Column B** of Table 4, **Site Assessment Worksheet 2. - Water Resources Availability**.

[As an example, a hypothetical project site is determined to have four separate water supply portions:

Portion 1 is served by irrigation district water only;
Portion 2 is served by ground water only;
Portion 3 is served by *both* irrigation district water and ground water;
Portion 4 is not irrigated at all.**]**

Step 3.
Calculate the proportion of the total project area that is represented by each water resource portion, and enter these figures in **Column C** of **Site Assessment Worksheet 2. - Water Resources Availability**, verifying that the sum of the proportions equals 1.0.

Table 4. Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1				
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	

Step 4.

For each water resource supply portion of the project site, determine whether irrigated and dryland agriculture is *feasible*, and if any *physical* or *economic restrictions* exist, during both *drought* and *non-drought* years. These italicized terms are defined below:

- A *physical restriction* is an occasional or regular interruption or reduction in a water supply, or a shortened irrigation season, that forces a change in agricultural practices -- such as planting a crop that uses less water, or leaving land fallow. (This could be from cutbacks in supply by irrigation and water districts, or by ground or surface water becoming depleted or unusable. Poor water quality can also result in a physical restriction -- for example by requiring the planting of salt-tolerant plants, or by effectively reducing the amount of available water.)

- An *economic restriction* is a rise in the cost of water to a level that forces a reduction in consumption. (This could be from surcharge increases from water suppliers as they pass along the cost of finding new water supplies, the extra cost of pumping more ground water to make up for losses in surface water supplies, or the extra energy costs of pumping the same amount of ground water from deeper within an aquifer.)

- Irrigated agricultural production is *feasible* when:

  1) There is an existing irrigation system on the project site that can serve the portion of the project identified in Step 2;

  2) *Physical* and/or *economic restrictions* are not severe enough to halt production; and

  3) It is possible to achieve a viable economic return on crops though irrigated production.

(A major question that should be considered is, if there is an irrigated crop that can be grown within the region, can it actually be grown on the project site? Depending upon the jurisdiction, some typical crops that have a large water demand may not be feasible to grow on the project site, while others that require less water are feasible. Information to aid in making this determination can be obtained from county agricultural commissioners, the UC Cooperative Extension, irrigation districts, and other sources.)

- *Dryland production* is *feasible* when rainfall is adequate to allow an economically viable return on a nonirrigated crop.

- A *drought year* is a year that lies within a defined drought period, as defined by the Department of Water Resources or by a local water agency. Many regions of the state are by their arid nature dependent upon imports of water to support irrigated agriculture. These regions shall not be considered under periods of drought unless a condition of drought is declared for the regions that typically would be providing water exports.

Step 5.
Each of the project's water resource supply portions identified in **Step 2** is scored separately. Water Resources Availability scoring is performed by identifying the appropriate condition that applies to each portion of the project, as identified in Table 5., **Water Resource Availability Scoring**. Using Table 5, identify the option that best describes the water resource availability for that portion and its corresponding water resource score. Option 1 defines the condition of no restrictions on water resource availability and is followed progressively with increasing restrictions to Option 14, the most severe condition, where neither irrigated nor dryland production is considered feasible. Enter each score into **Column D** of Table 4.

Step 6.
For each portion of the project site, determine the section's weighted score by multiplying the portion's score (**Column D**), by its proportion of the project area (**Column C**), and enter these scores in **Column E**, the weighted Water Availability Score. Sum the **Column E** scores to obtain the total Water Resource Availability Score, and enter this figure in **Line 4** of the **Final LESA Score Sheet** (Table 8).

Table 5. Water Resource Availability Scoring

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Explanation of the Water Resource Availability Rating

The Water Resource Availability factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3). During the development of this factor it became apparent that certain conditions unique to California would need to be represented in this system.

First, it was decided to classify water reliability based upon the *effects* on agricultural production (such as being forced to change to lower-value crops, putting in groundwater pumps, or cutting back on the acreage farmed) rather than the actual *type* of limitation (such as a limitation on the quantity, frequency, or duration of water delivery). LESA systems have traditionally focused on the latter. However, it was found that the many types of limitations are too varied in California to adequately represent in the LESA system. In the Statewide LESA system, these effects are referred to as *restrictions*.

Second, the factor had to include an interrelation with cost. The historical shortages and unreliability of California water use has led to the establishment of various interconnected and dual systems. Probably more than any other state, reliability is related with cost -- a more reliable water supply can sometimes be obtained, but at a greater cost. Therefore, *restrictions* were classified into two major categories -- *physical* and *economic*. These are separated because, generally, a physical restriction is more severe than an economic restriction and this should be reflected in the LESA system.

Third, the factor had to include the effects of the drought cycle in California. During the drought of 1987 to 1992, many agricultural areas of the state experienced water shortages. The impact of these shortages resulted in a number of different actions. Some areas were able to avoid the worst effects of the drought simply by implementing water conservation measures. Other areas were able to obtain additional water supplies, such as by securing water transfers or simply pumping more groundwater, but at an increase in the overall price of water. Other options included shifting crops, replanting to higher value crops to offset the increase in water prices, or leaving land fallow. A project site that experiences restrictions during a drought year should not be scored as high as a similar project site that does not.

The easiest way to make determinations of irrigation feasibility and the potential restrictions of water sources is to investigate the cropping history of the project site. For instance, was the water supply to the project site reduced by the local irrigation district during the last drought? If the site has a ground water supply, do area ground water levels sometimes drop to levels that force markedly higher energy costs to pump the water?

If the history of the project site is unavailable (including when the site has recently installed an irrigation system), look at the history of the general area. However, remember that the project site may have different conditions than the rest of the region. For instance, the project site could have an older water right than others in the region. Although certain areas of the state had severe restrictions on water deliveries during the last drought, some parcels within these areas had very secure deliveries due to more senior water rights. If this was the case in the region of the project site, check the date of water right and compare it with parcels that received their total allotment during the last drought. The local irrigation district should have information on water deliveries.

The scoring of water resource availability for a project site should not just reflect the adequacies of water supply in the past -- it should be a *prediction* of how the water system will perform in the future. For instance, a local jurisdiction might find that the allocation of flows to stream and river systems has been recently increased for environmental reasons, which will decrease the future available surface water supply. In this case, the past history of the site is not an adequate representation of future water supply and water system performance.

3. Site Assessment - The Surrounding Agricultural Land Rating

Determination of the surrounding agricultural land use rating is based upon the identification of a project's "Zone of Influence" (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The determination of the ZOI is described below, and is illustrated with an example in Figure 1.

Defining a Project's "Zone of Influence"

Step 1.
Locate the proposed project on an appropriate map and outline the area and dimensions of the proposed project site.

Step 2.
Determine the smallest rectangle that will completely contain the project site (Rectangle A).

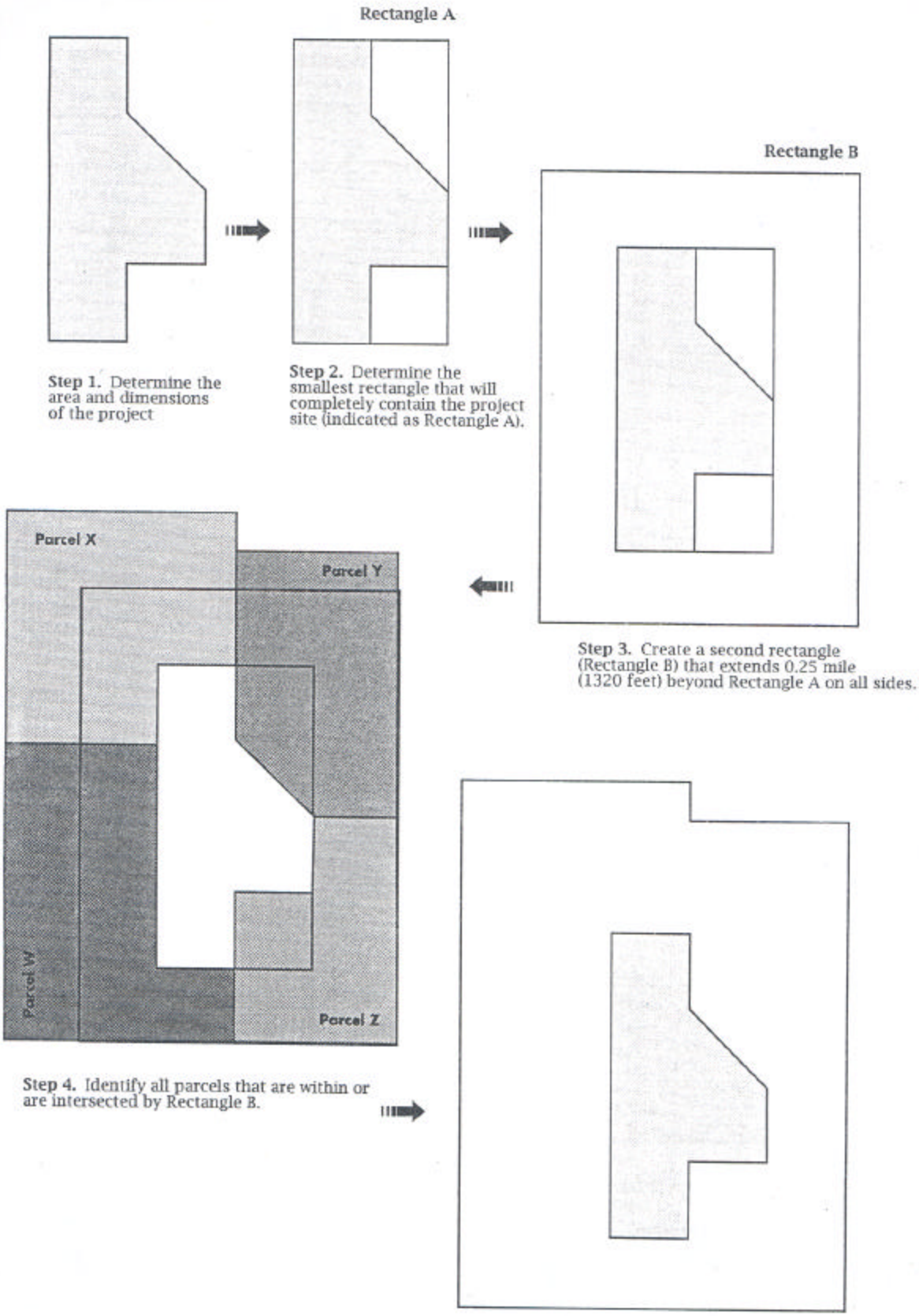
Step 3.
Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

Step 4.
Identify all parcels that are within or are intersected by Rectangle B.

Step 5.
Define the project site's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

[In the illustration provided in Figure 1, Parcels W, X, and Y extend beyond Rectangle B and are therefore included in their entirety in defining the project site's Zone of Influence.**]**

Figure 1: Defining a Project's Zone of Influence



Step 1. Determine the area and dimensions of the project

Step 2. Determine the smallest rectangle that will completely contain the project site (indicated as Rectangle A).

Step 3. Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

Step 4. Identify all parcels that are within or are intersected by Rectangle B.

Step 5. Define the project's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

In this example, parcels W, X, and Y extend beyond Rectangle B and are therefore included in the their entirety in defining the project's zone of influence.

Measuring Surrounding Agricultural Land

Step 1.
Calculate the percentage of the project's Zone of Influence that is currently producing agricultural crops. **[**This figure can be determined using information from the Department of Conservation's Important Farmland Map Series, the Department of Water Resources' Land Use Map Series, locally derived maps, or direct site inspection. For agricultural land that is currently fallowed, a determination must be made concerning whether the land has been fallowed as part of a rotational sequence during normal agricultural operations, or because the land has become formally "committed" to a nonagricultural use. Land that has become formally committed, whether fallow or not, should not generally be included in determining the proportion of the Zone of Influence that is agricultural land. For further information on the definition of Committed Land, refer to the following Explanation of the Surrounding Agricultural Land Rating.**]**

Step 2.
Based on the percentage of agricultural land in the ZOI determined in Step 1, assign a Surrounding Agricultural Land score to the project according to Table 6, and enter this score in **Line 5** of the **Final LESA Scoresheet** (Table 8) .

Table 6. Surrounding Agricultural Land Rating

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Explanation of the Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a subject project. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The definition of a "Zone of Influence" that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use. In a simple example, a single one quarter mile square project (160 acres) would have a Zone of Influence that is a minimum of eight times greater (1280 acres) that the parcel itself.

Land within a Zone of Influence that is observed to be fallow will require a case by case determination of whether this land should be considered agricultural land. The Department of Conservation's Important Farmland Maps may be of assistance in making this determination. In addition, land currently in agricultural production may be designated as being "committed" to future nonagricultural development. The Department of Conservation's Farmland Mapping and Monitoring Program has a land use designation of Land Committed to Nonagricultural Use, and is defined as "land that is permanently committed by local elected officials to nonagricultural development by virtue of decisions which cannot be reversed simply by a majority vote of a city council or county board of supervisors. The "committed" land must be so designated in an adopted local general plan, and must also meet the requirements of either (a) or (b) below:

(a). It must have received one of the following final discretionary approvals:

1. Tentative subdivision map (approved per the Subdivision Map Act);
2. Tentative or final parcel map (approved per the Subdivision Map Act);
3. Recorded development agreement (per Government Code §65864);
4. Other decisions by a local government which are analogous to items #1-3 above and which exhibit an element of permanence. Zoning by itself does <u>not</u> qualify as a permanent commitment.

<u>Or</u>

(b) It must be the subject of one of the final fiscal commitments to finance the capital improvements specifically required for future development of the land in question as shown below:

1. Recorded Resolution of Intent to form a district and levy an assessment;
2. Payment of assessment;
3. Sale of bonds;
4. Binding contract, secured by bonds, guaranteeing installation of infrastructure;
5. Other fiscal commitments which are analogous to items #1-4 above and exhibit an element of permanence."

Lead agencies are encouraged to identify Land Committed to Nonagricultural Use within a project's ZOI and make the determination whether this land, while still in agricultural production, be considered nonagricultural land for the purposes of the calculation performed here.

4. Site Assessment - The Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Instructions for the Surrounding Protected Resource Land Rating

Step 1.
Utilizing the same "Zone of Influence" (ZOI) area calculated for a project under the Surrounding Agricultural Land Rating, calculate the percentage of the ZOI that is Protected Resource Land, as defined above.

Step 2.
Assign a Surrounding Protected Resource Land score to the project according to Table 7, and enter this score on **Line 6** of the **Final LESA Scoresheet** (Table 8).

Table 7. Surrounding Protected Resource Land Rating

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Section III. Weighting of Factors and Final LESA Scoring

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Individual factor weights are listed below, with the sum of the factor weights required to equal 100 percent.

Land Evaluation Factors

Land Capability Classification	25%
Storie Index Rating	25%
Land Evaluation Subtotal	**50%**

Site Assessment Factors

Project Size	15%
Water Resource Availability	15%
Surrounding Agricultural Lands	15%
Surrounding Protected Resource Lands	5%
Site Assessment Subtotal	**50%**
Total LESA Factor Weighting	**100%**

Each factor is measured separately (each on 100 point scale) and entered in the appropriate line in **Column B** of the **Final LESA Scoresheet** (Table 8). Each factor's score is then multiplied by its respective factor weight, resulting in a weighted factor score in **Column D** as indicated in Table 8. The weighted factor scores are summed, yielding a Total LESA Score (100 points maximum) for a given project, which is entered in **Line 7** of **Column D**.

Table 8. Final LESA Scoresheet

A	B		C		D
Factor Name	Factor Rating (0-100 points)	X	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation					
1. Land Capability Classification	<Line 1>_____	X	0.25	=	_____
2. Storie Index Rating	<Line 2>_____	X	0.25	=	_____
Site Assessment					
1. Project Size	<Line 3>_____	X	0.15	=	_____
2. Water Resource Availability	<Line 4>_____	X	0.15	=	_____
3. Surrounding Agricultural Lands	<Line 5>_____	X	0.15	=	_____
4. Protected Resource Lands	<Line 6>_____	X	0.05	=	_____
			Total LESA Score (sum of weighted factor ratings)		<Line 7>_____

Section IV. California Agricultural LESA Scoring Thresholds - Making Determinations of Significance Under CEQA

A single LESA score is generated for a given project after all of the individual Land Evaluation and Site Assessment factors have been scored and weighted as detailed in Sections 2 and 3. Just as with the scoring of individual factors that comprise the California Agricultural LESA Model, final project scoring is based on a scale of 100 points, with a given project being capable of deriving a maximum of 50 points from the Land Evaluation factors and 50 points from the Site Assessment factors.

The California Agricultural LESA Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA review process. Scoring thresholds are based upon both the total LESA score as well as the component LE and SA subscores. In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score, but a very low SA score, or vice versa). Table 9 presents the California Agricultural LESA scoring thresholds.

Table 9. California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered Significant

Bibliography

1. *Conserving the Wealth of the Land - A Plan for Soil Conservation*, Department of Conservation. 1987.

2. *The Impacts of Farmland Conversion in California*. Prepared by Jones and Stokes, Associates, Inc., for the California Department of Conservation. 1991.

3. *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors*. Prepared by Nichols - Berman, for the Department of Conservation. 1995.

4. *LESA Guidelines for Local Jurisdictions - Project Size and Water Resource Availability Factors*. Prepared by Nichols - Berman, for the Department of Conservation. 1995.

5. Office of the Federal Register National Archives and Records Administration. The Farmland Protection and Policy Act, part 658. Code of Federal Regulations - Agriculture, Parts 400 to 699. 1990.

6. Pease, J and R. Coughlin. Land Evaluation and Site Assessment: *A Guidebook for Rating Agricultural Lands, Second Edition*; prepared for the USDA Natural Resources Conservation Service; Soil and Water Conservation Society. 1996.

7. Pease, J., et al. *State and Local LESA Systems: Status and Evaluation*; In: Steiner, F., J. Pease, and R. Coughlin, eds. *A Decade with LESA: The Evolution of Land Evaluation and Site Assessment*. Soil and Water Conservation Society. 1994.

8. Steiner, F., J. Pease, and R. Coughlin, eds. *A Decade with LESA: The Evolution of Land Evaluation and Site Assessment*. Soil and Water Conservation Society. 1994.

APPENDIX C

Air Quality Modeling Data

Construction Emissions

Summary of Construction Emissions Estimated with URBEMIS2007 V.9.2.2

Format of URBEMIS Output

Source	ROG	NO_X	PM_{10}	$PM_{2.5}$	CO2
Total (Unmitigated)	16.95	36.80	18.37	4.97	5226.67
Fine Grading - Subtotal	1.36	11.41	17.25	4.01	1015.42
Fugitive Dust	0.00	0.00	16.68	3.48	0.00
Off-Road Diesel Exhaust	1.34	11.38	0.57	0.52	984.85
On-Road Diesel Exhaust	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.02	0.03	0.00	0.00	30.56
Asphalt - Subtotal	0.17	0.69	0.05	0.04	65.22
Paving Off-Gas Emissions	0.09	0.00	0.00	0.00	0.00
Paving Off-Road Diesel Exhaust	0.05	0.32	0.03	0.03	21.82
Paving On-Road Diesel Exhaust	0.03	0.37	0.02	0.02	41.77
Paving Worker Trips	0.00	0.00	0.00	0.00	1.63
Building Construction - Subtotal	2.56	24.69	1.08	0.92	4130.75
Off-Road Diesel Exhaust	1.02	11.92	0.41	0.38	1329.75
Vendor Trips	0.97	11.82	0.57	0.49	1721.97
Worker Trips	0.57	0.95	0.09	0.05	1079.03
Architectural Coatings - Subtotal	12.86	0.01	0.00	0.00	15.29
Architectural Coatings Off-Gas Emissions	12.85	0.00	0.00	0.00	0.00
Architectural Coatings Worker Trips	0.01	0.01	0.00	0.00	15.29
Total Unmitigated	16.95	36.80	18.37	4.97	5226.67
Crosscheck 1 - Total Unmitigated	16.95	36.80	18.38	4.97	5226.67
Crosscheck 2 - Total Unmitigated	16.95	36.80	18.38	4.97	5226.68

Report Format in Word File

Source	ROG	NO_X	PM_{10}	$PM_{2.5}$	CO2
Fine Grading					
Fugitive Dust	0.0	0.0	16.7	3.5	0.0
Off-Road Diesel Exhaust	1.3	11.4	0.6	0.5	984.9
On-Road Diesel Exhaust	0.0	0.0	0.0	0.0	0.0
Worker Trips	0.0	0.0	0.0	0.0	30.6
Subtotal Unmitigated	1.4	11.4	17.3	4.0	1015.4
Asphalt					
Paving Off-Gas Emissions	0.1	0.0	0.0	0.0	0.0
Paving Off-Road Diesel Exhaust	0.1	0.3	0.0	0.0	21.8
Paving On-Road Diesel Exhaust	0.0	0.4	0.0	0.0	41.8
Paving Worker Trips	0.0	0.0	0.0	0.0	1.6
Subtotal Unmitigated	0.2	0.7	0.1	0.0	65.2
Building Construction					
Off-Road Diesel Exhaust	1.0	11.9	0.4	0.4	1329.8
Vendor Trips	1.0	11.8	0.6	0.5	1722.0
Worker Trips	0.6	1.0	0.1	0.1	1079.0
Subtotal Unmitigated	2.6	24.7	1.1	0.9	4130.8
Architectural Coatings					
Architectural Coatings Off-Gas Emissions	12.9	0.0	0.0	0.0	0.0
Architectural Coatings Worker Trips	0.0	0.0	0.0	0.0	15.3
Subtotal Unmitigated	12.9	0.0	0.0	0.0	15.3
Total Unmitigated	17.0	36.8	18.4	5.0	5226.7

Applicant/Business Name:	Wal-Mart Stores, Inc.
Project Name:	Wal-Mart Merced Distribution Center
Project Location:	City of Merced, CA

230	Total Acreage
57.50	Max Daily Disturbed

Construction Phase	Equipment Type	URBEMIS Value
Demolition	Rubber Tired Loader	5.75
Grading	Crawler Tractor	28.75
	Grader	5.75
	Off-Highway Truck	17.25
	Rubber Tired Loader	11.50
	Scraper	5.75
	Tractor/Loader/Backhoe	11.50
Building Construction	Other Equipment	17.25
Asphalt	Paver	5.75
	Roller	5.75

To use this spreadsheet:

1. Use this spreadsheet if you do not know specifics of the construction fleet and activity for the construction of your project and want to perform and emissions analysis. The District will use this spreadsheet to calculate construction emissions unless other information is provided.
2. Enter the total acreage to be disturbed in the construction of your project.
3. Print this sheet.
4. Enter the "URBEMIS Value" amounts into the corresponding construction phase of URBEMIS.
   A. In the Construction Emissions Module, click on the corresponding Construction Phase.
   B. Locate the "Equip Exhaust" tabs.
   C. Type the "URBEMIS Value" into the "Total #" field of the "Equip Exhaust" Tab.
   Note: Some values may not be whole numbers. Enter in the exact value, even if not a whole number
5. Do NOT change the default construction length in URBEMIS.

This sheet is available at:

http://www.valleyair.org/General_info/ISRLoader.htm

10/15/2007 01:31:46 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\MDC Construction U2007.urb9

Project Name: Merced Distribution Center - Construction Only

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2008	16.95	36.80	16.79	1.58	18.37	3.52	1.44	4.97	5,226.67
Fine Grading 01/01/2008-02/10/2008	1.36	11.41	16.68	0.57	17.24	3.48	0.52	4.01	1,015.42
Fine Grading Dust	0.00	0.00	16.68	0.00	16.68	3.48	0.00	3.48	0.00
Fine Grading Off Road Diesel	1.34	11.38	0.00	0.57	0.57	0.00	0.52	0.52	984.85
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	30.56
Asphalt 02/11/2008-02/25/2008	0.17	0.69	0.00	0.04	0.05	0.00	0.04	0.04	65.22
Paving Off-Gas	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.32	0.00	0.03	0.03	0.00	0.03	0.03	21.82
Paving On Road Diesel	0.03	0.37	0.00	0.02	0.02	0.00	0.01	0.02	41.77
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
Building 02/26/2008-12/15/2008	2.56	24.69	0.12	0.96	1.08	0.04	0.88	0.92	4,130.75
Building Off Road Diesel	1.02	11.92	0.00	0.41	0.41	0.00	0.38	0.38	1,329.75
Building Vendor Trips	0.97	11.82	0.06	0.51	0.57	0.02	0.47	0.49	1,721.97
Building Worker Trips	0.57	0.95	0.05	0.04	0.09	0.02	0.03	0.05	1,079.03
Coating 12/16/2008-12/31/2008	12.86	0.01	0.00	0.00	0.00	0.00	0.00	0.00	15.29
Architectural Coating	12.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	15.29

Phase Assumptions

Phase: Fine Grading 1/1/2008 - 2/10/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 230

Maximum Daily Acreage Disturbed: 57.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

10/15/2007 01:31:46 PM

On Road Truck Travel (VMT): 0
Off-Road Equipment:
28.8 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
5.8 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
17.3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
11.5 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
5.8 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
11.5 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 2/11/2008 - 2/25/2008 - Default Paving Description
Acres to be Paved: 70
Off-Road Equipment:
5.8 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
5.8 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

Phase: Building Construction 2/26/2008 - 12/15/2008 - Default Building Construction Description
Off-Road Equipment:
17.3 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

Phase: Architectural Coating 12/16/2008 - 12/31/2008 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Operational Emissions

10/15/2007 03:24:05 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\MDC Area Sources U2007.urb9

Project Name: MDC - Area Sources U2007

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOx	PM10	PM2.5	CO2
Natural Gas	0.02	0.29	0.00	0.00	344.20
Hearth	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.00	0.00	0.25
Consumer Products	0.00				
Architectural Coatings	1.28				
TOTALS (tons/year, unmitigated)	1.31	0.29	0.00	0.00	344.45

Area Source Changes to Defaults

10/15/2007 04:38:35 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\MDC Employee Commute Trips U2007.urb9

Project Name: MDC - Employee Commute Trips 2007

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	PM10	PM25	CO2
Warehouse	5.10	3.56	1.63	0.39	2,506.13
TOTALS (tons/year, unmitigated)	5.10	3.56	1.63	0.39	2,506.13

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		1.46	1000 sq ft	1,200.00	1,752.00	15,195.97
					1,752.00	15,195.97

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	1.9	97.6	0.5
Light Truck < 3750 lbs	22.2	4.1	88.3	7.6
Light Truck 3751-5750 lbs	18.5	1.9	97.6	0.5

Med Truck 5751-8500 lbs	6.4	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	1.3	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	100.0	0.0	0.0			
% of Trips - Commercial (by land use)						
Warehouse				100.0	0.0	0.0

Operational Changes to Defaults

10/15/2007 05:00:41 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\MDC Outbound Delivery Truck Trips - Proposed U2007.urb0

Project Name: MDC - Outbound Delivery Truck Trips - Proposed U2007

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	PM10	PM25	CO2
Warehouse	11.65	176.09	104.48	22.91	19,758.81
TOTALS (tons/year, unmitigated)	11.65	176.09	104.48	22.91	19,758.81

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		0.27	1000 sq ft	1,200.00	324.00	26,892.00
					324.00	26,892.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.6	0.5
Light Truck < 3750 lbs	0.0	4.1	88.3	7.6
Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5

Med Truck 5751-8500 lbs	0.0	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	83.0
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Warehouse				0.0	0.0	100.0

Operational Changes to Defaults

Commercial-based customer urban trip length changed from 7.35 miles to 83 miles

10/15/2007 05:14:53 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\MDC Inbound Delivery Truck Trips - Existing or Proposed Proj U2007.urb9

Project Name: MDC - Outbound Delivery Truck Trips - Existing U2007

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	PM10	PM25	CO2
Warehouse	12.01	220.47	133.07	28.75	23,528.20
TOTALS (tons/year, unmitigated)	12.01	220.47	133.07	28.75	23,528.20

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		0.27	1000 sq ft	1,200.00	324.00	34,408.80
					324.00	34,408.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.6	0.5
Light Truck < 3750 lbs	0.0	4.1	88.3	7.6
Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5

Med Truck 5751-8500 lbs	0.0	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	106.2
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	45.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Warehouse				0.0	0.0	100.0

Operational Changes to Defaults

Commercial-based customer average speed changed from 35 mph to 45 mph

Commercial-based customer urban trip length changed from 7.35 miles to 106.2 miles

Abridged Emfac Run to Determine Emission Rates of On-Site Idling and Travel by Haul Trucks

Title : Wal-Mart Distribution Center in Merced
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/07/19 13:18:26
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Merced
****

Year: 2009 -- Model Years 1965 to 2009 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006 Annual County Average

County Average Merced

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Reactive Org Gases **Temperature: 40F** **Relative Humidity: 30%**

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	22.506	23.238	3.173	6.211	0	0	**13.448**	13.307
3	38.677	6.045	1.05	2.204	173.303	19.093	14.149	14.272
5	38.677	6.045	1.05	2.204	173.303	19.093	14.149	14.272
15	17.254	2.677	0.662	1.144	77.504	8.494	**3.815**	3.895
45	4.114	0.615	0.281	0.374	18.733	2.003	0.868	0.887

Pollutant Name: Oxides of Nitrogen Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	1.489	1.536	75.051	63.889	0	0	**107.309**	106.182
3	3.479	3.678	16.791	14.798	31.869	12.524	48.673	48.302
5	3.479	3.678	16.791	14.798	31.869	12.524	48.673	48.302
15	3.832	4.051	11.976	10.77	35.1	13.794	**24.007**	23.909
45	4.89	5.169	10.185	9.42	44.793	17.603	18.254	18.26

Pollutant Name: Carbon Dioxide Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	4776.9	4776.901	4098	4201.077	0	0	**6541.715**	6472.982
3	2513.51	2513.51	1505	1658.121	2513.51	2513.51	3845.361	3831.367
5	2513.51	2513.51	1505	1658.121	2513.51	2513.51	3845.361	3831.367
15	1175.484	1175.484	1505	1454.97	1175.484	1175.484	**2595.958**	2581.033
45	450.085	450.085	1505	1344.833	450.085	450.085	1701.031	1687.887

Abridged Emfac Run to Determine Emission Rates of On-Site Idling and Travel by Haul Trucks

Pollutant Name: PM10 Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	1.227	1.041	0	0	**2.08**	2.058
3	0.101	0.073	1.18	1.012	0.101	0.096	3.279	3.246
5	0.101	0.073	1.18	1.012	0.101	0.096	3.279	3.246
15	0.045	0.033	0.744	0.636	0.045	0.043	**1.448**	1.434
45	0.011	0.008	0.315	0.269	0.011	0.01	0.592	0.586

Pollutant Name: PM10 - Tire Wear Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036
5	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036
15	0.012	0.012	0.012	0.012	0.012	0.012	**0.036**	0.036
45	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036

Pollutant Name: PM10 - Break Wear Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
5	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
15	0.013	0.013	0.013	0.013	0.028	0.028	**0.028**	0.028
45	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028

Pollutant Name: PM2.5 Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	1.129	0.957	0	0	**1.914**	1.894
3	0.076	0.067	1.086	0.931	0.076	0.089	3.017	2.986
5	0.076	0.067	1.086	0.931	0.076	0.089	3.017	2.986
15	0.034	0.03	0.684	0.585	0.034	0.04	**1.333**	1.319
45	0.008	0.007	0.29	0.247	0.008	0.01	0.545	0.539

Abridged Emfac Run to Determine Emission Rates of On-Site Idling and Travel by Haul Trucks

Pollutant Name: PM2.5 - Tire Wear Temperature: 40F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009
5	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009
15	0.003	0.003	0.003	0.003	0.003	0.003	**0.009**	0.009
45	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009

Pollutant Name: PM2.5 - Break Wear

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
5	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
15	0.005	0.005	0.005	0.005	0.012	0.012	**0.012**	0.012
45	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012

Title : Wal-Mart Distribution Center in Merced
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/02/08 13:18:26
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Merced
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006 Annual County Average

County Average Merced

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Reactive Org Gases **Temperature: 80F** **Relative Humidity: 30%**

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	22.506	23.238	3.173	6.211	0	0	**13.448**	13.307
3	26.808	7.051	1.05	2.201	120.227	21.415	14.149	14.271
5	26.808	7.051	1.05	2.201	120.227	21.415	14.149	14.271
15	11.943	3.127	0.662	1.143	53.75	9.532	**3.815**	3.895
45	2.826	0.724	0.281	0.373	12.969	2.253	0.868	0.887

Abridged Emfac Run to Determine Emission Rates of On-Site Idling and Travel by Haul Trucks

Pollutant Name: Oxides of Nitrogen Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	1.489	1.536	75.051	63.889	0	0	**107.309**	106.182
3	2.465	2.727	15.441	13.507	22.576	9.349	44.757	44.391
5	2.465	2.727	15.441	13.507	22.576	9.349	44.757	44.391
15	2.714	3.003	11.012	9.793	24.865	10.296	**22.075**	21.958
45	3.464	3.833	9.365	8.521	31.731	13.14	16.786	16.756

Pollutant Name: Carbon Dioxide Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	4776.9	4776.901	4098	4201.077	0	0	**6541.715**	6472.982
3	2513.51	2513.51	1505	1658.121	2513.51	2513.51	3845.361	3831.367
5	2513.51	2513.51	1505	1658.121	2513.51	2513.51	3845.361	3831.367
15	1175.484	1175.484	1505	1454.97	1175.484	1175.484	**2595.958**	2581.033
45	450.085	450.085	1505	1344.833	450.085	450.085	1701.031	1687.887

Pollutant Name: PM10 Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	1.227	1.041	0	0	**2.08**	2.058
3	0.101	0.073	1.18	1.012	0.101	0.096	3.279	3.246
5	0.101	0.073	1.18	1.012	0.101	0.096	3.279	3.246
15	0.045	0.033	0.744	0.636	0.045	0.043	**1.448**	1.434
45	0.011	0.008	0.315	0.269	0.011	0.01	0.592	0.586

Pollutant Name: PM10 - Tire Wear Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036
5	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036
15	0.012	0.012	0.012	0.012	0.012	0.012	**0.036**	0.036
45	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036

Abridged Emfac Run to Determine Emission Rates of On-Site Idling and Travel by Haul Trucks

Pollutant Name: PM10 - Break Wear Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
5	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
15	0.013	0.013	0.013	0.013	0.028	0.028	**0.028**	0.028
45	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028

Pollutant Name: PM2.5 Temperature: 80F Relative Humidity: 30%

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	1.129	0.957	0	0	**1.914**	1.894
3	0.076	0.067	1.086	0.931	0.076	0.089	3.017	2.986
5	0.076	0.067	1.086	0.931	0.076	0.089	3.017	2.986
15	0.034	0.03	0.684	0.585	0.034	0.04	**1.333**	1.319
45	0.008	0.007	0.29	0.247	0.008	0.01	0.545	0.539

Pollutant Name: PM2.5 - Tire Wear

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009
5	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009
15	0.003	0.003	0.003	0.003	0.003	0.003	**0.009**	0.009
45	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009

Pollutant Name: PM2.5 - Break Wear

Speed MPH	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	**0**	0
3	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
5	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012
15	0.005	0.005	0.005	0.005	0.012	0.012	**0.012**	0.012
45	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012

On-Site Haul Truck Idling

Traveling	ROG	NOx	PM10	PM2.5	CO2	units	source
emission factor	3.815	24.007	1.512	1.354	2595.958	g/mi	link to HHD DSL at 15 mph from Emfac2007 V2.3
emission rate	0.0084	0.0529	0.0033	0.0030	5.7231	lb/mi	conversion calculation

Conversion Factors		units	source
weight conversion	453.59237	g/lb	http://www.onlineconversion.com/weight_common.htm

On-Site VMT by Haul Trucks

Travel by Haul Trucks	value	units	source
ingress VMT	75	mi/day	1
egress VMT	77	mi/day	1
travel to stall pick-up/drop-off	73	mi/day	1
travel to and from parking	73	mi/day	1
Subtotal	298	mi/day	summation

Emissions from On-Site Haul Truck Travel

	ROG	NOx	PM10	PM2.5	CO2	units	source
Pounds per Day	2.5064	15.7721	0.9934	0.8895	1705.4861	lb/day	calculation
Tons per Year	0.46	2.88	0.18	0.16	311.25	ton/year	conversion

Notes/Sources

1 - These parameters were determined in the Health Risk Assessment performed for this project.

Conversion Rates	units
365	days/yr
2000	lb/ton

On-Site Haul Truck Travel

Idling	ROG	NOx	PM10	PM2.5	CO2	units	source
emission factor	13.448	107.309	2.08	1.914	6541.715	g/hr	link to HHD DSL at 0 mph from Emfac2007 V2.3
emission rate	0.0296	0.2366	0.0046	0.0042	14.4220	lb/hr	conversion calculation

Haul Truck Idling Time		value	units	source
entrance gate		322	min/day	1
temporary parking area		1610	min/day	1
weigh scales		1610	min/day	1
stall pick-up/drop-off		3220	min/day	1
	Subtotal	6762	min/day	summation
minutes per hour		60	min/hr	
	Subtotal	112.70	idle-hr/day	conversion

Emissions from On-Site Haul Truck Idling

	ROG	NOx	PM10	PM2.5	CO2	units	source
Pounds per Day	3.3413	26.6621	0.5168	0.4756	1625.3609	lb/day	calculation
Tons per Year	0.61	4.87	0.09	0.09	296.63	ton/year	conversion

Notes/Sources

1 - These parameters were determined in the Health Risk Assessment performed for this project.

Conversion Rates	units
365	days/yr
2000	lb/ton

Emission Rates for On-Site Yard Trucks

It is assumed that the Off Highway Truck in the URBEMIS equipment list is equivalent to a Yard Truck but with an engine size of 175 hp, which is consistent with the HRA.

Emission factors for the Yard Trucks were developed using a 'dummy' run in URBEMIS2007, MDC_Yard_Truck_U2007.urb9 with the following parameters:

Number of Off-Road trucks	100.0
hrs/day	10.0
Year	2009.0

URBEMIS generated the following emission estimates for "Fine Grading Off-Road Diesel":

	ROG	NOx	PM10	PM2.5	CO2
Annual (tons/year)	13.76	102.07	6.02	5.54	9296.24
Summer (lb/day)	105.46	782.18	46.14	42.45	71235.56
Winter (lb/day)	105.46	782.18	46.36	42.53	73786.12

The above emissions estimates account for both on-site travel and idling.

Conservatively, the maximum seasonal rate was used:

	ROG	NOx	PM10	PM2.5	CO2
Seasonal daily max. (lb/day)	105.46	782.18	46.36	42.53	73786.12

Then, the hourly rate for one single Yard truck was calculated based on the number of trucks and hours per day:

One Single Yard Truck	ROG	NOx	PM10	PM2.5	CO2	units	source
Hourly Emission Rate (lb/hour)	0.105	0.782	0.046	0.043	73.786	lb/hour	calculation

Emissions for On-Site Yard Truck Idling

Yard Truck Idling				
docks pick-up/drop-off	1288	min/day	1	
stall pick-up/drop-off	1288	min/day	1	
Subtotal	2576	min/day	summation	
minutes per hour	60	min/hr	conversion calculation	
Subtotal idle-hours per day	42.93	idle-hr/day	summation calculation	

Emissions	ROG	NOx	PM10	PM2.5	CO2	units	source
pounds per day	4.53	33.58	1.99	1.83	3167.88	lb/year	calculation
tons per year	0.83	6.13	0.36	0.33	578.14	ton/year	calculation

Emissions for On-Site Yard Truck Travel

Yard Truck On-Site Travel			
travel to docks pick-up/drop-off	37	mi/day	1
travel to stall pick-up/drop-off	37	mi/day	1
Subtotal	74	mi/day	summation
Avg Speed of on-site travel	7.5	mi/hr	Avg. speed is assumed based on site speed limit of 15 mph.
Truck-travel hours per day	9.87	truck-hr/day	calculation

Emissions	ROG	NOx	PM10	PM2.5	CO2	units	source
pounds per day	1.04	7.72	0.46	0.42	728.02	lb/year	calculation
tons per year	0.19	1.41	0.08	0.08	132.86	ton/year	calculation

Conversion Rates	
2000	lb/ton
365	days/year

Notes/Sources

1 - These parameters were determined in the Health Risk Assessment performed for this project.

Summary of Emissions of On-Site Truck Activity (tons per year)

	ROG	NOx	PM10	PM2.5	CO2	units
Haul Truck Idling	0.46	2.88	0.18	0.16	311.25	ton/year
Haul Truck Travel	0.61	4.87	0.09	0.09	296.63	ton/year
Yard Truck Idling	0.83	6.13	0.36	0.33	578.14	ton/year
Yard Truck Travel	0.19	1.41	0.08	0.08	132.86	ton/year

10/15/2007 05:51:02 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\CO2 - MDC Outbound Delivery Truck Trips - Proposed U2007.urb9

Project Name: MDC - Outbound Delivery Truck Trips - Proposed U2007 - CO2 Only

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	PM10	PM25	CO2
Warehouse	12.33	226.49	136.71	29.53	24,170.69
TOTALS (tons/year, unmitigated)	12.33	226.49	136.71	29.53	24,170.69

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		0.27	1000 sq ft	1,200.00	324.00	35,348.40
					324.00	35,348.40

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.6	0.5
Light Truck < 3750 lbs	0.0	4.1	88.3	7.6
Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5

Med Truck 5751-8500 lbs	0.0	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	109.1
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	45.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Warehouse				0.0	0.0	100.0

Operational Changes to Defaults

Commercial-based customer average speed changed from 35 mph to 45 mph

Commercial-based customer urban trip length changed from 7.35 miles to 109.1 miles

10/15/2007 05:55:34 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\CO2 - MDC Outbound Delivery Truck Trips - Existing U2007.urb9
Project Name: MDC - Outbound Delivery Truck Trips - Existing U2007 - CO2 Only

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	PM10	PM25	CO2
Warehouse	10.77	197.79	119.39	25.79	21,108.43
TOTALS (tons/year, unmitigated)	10.77	197.79	119.39	25.79	21,108.43

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		0.15	1000 sq ft	1,200.00	180.00	30,870.00
					180.00	30,870.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.6	0.5
Light Truck < 3750 lbs	0.0	4.1	88.3	7.6

Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5
Med Truck 5751-8500 lbs	0.0	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	171.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	45.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Warehouse				0.0	0.0	100.0

Operational Changes to Defaults

Commercial-based customer average speed changed from 35 mph to 45 mph

Commercial-based customer urban trip length changed from 7.35 miles to 171.5 miles

10/15/2007 05:58:44 PM

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\sacramento\Application Data\Urbemis\Version9a\Projects\Merced Distribution Center\CO2 - MDC Inbound Delivery Truck Trips - Existing or Proposed Proj U2007.urb9
Project Name: MDC - Outbound Delivery Truck Trips - Existing U2007 - CO2 Only

Project Location: Merced County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Warehouse	19.39	356.03	96.25	0.36	214.89	46.43	37,995.17
TOTALS (tons/year, unmitigated)	19.39	356.03	96.25	0.36	214.89	46.43	37,995.17

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Warehouse		0.27	1000 sq ft	1,200.00	324.00	55,566.00
					324.00	55,566.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.6	0.5
Light Truck < 3750 lbs	0.0	4.1	88.3	7.6

10/15/2007 05:58:44 PM

Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5
Med Truck 5751-8500 lbs	0.0	0.9	98.2	0.9
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.0	30.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	73.0	27.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	171.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	45.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Warehouse				0.0	0.0	100.0

Operational Changes to Defaults

Commercial-based customer average speed changed from 35 mph to 45 mph

Commercial-based customer urban trip length changed from 7.35 miles to 171.5 miles

Health Risk Assessment

Prepared for:
EDAW
Sacramento, CA

Health Risk Assessment to Support Environmental Impact Analysis for the Proposed Wal-Mart Distribution Center, Merced, CA

ENSR Corporation
March 2007
Document No.: 02450-021

ENSR | AECOM

Prepared for:
EDAW
Sacramento, CA

Health Risk Assessment to Support Environmental Impact Analysis for the Proposed Wal-Mart Distribution Center, Merced, CA

Prepared By: Greg Wolffe

Reviewed By: Howard Balentine

ENSR Corporation
March 2007
Document No.: 02450-021

ENSR | AECOM

Contents

1.0 INTRODUCTION ii

1.2 Project Background 1

1.2 Project Description 1

2.0 Identification of Air Toxic Contaminants 3

2.1 Health Risk Assessment Methodology 3

2.2 Air Toxic Substances Emitted 3

2.2.1 Sources of Air Toxic Emissions 4

2.2.2 Health Risk Factors 4

2.2 Risk Definitions and Significance 5

3.0 Exposure Assessment 6

3.1 Toxic Air Contaminant Emissions 6

3.1.1 Particulate Matter from Diesel-Fueled Engines 6

3.1.2 Organic Gases (PAH and Naphthalene) 8

3.2 Dispersion Modeling Methodology 8

3.2.1 Air Dispersion Model 8

3.2.2 Meteorological Data 9

3.2.3 Emission Factors 9

3.2.4 Modeled Source Release Parameters 9

3.2.5 Building Downwash 11

3.2.5 Terrain 11

3.2.6 Receptors 11

4.0 Health Risk Assessment Results 13

5.0 Risk Assessment Uncertainty 15

List of Tables

Table 2-1. Risk Assessment Health Values for Substances of Potential Concern 4

Table 3-1. Emissions of Particulate Matter from Diesel-Fueled Engines 6

Table 3-2. Modeled Release Parameters for Emission Sources at Wal-Mart Merced DC 11

Table 3-3. Receptors Located Within 4-km of the Wal-Mart Merced DC 12

Table 4-1. Summary of Maximum Health Risk Impacts by Individual Receptor 14

List of Figure

Figure 1. Modeled Emission Sources on Facility Plot Plan 10

Figure 2. Modeled Receptors on Aerial Photograph of Area 13

List of Appendices

Appendix A **Detailed emission calculations**

Appendix B **A copy of the 2006 Model Year Certificate of Conformity**

Appendix C **Detailed health risk calculations**

Appendix D **AERMOD modeling files**

Appendix E **HARP modeling files**

1.0 INTRODUCTION

This health risk assessment (HRA) is a comprehensive analysis of the potential health risks posed by operation of the proposed Wal-Mart Distribution Center (DC) located in Merced, CA. This HRA was conducted in support of the environmental impact analysis required under the California Environmental Quality Act (CEQA) for the proposed action. The assessment evaluates hazardous chemical substances emitted in the environment, the potential for human exposure, and a quantitative assessment of individual health risks associated with those levels of exposure. The principal concerns for public health are associated with emissions of chemical substances into the air during routine operation of the proposed facility.

1.1 Project Background

The project site is located at the southeast end of the city of Merced in eastern Merced County in the San Joaquin Valley. Merced is approximately 118 miles south of Sacramento and 130 miles east of San Francisco. The project site is within the city limits of Merced. Land immediately to the south, north, and west of the site is also within the city limits of Merced. Land immediately to the east is in unincorporated Merced County, but is within the City's sphere of influence. As described above, the project site is designated "Manufacturing Industrial" in the Merced General Plan and "Heavy Industrial District" (I-H) in the zoning ordinance. The site has historically been used for agriculture.

Wal-Mart Corporation supplies the majority of its goods to its retail stores through regional distribution centers. A number of Wal-Mart stores are located throughout the central San Joaquin Valley. Presently, the closest distribution centers are located in Red Bluff and Apple Valley, both of which are in California and located 250 miles and 306 miles, respectively, from Merced.

1.2 Project Description

The proposed project, a Wal-Mart regional distribution center, consists of a warehouse and distribution center and support facilities, located on 230 acres in the city of Merced. The support facilities include offices, a cafeteria, a fire pump house, and aerosol storage (all located within the warehouse building), as well as a truck gate, a truck maintenance garage, a truck fueling station, and parking. The underlying purpose of the project is storage and distribution of non-grocery goods to Wal-Mart retail stores located throughout the region. There are no outdoor recreational facilities, open space, retail commercial, or residential uses proposed as part of the project.

The approximately 230-acre project site is bounded on the north by Childs Avenue, on the East by Tower Road and on the South by Gerard Avenue. Kibby Road, which heads north from this area, terminates at Childs Avenue at the north end of the project site. The future Campus Parkway is approximately 975 feet west of the project site. The site is approximately three miles southeast of downtown Merced and two miles east of State Route 99 (SR 99). Campus Parkway, which is planned to commence construction in March 2007 and be complete by November 2007, would provide access between the site and SR 99 via the new Mission Avenue interchange with SR 99; the interchange is currently under construction and planned to be operational by September 2007.

The land is generally flat but gently slopes to the west and ranges from 185 to 190 feet above mean sea level (msl). The site contains no structures or improvements, except for an irrigation water well. The western one-third of the site contains a walnut orchard, and the eastern two-thirds consist of agricultural fields. The northern, southern, and part of the northeastern boundary of the fields contain irrigation

ditches, which connect to the Wilson Substation (approximately one mile north of the site) along State Route 140 (SR 140). Overhead power lines run through the eastern portion of the site. The area containing these power lines will remain as an easement, and all site development will take place on the approximately 80 percent of the project site located west of this easement. Relocation of the power lines is not proposed as part of this project. The site includes right-of-way for the extension of Kibby Road between Childs Avenue and Gerard Avenue. This section of right-of-way is proposed to be abandoned to allow project uses as part of site development.

The project parcel is bounded by agricultural fields and a few rural residential dwellings across Tower Road to the east and Gerard Avenue to the south. The land east of Tower Road is designated as "Agriculture" in the Merced General Plan, and land to the north, west and south is designated as "Manufacturing Industrial". Undeveloped open lands and commercial lands are located to the north. To the west is another orchard. Also to the west is a Merced Irrigation District (MID) canal.

2.0 Identification of Air Toxic Contaminants

This section identifies and presents information on the toxic air contaminant (TAC) emissions from the proposed action, potential health hazards associated with the air toxic substances emitted, and their associated cancer risk and/or noncancer health impact evaluation requirement. It addresses the potential environmental impacts associated with human exposure to chemical substances of concern emitted into the air resulting from operation of Wal-Mart.

Air toxic substances were evaluated for long-term cancer and non-cancer chronic health hazard impacts. Because the air toxics evaluated do not have health risk impacts due to exposure routes other than via inhalation; a multipathway exposure assessment is not required. Also, an assessment of acute exposure (short-term) was not required to evaluate health risk impacts because TAC emissions from the proposed action do not have short-term (acute) health risk impacts associated with their exposure.

2.1 Health Risk Assessment Methodology

The methods used to assess potential human health risks are consistent with those prepared by *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2003)* (OEHHA Guidance Manual) which describes algorithms, exposure methods, and cancer and noncancer health values needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots or AB 2588, Health and Safety Code Section 44360 et seq.). This Guidance Manual is generally considered the best available reference for conducting human health risk assessment in California. Additional references include the Health Assessment Document for Diesel Engine Exhaust (EPA/600/8-90/057F, May 2002).

Additionally, the SJVAPCD has developed detail instructions for completing air quality modeling analysis, documented in the SVAPCD Guidance for Air Dispersion Modeling, (SJVAPCD, 2006). Appendix A, Section 2.0 of the SJVAPCD Guidance (Guidance), describes recommended methodology for conducting CEQA health risk assessments. This guidance document was followed as well, specifically when attributing source release parameters to truck exhaust and for the estimation of diesel-particulate emissions from truck travel and truck idling. This HRA included all sources of air toxics, including permitted (stationary emergency), and non-permitted (mobile) equipment.

This health risk assessment contains three quantitative determinations: emission estimation, air dispersion analysis, and health risk characterization. Source emissions of toxic air contaminants from the project were estimated using emission factors to quantify facility operations. Exposure calculations were performed using air dispersion modeling analysis to predict ground-level air concentrations, by source. Results of the air modeling exposure predictions were then applied to the emission estimates and, along with the respective cancer health risk factors and chronic and acute noncancer reference exposure levels for each toxic substance, were used to perform a health risk characterization that quantified individual health risks associated with predicted levels of exposure.

2.2 Air Toxic Substances Emitted

The primary air toxic substance evaluated for potential health risks from operation of the Wal-Mart Merced DC is particulate emissions from diesel-fueled engine exhaust. The regulated pollutant surrogate for this air toxic substance is commonly referred to as diesel particulate matter (DPM). Organic gases are also expected to be emitted from the proposed project from operation of an onsite charbroiler.

2.2.1 Sources of Air Toxic Emissions

Particulate emissions from diesel-fueled engines will be generated from truck activity and stationary sources operated at the Wal-Mart DC. Trucks will emit particulate emissions while perform various operations including traveling along lanes within the facility and idling at designated stops. Truck travel and idling are the primary contributors to DPM emission. Secondary sources of DPM emissions include the testing and routine maintenance of an emergency back-up power generator and fire-water pump. It is expected that both engines will be permitted with the SJVAPCD and the time allowed for testing and maintenance of these engines will be limited by permit condition, in accordance with the California Air Toxic Control Measure (ATCM) for stationary emergency engines. Emergency engines will meet Tier 3 standards for engines between 37 and 560 kW (50 and 750 hp) for particulate matter.

Organic gases are expected to be emitted from operation on an onsite cafeteria from the cooking of animal fats and oils. Emissions will be controlled through to an exhaust manifold (hood) to a roof-top vent. In addition, the cafeteria will receive two deliveries per week from transportation refrigeration units (TRU's) that will be unloaded thru a walk door near the cafeteria. The Wal-Mart DC will not receive or be set-up to receive shipment of cold goods through the operation of any TRU's.

Some small forklifts will be operated primarily inside the distribution center and will run on propane. Emissions from forklifts are considered to have an insignificant environmental impact due to their small engine size, use of propane-fueled engines, and primary use within Merced DC buildings. In accordance with the SJVAPCD Modeling Guidance, emissions from vehicles occurring on the roads or highways were not considered in this analysis.

2.2.2 Health Risk Factors

Chemical substance were evaluated in this analysis using health values that have been approved by the OEHHA and the ARB for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program (OEHHA, October 2003). The chemical substances of concern that are addressed in this HRA are listed in Table 2-1, along with their respective published OEHHA health effect values. The table lists the OEHHA adopted inhalation and oral cancer slope factors, noncancer acute Reference Exposure Levels (RELs), and inhalation and oral noncancer chronic RELs. The cancer potency factors and reference exposure levels (RELs) used were obtained from the OEHHA HRA Guidance Document.

Table 2-1
Risk Assessment Health Values for Substances of Potential Concern

Compound (CAS Number)	Cancer Risk		Non-cancer Effects	
	Inhalation Cancer Potency $(mg/kg\text{-}day)^{-1}$	Inhalation Unit Risk (µg/m3)-1	Chronic Inhalation Reference Exposure Level (µg/m3)	Acute Inhalation Reference Exposure Level (µg/m3)
PAH (50328) [(1)]	3.9E+00	1.1E-03	--	--
Naphthalene (91203)	1.2E-01	3.4E-05	9.0E+00	--
Diesel Particulate Matter (9901)	1.1E+00[(2)]	3.0E-04	5.0 E+00	--

Source: OEHHA, 2003 (Naphthalene updated August, 2004)

(1) Benzo(a)pyrene (CAS number shown) was modeled as a surrogate carcinogen for all PAH emissions.

(2) Cancer risk from DPM emissions was evaluated in this HRA by applying an exposure adjustment of 4.1453E-04, which considers exposure assumptions specified in the SJVAPCD Modeling Guidelines.

2.3 Risk Definitions and Significance

Cancer Risk. Cancer risk is the probability or chance of contracting cancer over a human life span, which is assumed to be 70 years. Carcinogens are not assumed to have a threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under various state and local regulations, an incremental cancer risk of 10-in-one-million due to a project is considered to be a significant impact on public health. For example, the 10-in-one-million risk level is used by the Air Toxics "Hot Spots" (AB2588) program and California's Proposition 65 as the public notification level for air toxic emissions from existing sources. The SJVAPCD Modeling Guidance states that for permitting purposes, health risk impacts above 10 in a million are considered significant.

Non-Cancer Risk. Non-cancer health impacts can results from short-term (acute) or long-term (chronic) exposure to chemical substances. In determining potential non-cancer health risks from air toxics, it is assumed that there is a dose of the chemical of concern below which there would be no impact on human health. The air concentration corresponding to this dose is called the reference exposure level (REL). Non-cancer health risks are measured in terms of a hazard index (HI), which is the calculated exposure of each contaminant divided by its REL. Hazard indices for those pollutants affecting the same target organ are typically summed, with the resulting totals expressed as hazard indices for each organ system. Similar to cancer risk, non-cancer impacts also have determined significance thresholds based on the estimated HI for the project. The SJVAPCD Modeling Guidance allows for an incremental HI of less than 1.0 is considered to be an insignificant health risk.

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a non-cancer air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic hazard index was calculated using the hazard indices calculated with model-predicted annual concentrations.

Acute toxicity is defined as adverse health effects caused by a short-term chemical exposure of no more than 24-hours. Short-term impacts were not evaluated in this HRA because air toxic substances emitted from the proposed Wal-Mart DC do not have acute toxicity factors published to evaluate exposure.

CEQA Significance Criteria for Health Impacts. California has not established state-wide significance thresholds for cancer and non-cancer health risk impacts under CEQA. However, most air districts in California have adopted local significance thresholds for health risks in their policy guidance to project proponents. The SJVAPCD Modeling Guidance defines CEQA HRA significance thresholds for cancer health impacts as equal to or greater than 10 (cases) in a million and a significance thresholds for non-cancer health impacts as equal to or greater than 1.0.

3.0 Exposure Assessment

This section describes the information related to the air dispersion modeling process used to estimate ground-level concentrations of air toxic pollutants emitted from the proposed project. Evaluation of potential health risks from the proposed Wal-Mart DC facility was conducted in accordance with the procedures described in the SJVAPCD Modeling Guidelines for facilities for which diesel particulate matter (DPM) is the predominant toxic air contaminant.

3.1 Toxic Air Contaminant Emissions

3.1.1 Particulate Matter from Diesel-Fueled Engines

The predominant potential health risk impact from operation of the Merced DC will be from diesel-fueled internal combustion engines. Several operations contribute to emissions of DPM, including truck travel, truck idling, and stationary emergency equipment. Emissions of DPM from internal combustion engines are summarized in Table 3-1. Emission estimates were determined based on emission factors specified in the SJVAPCD Modeling Guidance, equipment manufacturer, or particulate matter standards for the engine class. Detailed emission calculations are provided in Appendix A.

Table 3-1
Emissions of Particulate Matter from Diesel-Fueled Engines

Emission Source Description	Average Emission Rates		
	Hourly Emissions (lbs/hr)	Daily Emissions (lbs/day)	Annual Emissions (lbs/year)
Truck Travel			
Ingress Travel	0.0046	0.1103	40.2
Egress Travel	0.0047	0.1135	41.4
Haul Truck Travel (Yard) (1)	0.0068	0.1621	59.2
Yard Truck Travel (Yard) (2)	0.0059	0.1412	51.5
Truck Idle			
Entrance Gate	0.0012	0.028	10.2
Truck Waiting Area	0.0035	0.084	30.7
Temporary Parking Area	0.0058	0.140	51.2
Weigh Scales	0.0058	0.140	51.2
Haul Truck Idle (Yard) (3)	0.0093	0.224	81.9
Yard Truck Idle (Yard) (4)	0.0069	0.166	60.5
Stationary Engines			
Fire Pump	0.0297	0.004	1.5
Emergency Generator	0.0590	0.008	3.1

1 Haul truck travel (yard) occurs throughout the container yard and includes traveling to and from the western access road, the container area, and the onsite temporary parking area.
2 Yard truck travel (yard) occurs throughout the container yard and includes traveling to and from container stalls and loading docks.
3 Haul truck idling (yard) occurs throughout the container yard and includes haul truck idling at container stalls during coupling/decoupling associated with container movement.
4 Yard truck idling (yard) occurs throughout the container yard and includes yard truck idling at container stalls and docks during coupling/decoupling associated with container movement.
5 Daily emissions calculated as averaged hourly emissions over a seven (7) day meteorological period.

3.1.1.1 Truck Activity

Emissions of DPM from trucks will be generated from traveling and idling activities. The emission factors specified in Appendix A of the SJVAPCD Modeling Guidance for use in conducting CEQA health risk assessments were used to determine particulate emissions generated by on-road (haul) trucks. Truck activity level was based on traffic count data obtained from a study conducted at a Wal-Mart DC facility, similar in size and layout to the proposed project in Merced. Based on the traffic count data, truck activity for the Merced DC was determined to be a total movement of 644 haul trucks per day (322 trucks entering and 322 trucks leaving the facility per day).

Travel for haul trucks (trucks used to ship containers over roads and highways), includes ingress and egress from the Merced DC, travel to and from container stalls, and travel to and from the onsite temporary parking area. Emissions associated with travel to container stalls and parking will occur within the yard area of the Merced DC. Emissions associated with the ingress and egress of trucks to the facility will occur along a north-south access road located on the western side of the property. Distances (in feet) used to estimate emissions from truck travel were determined based on site layout including the length of entrance road, area of container yard, and distance to the onsite truck parking area from the yard. Round-trip distances for truck travel within the yard for both drop-off and pick-up of containers were used to determine emissions where applicable.

Truck idling will occur at several specific locations on the Merced DC site associated with specific truck activities. Idling will occur at the entrance gate upon check-in, at the truck weigh scales, and at the temporary onsite parking area. At each location truck idling will be limited to no more than 5-minutes per truck, in accordance with the idling time limits proposed by the state Air Toxics Control Measure (ATCM) to limit diesel-fueled commercial motor vehicle idling (October, 2005). Truck idling will also occur in the yard turning, coupling, and decoupling of containers.

In addition to haul trucks, yard trucks will be operated within the facility to move containers back and forth from stalls to docks. The most probable yard truck that will be operated at the Merced DC is the Ottawa Commando 30, a non-road truck (not registered by the Department of transportation for use on roads) commonly used for container movement. These trucks will be equipped with engines that have EPA and CARB certification for meeting Tier 2/3 emission standards for particulate matter. Emission estimates for yard trucks were based on information obtained from Cummins, the engine manufacturer for the Ottawa Commando line. A copy of the 2006 Model Year Certificate of Conformity is provided in Appendix B.

Wal-Mart Merced will not operate a cold storage facility for the purpose of goods distribution therefore the project does not include the operation of any transportation refrigeration units (TRU's) for delivery of perishable goods to the Wal-Mart DC. Approximately two deliveries of perishable goods to the cafeteria are expected per week. Based on the operation at other centers perishable goods will unload thru a walk door (not at a dock) near the cafeteria. An average delivery vehicle will have a TRU with a small (approximately 24 hp) cooling and heating unit. Emissions from these operations are considered to be incidental to overall facility operations.

Some small forklifts will be operated primarily inside the distribution center and will run on propane. Emissions from forklifts are considered to have an insignificant environmental impact due to their small engine size, use of propane-fueled engines, and primary use within Merced DC buildings. In accordance with the SJVAPCD Modeling Guidance, emissions that from vehicles occurring on the roads or highways were not considered in this analysis.

3.1.1.2 Emergency Equipment

Other combustion sources include an emergency power generator, and an emergency fire pump. Emissions for these units were based on operating conditions that represent the maximum emissions profile (being permitted) for the Wal-Mart tested facility. The emissions from the emergency generator and the emergency fire pump were quantified for routine water testing and maintenance operation only. The Wal-Mart project will be required to equip the emergency power generator and fire pump with California Tier 2 engines (Tier 3 equivalent) that meet applicable standards for particulate control. Annual estimates were based on an operating limit of 52 hours per year or less for testing. This limit is expected to be an upper-bound permitted condition of operation for the equipment. The engine size (brake-horsepower) and manufacturer was obtained from operating permits for equipment installed at a facility of similar size and requirement. Emission factors for these engines are based on data from the equipment manufacturer.

3.1.2 Organic Gases (PAH and Naphthalene)

Emissions of organic gases from the onsite cafeteria were modeled in the risk assessment using an air toxic pollutant surrogate for the total hourly (lbs/hour) and annual (lbs/year) mass estimate for organic gases, in accordance with SJVAPCD Modeling Guidance for high volume, flat griddle cooking. Benzo(a)pyrene, or B(a)P, was modeled as the surrogate carcinogen for all PAH emissions. Since the B(a)P surrogate for total PAH emissions is the most or nearly-the-most potent carcinogens in the class, use of this cancer potency factor with total emissions will overestimate the risk.

3.2 Dispersion Modeling Methodology

Concentrations of air toxic substances in ambient air are estimated from mass emissions through use of air dispersion modeling analysis. Air concentrations resulting from potential emissions were estimated using the methodology provided in the SJVAPCD Modeling Guidance, and good modeling practice. The section presents the methods used to conduct the air dispersion modeling analysis for estimating concentrations of toxic air pollutants.

3.2.1 Air Dispersion Model

This health risk assessment used the AERMOD Version 07026, the most recent version of this air dispersion model, to determine ground-level air concentrations. AERMOD was used in the rural mode with all model option switches set to regulatory-default settings. Modeling was performed using a Universal Transverse Mercator (UTM), zone 11 NAD83 datum coordinate system.

AERMOD was used exclusively for the evaluation of cancer risk impacts from DPM emissions. Because DPM emissions were evaluated as a single pollutant in AERMOD, actual emission rates from each emission source were modeled in the dispersion analysis. To identify the maximum air concentration from all internal combustion equipment, a single source group “DPM” was used to combine emission impacts and identify the highest combined impact.

In addition to the use of AERMOD, the Hotspots Analysis Reporting Program (HARP) software package (Version 1.3, updated October 2006) developed by the ARB for conducting health risk assessments in California under the Air Toxics Hot Spots Program was also used to evaluate potential health risk due to emission from the operation of the cafeteria. The HARP model uses the Industrial Source Complex

(ISC3) air dispersion model for estimating the dispersion of air pollutants. Although AERMOD recently replaced the ISC3 model as the preferred air dispersion regulatory model, ISC3 is embedded in the HARP application and intended for use when the project modeling commenced. Further, although necessary to fully evaluate health risks from the proposed action, initial health risk modeling for this project (performed prior to December 7, 2006) showed the emissions from DPM was by far the dominant toxic air contaminant and that emissions from the cafeteria would not significantly contribute to potential health risk impacts. Therefore health impacts from the cafeteria were modeled using the ISC3 air dispersion model found in the HARP health risk assessment application.

The TAC emissions specified in the SJVAPCD Modeling Guidance for cafeteria (cooking) emissions are identified by OEHHA as pollutants that may impact public health through multiple pathways including inhalation, dermal, and oral exposure routes. To conduct a multi-pathway health risk analysis, a separate modeling analysis was performed and the results added to the impacts identified for diesel particulate matter to determine total estimated impacts.

3.2.2 Meteorological Data

The modeling analysis for emissions of DPM evaluated each of five years (2000-2004) of sequential hourly meteorological data to determine the highest annual concentrations for use in the HRA. The meteorological data sets were developed by the SJVAPCD for use in air dispersion modeling studies using AERMOD. The meteorological data was obtained from the SJVAPCD website for the Madera monitoring station. The analysis showed that meteorological data for the year 2002 produced the highest annual impacts from emission sources at the Wal-Mart Merced DC, with a maximum variability of approximately 10% between modeled years. For completion of the HARP analysis, air dispersion modeling was performed using a single year of sequential hourly meteorological data obtained from the SJVAPCD meteorological monitoring station located in Modesto, CA.

3.2.3 Emission Factors

Variable emission correction factors were used in the air dispersion modeling analysis to represent the proportionally higher activity level during and between peak daytime hours compared to late evening hour and early morning hours when activity is lower. Hour of day (HROFDY) emission rate scalar instructions were used in the AERMOD dispersion analysis to adjust hourly emissions based on routine daily activity level. The emission factors were developed based on traffic count data obtained from the Wal-Mart DC located in Apple Valley, which has an operating schedule and activity level similar to what is expected at the Wal-Mart Merced DC. The traffic study found that approximately 75% of truck activity occurred during 13 hours of the day, from 7 am to 8 pm. Hourly emissions, calculated for truck activity only, were weighted to these peak hours of operation. Daily and annual emission totals are not affected by the use of hourly emission rate factors. Because the cafeteria is expected to operate around the clock, no emission factors were applied to cafeteria operations.

3.2.4 Modeled Source Release Parameters

In accordance with the SJVAPCD Modeling Guidance, emissions from truck idling were modeled as vertical point source releases and emissions from truck travel were modeled as volume sources. Figure 1 shows modeled emission sources for the Wal-Mart facility.

Figure 1. Modeled Emission Sources on Facility Plot Plan

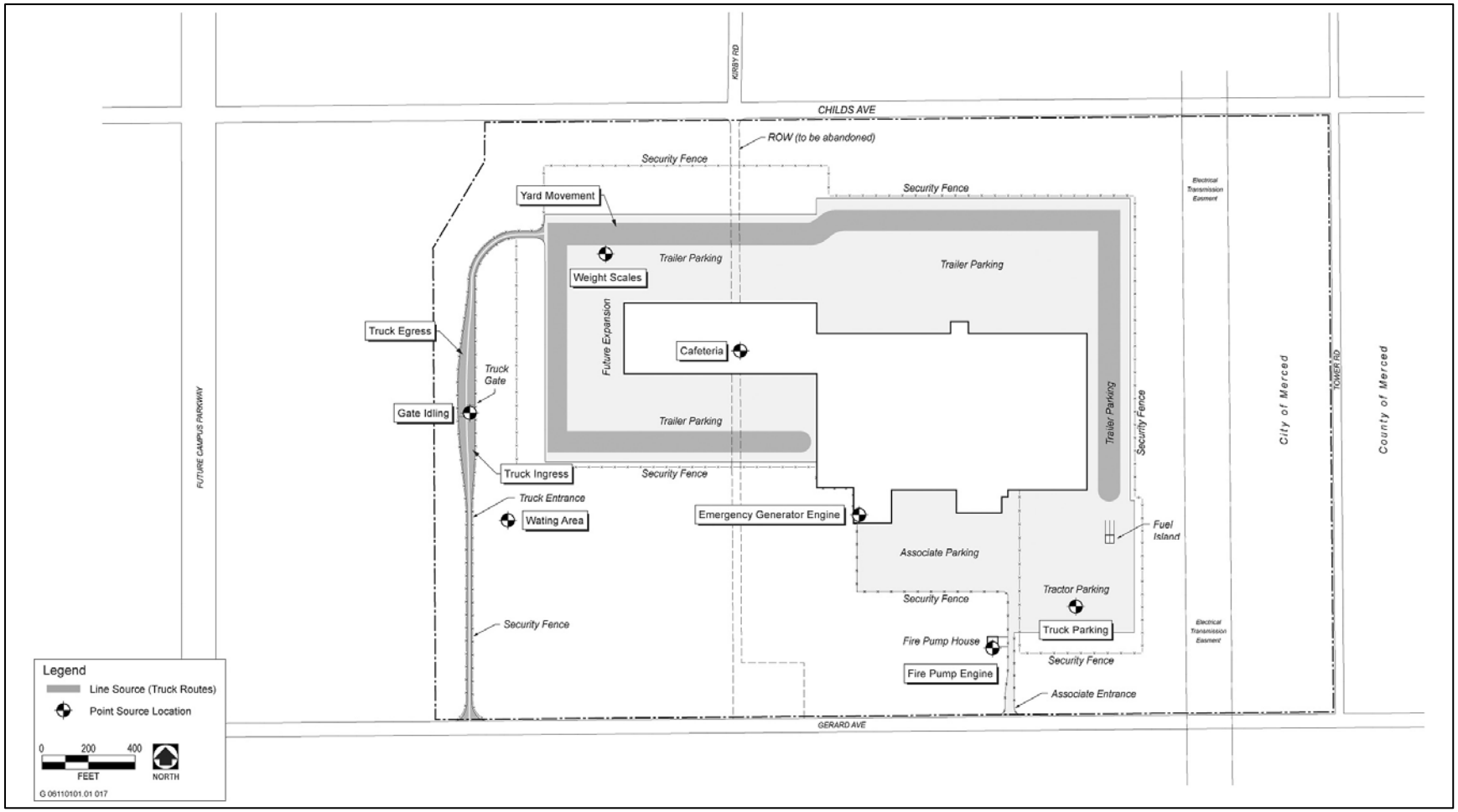


Table 3-2 summarizes the modeled release parameters for all emission sources evaluated in the HRA.

Table 3-2
Modeled Release Parameters for Emission Sources at Wal-Mart Merced DC

	Source Type	Release Height (ft)	Length of Side (ft)	Temperature (K)	Release Velocity (ft/sec)	Vertical Dimension (ft)
Ingress Travel	Line	6	12	-	-	2.79
Egress Travel	Line	6	12	-	-	2.79
Truck Travel (in yard) (1)	Line	6	12	-	-	2.79
Entrance Gate	Point	12.6	-	366	51.71	-
Truck Waiting Area	Point	12.6	-	366	51.71	-
Temporary Parking Area	Point	12.6	-	366	51.71	-
Weigh Scales	Point	12.6	-	366	51.71	-
Truck Idle (in yard) (1)	Point	12.6	-	366	51.71	-
Fire Pump	Point	15.0	-	776	238.1	-
Emergency Generator	Point	12.0	-	776	235.7	-
Charbroiler	Point	31.0	-	294	63.54	-

(1) Yard activities includes haul truck idling and travel, and yard (non-road) truck idling and travel.

3.2.5 Building Downwash

Building Profile Input Program (BPIP) was run to determine dominant structures for building downwash calculations run in AERMOD for point sources. Direction specific building heights and widths of the dominant downwash structure(s) were included in the AERMOD model data input file directly from BPIP results. Building downwash was also modeled in HARP for evaluating emissions from the cafeteria.

3.2.5 Terrain

The terrain surrounding the proposed Wal-Mart Merced DC site is primarily flat agricultural land or light industrial warehousing and distribution centers. Due to the relative flatness of terrain, and that no point source has high plume rise, terrain was not applicable to the air dispersion modeling analysis.

3.2.6 Receptors

Modeled receptors were placed at locations of potential human exposure to identify the maximum exposed individual at an existing residential receptor (MEIR), and the maximum exposed individual at an existing occupational worker receptor (MEIW). In addition, sensitive receptors, locations were a sensitive population segment such as children, elderly, or the infirmed may be exposed were also identified and modeled. Receptor locations within 1-mile of the project site were identified based on orthographic aerial photographs and a physical survey of the proposed project site.

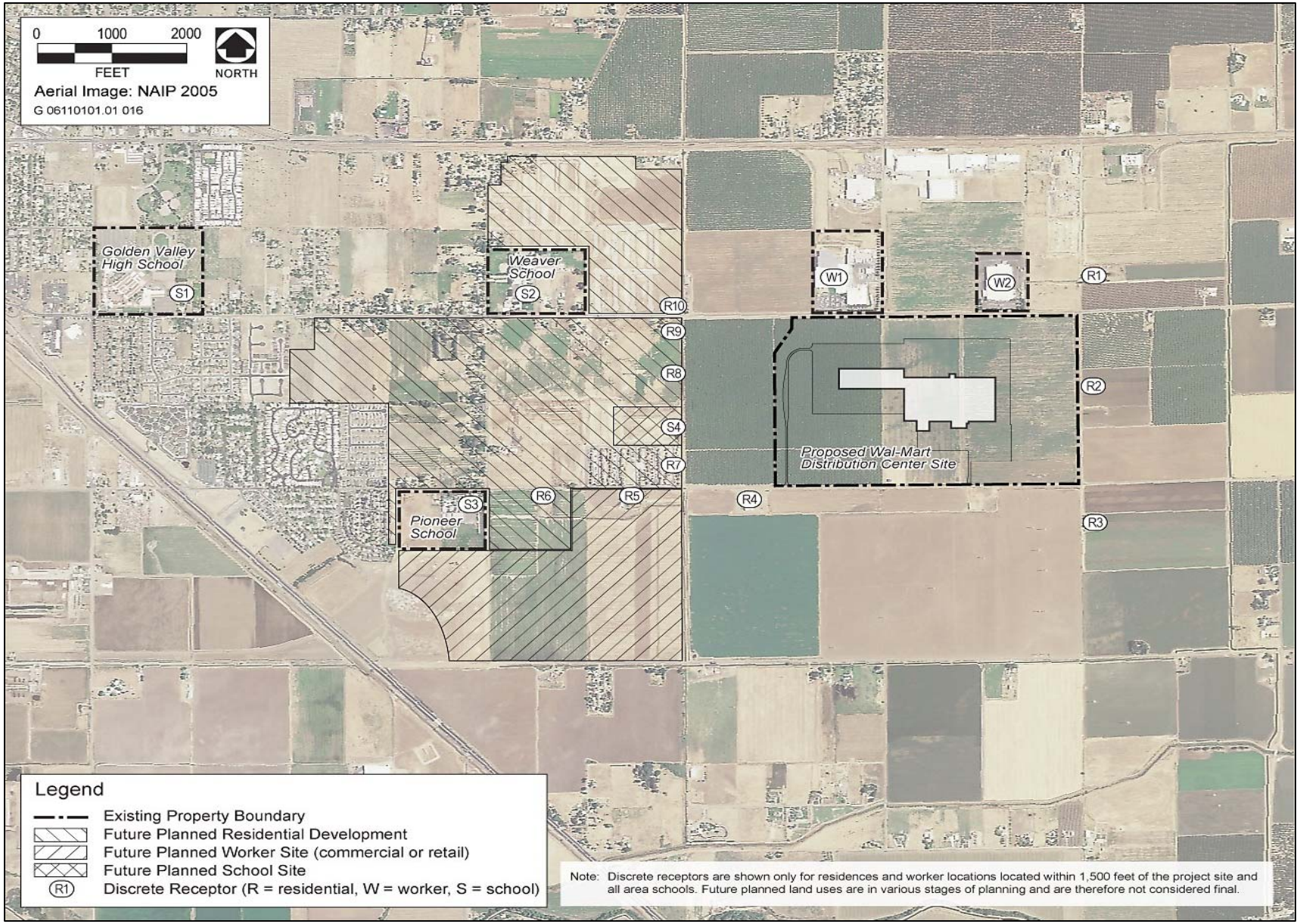
Ten (10) residential receptors were identified and modeled to determine the MEIR. Residential receptors included existing residences located to the east, south and west of the proposed project along Tower Road, Gerard Ave, and in the future community of the Crossing/Sancastle development, respectively. Two (2) occupational receptors were identified and modeled to determine the MEIW. Occupations were located north of the Wal-Mart project. Four (4) schools were evaluated in the area of the project site including three (3) existing schools and one (1) future school siting. Schools were evaluated for health risks using both child exposure factors to assess student impacts, and as an occupational receptor to assess adults working at the schools. Table 3-3 summarizes the receptors evaluated for health risk impacts within 4 kilometers (km), including easting and northing bearing, distance to receptor from the center of the project site, and the receptor number modeled in AERMOD and HARP. Figure 1 shows a map of school, worker, and residential receptors.

Table 3-3
Receptors Located Within 4-km of the Wal-Mart Merced DC

Receptor Type Number on map	**Easting** [(1)] **(meters)**	**Northing (meters)**	**Distance from Site (km)**	**Direction from Site**	**HARP Receptor Number** [(2)]
Residential					
R1 (Existing)	730282	4130145	1.0	Northeast	SR014
R2 (Existing)	730265	4129639	0.8	East	SR008
R3 (Existing)	730311	4128992	1.0	Southwest	SR007
R4 (Existing)	728554	4129092	1.0	Southwest	SR015
R5 (Existing)	727976	4129122	1.5	Southwest	SR012
R6 (Future)	727557	4129117	2.0	West	SR013
R7 (Future)	728209	4129260	1.3	West	SR011
R8 (Future)	728203	4129686	1.2	West	SR009
R9 (Future)	728203	4129871	1.3	West	SR010
R10 (Future)	728184	4130003	1.4	Northwest	SR016
Occupational					
W1 (Existing)	729106	4130043	0.8	North	SR005
W2 (Existing)	729818	4130082	0.7	North	SR006
School					
S1 (Existing)	725743	4130067	3.7	Northwest	SR004
S2 (Existing)	727460	4130055	2.0	Northwest	SR003
S3 (Existing)	727173	4129072	2.3	Southwest	SR001
S4 (Future)	728198	4129435	1.2	West	SR002

(1) All receptors modeled using UTM Zone 11 North NAD 83 Coordinates (meters)
(2) HARP is programmed to assign sensitive receptor (SR) numbers; AERMOD identifies receptors by UTM coordinate.

Figure 2. Modeled Receptors on Aerial Photograph of Area



4.0 Health Risk Assessment Results

The Wal-Mart HRA evaluated cancer risk and chronic non-cancer health hazards at specific nearby locations where people may experience an actual exposure. Carcinogenic risks and potential chronic non-cancer health effects were assessed using the dispersion modeling and numerical values of toxicity provided by OEHHA as described in the preceding sections. The health risk assessment evaluated cancer and non-cancer health effects from inhalation exposure at individual residential, occupational, and sensitive receptors. 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 occupational receptors within a 1-mile radius of the proposed project site. A summary of maximum cancer risk and non-cancer health impacts values is shown in Table 4-1. Results of the health risk assessment are discussed below.

Table 4-1
Summary of Maximum Health Risk Impacts by Individual Receptor

Individual Receptor Type	Health Risk Impact [1]	
	Cancer Risk	**Non-cancer Chronic**
Residential Receptors		
Maximum Exposed Individual Receptor (MEIR)	7.3	0.0086
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]

[1] Cancer risk shown is total cancer risk, expressed in cases per million, from diesel particulate matter, PAH's 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 and the SJVAPCD Modeling Guidance. 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.

Of the ten (10) residential locations identified for evaluating maximum individual health risk impacts, cancer risk at the MEIR was determined to be 7.3 in one million. Non-cancer chronic health impact at the MEIR was determined to be 0.0086. The MEIR for cancer risk and chronic health impacts occurred at the same residential receptor, located approximately 1 kilometer southwest of proposed project. The MEIR is located at an existing residential receptor. Therefore maximum residential impacts are not expected to increase due to exposures at new developments in the area surrounding the proposed action.

Two (2) occupational locations were identified for evaluating maximum individual health risk impacts at the MEIW. Cancer risk at the MEIW, based on worker exposure assumptions, was determined to be 2.4 in one million. Non-cancer chronic health impact at the MEIW was determined to be 0.0034. The occupational receptor occurs north of the project site along Childs Ave.

Four (4) sensitive receptors were identified within 4-kilometers of the proposed Wal-Mart site. The schools are located west of the project. For evaluating school receptors, two health risk analyses were conducted. The first was to evaluate potential health risk impacts to children that may be attending the school. The health risk assessment used the 9-year exposure scenario available in the HARP model to estimate health risk to 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 child exposure. The second assessment was of the school as an occupational (worker) receptor, similar to the analysis performed identification of impacts at the MEIW.

Estimated cancer risks at all receptors evaluated in this health risk analysis were determined to be less than the SJVAPCD significance level of 10 in one million. Detailed health risk calculations for all health risk results are provided in Appendix C.

5.0 Risk Assessment Uncertainty

Sources of uncertainty in the assessment of risks to public health include emissions estimates, dispersion modeling, exposure characteristics, and extrapolation of toxicity data in animals to humans. To address this uncertainty, highly conservative assumptions were used in this risk assessment, as discussed below.

Emissions. There are inherent uncertainties in the quantification of emissions from truck travel and idling activities. Uncertainty in the emissions quantification process was minimized by using actual daily truck traffic volumes as observed through operation of a similar Wal-Mart distribution center. However the mass emission of diesel-particulate matter varies based on engine type and age of equipment. Emission factors based on the SJVAPCD Modeling Guideline for truck idling are based on mobile “on-road” diesel engines (vehicle engines in haul trucks) developed from the California Air Resources Board (ARB) on-road emissions factor model (EMFAC). These composite factors include older and newer engines with newer engines designed with cleaner, more fuel-efficient combustion technology. The truck fleet that will be servicing the on-road transporting of containers at the Wal-Mart DC in Merced will be composed of model year 2002 through 2007 trucks, with all domiciled trucks being of 2007 make. However, the emission factors used include a wider range of non-fleet engines as well, whose emissions are higher than the newer engines of the Wal-Mart fleet. Therefore, the emission estimates have uncertainties, but tend to over-estimate exposures resulting from those emissions.

Air Dispersion Modeling. In general, EPA- dispersion models such as AERMOD are designed to generally to over-predict concentrations rather than under-predict. For example, the model algorithms assume chemical emissions are not transformed in the atmosphere into other chemical compounds. For certain pollutants, conversion may occur quickly enough to reduce concentrations from the conservative model predictions.

Exposure Assessment. The most important uncertainties related to exposure include the definitions of exposed populations and their exposure characteristics. The chief exposure assumption is one of continuous exposure to the TAC concentrations produced by continuous emissions at the maximum emission rates over a 70-year period at each receptor location. The choice of a "residential" maximally exposed individual is very conservative in the sense that no real person is likely to spend 24 hours a day, 365 days a year over a 70-year period at exactly the point of highest toxicity-weighted annual average air concentration. The actual risks are not expected to be any higher than the predicted risks and are likely to be substantially lower. The cancer risk for an inhaled air toxic is estimated by multiplying the exposure concentration by the breathing rate (L/kg-day) times the inhalation cancer potency factor $(mg/kg\text{-}day)^{-1}$.

The averaging time for the cancer risk estimate is usually 70 years, which is used to represent a lifetime exposure. An additional conservative assumption was the use of the OEHHA-defined 95th percentile breathing rate of 393 liters of air/kg-day.

Toxicity Assessment. Another area of uncertainty is in the use of toxicity data in risk estimation. Estimates of toxicity for the health risk assessment obtained from OEHHA are conservative compilations of toxicity information. Toxicity estimates are derived either from observations in humans or from projections derived from experiments with laboratory animals. When toxicity estimates are derived from animal data, they usually involve extra safety factors to account for possibly greater sensitivity in humans, and the less-than-human-lifetime observations in animals. Overall, the toxicity assumptions and criteria used in the proposed project risk assessment are biased toward over-estimating risk. The amount of the bias is unknown, but could be substantial.

Diesel Particulate Unit Risk Factor. The diesel exhaust inhalation potency factor is a best-estimate value established by the ARB Scientific Review Panel (SRP) based on review of more than 30 diesel exposure studies. The established potency risk factor is a 95th percentile upper confidence limit value, implying that there is only a 5% chance that the value is underestimated (too low). In addition, the most significant of the studies reviewed by the SRP are occupational studies of exposure of diesel exhaust by railroad workers. The occupational results were then extrapolated to the general population, which includes more sensitive individuals than healthy railroad workers.

6.0 REFERENCES

California Air Pollution Control Officers Association (CAPCOA). 1993. Air Toxics *"Hot* Spots" Program: *Revised 1992 Risk Assessment Guidelines.*

California Air Resources Board (ARB). 2006. California Air Toxic Emission Factor (CATEF, http://www.arb.ca.gov/emisinv/catef/catef.htm). Updated with AB2588 Phase II toxic emission factors in January 2001.

California ARB. May 4 2005. Federal and California Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

California ARB. 2006 HARP Version 1.3, October

OEHHA. 2003. Air Toxics Hotspots Program Guidance Manual for Preparation of Health Risk Assessments. August.

South Coast Air Quality Management District, 2000.Multiple Air Toxics Emissions Study (MATES-II)

US Environmental Protection Agency (USEPA). 1994 Air Toxics from Motor Vehicles Fact Sheet, August

USEPA. 2002 Health Assessment Document for Diesel Engine Exhaust 600/8-90/057F. May

USEPA, 2000. Regulatory Impact Analysis: Heavy Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements, EPA420-R-00-026. December.

USEPA. 2005. Guidelines for Carcinogen Risk Assessment. Office of Health and Environmental Assessment. EPA/600/P-92/003C. March.

Ventura County Air Pollution Control District, AB 2588 Combustion Emission Factors, May 17, 2001.

Victor Valley Water Reclamation Authority, Water Quality Analysis Data: 2004 and 2005.

San Joaquin Valley Air Pollution Control District. July, 2006. Guidance for Air Dispersion Modeling, Appendix A, 2.0 CEQA Health Risk Assessment

San Joaquin Valley Air Pollution Control District. July 26, 2006. E-mail from Glenn Reed.

San Joaquin Valley Air Pollution Control District. August 11, 2006. Methodology for Diesel Particulate Matter Health Risk Assessments. E-mail from Glenn Reed "Modeling Diesel-Only Sources".

Appendix A

Detailed Emission Calculations

Wal-Mart Merced Distribution Center - Health Risk Assessment

Summary of Particulate Emissions from Diesel-Fueled Engines

Sources Description		Emissions (lbs/hr)	(lbs/day)	(lbs/yr)
Truck Travel				
Ingress Travel		0.0046	0.1103	40.2
Egress Travel		0.0047	0.1135	41.4
Haul Truck Travel (Yard)		0.0068	0.1621	59.2
Yard Truck Travel (Yard)		0.0059	0.1412	51.5
	Subtotal	0.0220	0.5271	192.4
Truck Idle				
Entrance Gate		0.0012	0.028	10.2
Truck Waiting Area		0.0035	0.084	30.7
Temporary Parking Area		0.0058	0.140	51.2
Weigh Scales		0.0058	0.140	51.2
Haul Truck Idle (Yard)		0.0093	0.224	81.9
Yard Truck Idle (Yard)		0.0069	0.166	60.5
	Subtotal	0.0326	0.783	285.6
Stationary Engines				
Fire Pump		0.0297	0.004	1.5
Emergency Generator		0.0590	0.008	3.1
	Subtotal	0.0886	0.013	4.61
	Grand Total	0.143	1.32	482.6

Wal-Mart, Merced DC - Health Risk Assessment

Ingress / Egress (Line Sources)

Emissions Summary:

	Emissions		
	(lbs/hr)	(lbs/day)	(lbs/year)
Ingress Travel	0.0046	0.1103	40.24
Egress Travel	0.0047	0.1135	41.43
Total:	**0.0093**	**0.224**	**81.7**

General Assumptions:

Project Generated Trips: 644 trucks/day (daily yard movement)
322 trucks/day (single movement: ingress or egress)

Yard Operation: 24 hrs/day

Emission Factors:

Haul Truck Emission Factor(1) 0.670 g/mile

[1] SJVAPCD Modeling Guidance, Emission Factor for Truck Travel

Emission Calculation:

Ingress Travel

Travel Rate:

Average Travel Distance:	1224	feet/truck trip [1]
Average Daily Truck Trips:	322	truck trips/day
Daily Travel Distance:	75	miles/day
Travel Rate:	3.1	miles/hour
Emissions:	**0.0046**	**lbs/hr**

[1] Travel distance determined by multiplying the number of ingress volumes in the line source (102) by the per volume side length of 12 feet.

Egress Travel

Assumptions:

Average Travel Distance:	1260	feet/truck trip [2]
Average Daily Truck Trips:	322	truck trips/day
Daily Travel Distance:	77	miles/day
Travel Rate:	3.2	miles/hour
Emissions:	**0.0047**	**lbs/hr**

[2] Travel distance determined by multiplying the number of egress volumes in the line source (105) by the per volume side length of 12 feet.

Wal-Mart, Merced DC - Health Risk Assessment

Truck Idling (Point Sources)

Emissions Summary:

	Emissions		
	(lbs/hour)	(lbs/day)	(lbs/year)
Entrance Gate	0.0012	0.028	10.2
Truck Waiting Area	0.0035	0.084	30.7
Temporary Parking Area	0.0058	0.140	51.2
Weigh Scales	0.0058	0.140	51.2
Total	**0.0164**	**0.393**	**143.3**

General Assumptions:

Project Generated Trips: 644 trucks/day (daily yard movement)
322 trucks/day (single movement: parking idle)

Emission Factor:

Haul Truck Emission Factor[(1)] 2.37 g/idle-hr

[1] SJVAPCD Modeling Guidance, Emission Factor for Truck Idle

Emission Calculation:

Entrance Gate

General Assumptions:

Engine Warm-up: 1 minutes/idle
Idle rate: 322 idle minutes/day
0.22 idle-hrs/hr
0.00117 lbs/hr

Truck Waiting Area

General Assumptions:

Engine Warm-up: 3 minutes/idle
Idle rate: 966 idle minutes/day
0.67 idle-hrs/hr
0.00351 lbs/hr

Temporary Parking Area

General Assumptions:

Engine Warm-up: 5 minutes/idle
Idle rate: 1610 idle minutes/day
1.12 idle-hrs/hr
0.00584 lbs/hr

Weigh Scales

General Assumptions:

Engine Warm-up: 5 minutes/idle
Idle rate: 1610 idle minutes/day
1.12 idle-hrs/hr
0.00584 lbs/hr

Wal-Mart, Merced DC - Health Risk Assessment

Truck Travel - Yard Movement (Line Source)

Emissions Summary:

	Emissions		
	(lbs/hour)	(lbs/day)	(lbs/year)
Haul Truck Travel (Yard)			
Travel to Stall Pick-up/Drop-off (Haul Trucks)	0.0034	0.081	29.6
Travel to and from Parking (Haul Trucks)	0.0034	0.081	29.6
	0.0068	0.162	59.2
Yard Truck Travel (Yard)			
Travel to Docks Pick-up/Drop-off (Yard Trucks)	0.0029	0.071	25.8
Travel to Stall Pick-up/Drop-off (Yard Trucks)	0.0029	0.071	25.8
	0.0059	0.141	51.5
Total	**0.0126**	**0.303**	**110.7**

Movement Assumptions:

Project Generated Truck Trips:	644	trucks/day (daily yard movement)
	322	trucks/day (single movement: pick-up or drop-off)
Yard Operation:	24	hrs/day
	8760	hrs/yr

Emission Factors:

Haul Truck Emission Factor[1]	0.670	g/mile
Yard Truck Emission Factor[2]	1.750	g/mile

[1] SJVAPCD Modeling Guidance, Emission Factor for Truck Travel

[2] Based on federal PM10 emission standards for Tier II/III engines of 0.15 g/bhp-hr.

Emission Calculation:

Travel to Stall Pick-up/Drop-off (Haul Trucks)

Average Travel Distance:	450	feet/truck trip
Average Daily Truck Trips:	644	truck trips/day
Daily Travel Distance:	55	miles/day
Travel Rate:	2.3	miles/hour
	0.0034	**lbs/hr**

Travel to and from Parking (Haul Trucks)

Average Travel Distance:	450	feet/truck trip
Average Daily Truck Trips:	644	truck trips/day
Daily Travel Distance:	55	miles/day
Travel Rate:	2.3	miles/hour
	0.0034	**lbs/hr**

Travel to Docks Pick-up/Drop-off (Yard Trucks)

Average Travel Distance:	300	feet/truck trip
Average Daily Truck Trips:	322	truck trips/day
Daily Travel Distance:	18	miles/day
Travel Rate:	0.8	miles/hour
	0.0029	**lbs/hr**

Travel to Stall Pick-up/Drop-off (Yard Trucks)

Average Travel Distance:	300	feet/truck trip
Average Daily Truck Trips:	322	truck trips/day
Daily Travel Distance:	18	miles/day
Travel Rate:	0.8	miles/hour
	0.0029	**lbs/hr**

Wal-Mart, Merced DC - Health Risk Assessment

Truck Idle - Yard Movement (Line Source)

Emissions Summary:

	Emissions		
	(lbs/hour)	(lbs/day)	(lbs/year)
Haul Truck Idle (Yard)			
Idle at Stall Pick-up/Drop-off (Haul Trucks)	0.0093	0.224	81.9
Yard Truck Idle (Yard)			
Idle at Docks Pick-up/Drop-off (Yard Trucks)	0.0035	0.083	30.2
Idle at Stall Pick-up/Drop-off (Yard Trucks)	0.0035	0.083	30.2
	0.0069	0.166	60.5
Total	**0.0162**	**0.390**	**142.3**

Movement Assumptions:

Project Generated Trips: 644 trucks/day (daily yard movement)
322 trucks/day (single movement: pick-up or drop-off)
4 idle minutes/movement haul trucks
2 idle minutes/movement yard trucks

Emission Factors:

Haul Truck Emission Factor(1) 2.37 g/idle-hr
Yard Truck Emission Factor(2) 1.75 g/idle-hr

[1] SJVAPCD Modeling Guidance, Emission Factor for Truck Travel
[2] Based on federal PM10 emission standards for Tier II/III engines of 0.15 g/bhp-hr.

Emission Calculation:

Idle at Stall Pick-up/Drop-off (Haul Trucks)

Idle Rate: 2576 idle minutes/day [1]
1.79 idle-hrs/hr
0.0093 lbs/hr

Idle at Docks Pick-up/Drop-off (Yard Trucks)

Idle Rate: 1288 idle minutes/day [1]
0.89 idle-hrs/hr
0.0035 lbs/hr

Idle at Stall Pick-up/Drop-off (Yard Trucks)

Idle Rate: 1288 idle minutes/day [1]
0.89 idle-hrs/hr
0.0035 lbs/hr

[1] Idle minutes determined by multiplying the total daily truck movement (644 trucks/day) by the idle minutes per truck.

Wal-Mart, Merced DC - Health Risk Assessment

Stationary Emergency Engines (Point Sources)

Emissions Summary:

	Emissions		
	(lbs/hour)	(lbs/day) [1]	(lbs/year)
Fire Pump	0.030	0.00424	1.54
Emergency Generator	0.059	0.00842	3.07
Total	**0.089**	**0.0127**	**4.61**

[1] Annual average emissions modeled by using an emission factor of 0.1429 applied to hourly emissions from weekly testing and maintenace.

General Assumptions:

Operational Time	52.0	hrs/yr
Load Factor	1.0	load factor (%/100)
Emission factor:	0.1429	(intermittent use) [1]

[1] Intermittent use emission factor based on an operating schedule of 1 hour/week for routine testing and maintenance purposes.

Emission Calculation:

Fire Pump

Average Rated Horsepower	354.0	
PM10 Emission Factor:	0.038	g/bhp-hr
Load Factor (% / 100)	1.0	
	13.5	g/hr
	0.030	**lbs/hr**
	0.00424	lbs/hr (weekly average)

Emergency Generator

Average Rated Horsepower	764.0	
PM10 Emission Factor:	0.035	
Load Factor (% / 100)	1.0	
	26.7	g/hr
	0.059	**lbs/hr**
	0.00842	lbs/hr (weekly average)

Appendix B

Copy of 2006 Model Year Certificate of Conformity

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer:	**CUMMINS INC.**		
Engine Family:	**6CEXL0409AAB**		
Certificate Number:	**CEX-NRCI-06-21**		
Intended Service Class:	**NR 6 (130-225)**		
Fuel Type:	**DIESEL**		
FELs: g/kW-hr	NMHC+NOx: N/A	NOx: N/A	PM: N/A
Effective Date:	**11/16/2005**		
Date Issued:	NOV 16 2005		

Merrylin Zaw-Mon, Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 89, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 89 and produced in the stated model year.

This certificate of conformity covers only those new nonroad compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 89 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 89.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 89.129-96 and 89.506-96 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 89. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 89.

This certificate does not cover nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Test Information Form

Manufacturer: **Cummins Inc.**

Engine category: **Nonroad CI**

Cert contact: **Scott Keen**

1. EPA Standard Engine Family: 6CEXL0409AAB
2. Process Code: CARB Confirmatory
3. Test Data Set: 1
4. Engine Code: CPL 8611
5. Engine Model: QSB6.7
6. Displacement(s) (cid Or Liters): 409 CID
7. Engine I.d. Number: 46436339
8. Rated HP @ Rated RPM: 275 @ 2500
9. Torque (ft-lb) @ Engine RPM: 730 @ 1500
10. WAIVERs:

CO	PM	Smoke	Idle Co
No	No	No	No

11. Cold Start? Yes
12. Certification Fuel: Diesel (Part 89, Sub D, Appdx A, Table 5)
13. Special Test Device No
14. Test Procedure: Nonroad, 8 Mode & Smoke

15. Official Test Results

Date: 11/18/2004 11/18/2004

	Test 1	Test 2	Test 3
HC/OMHCE	0.12	0.10	
NMHC/OMNMHCE			
HC + NOx			
CARBON MONOXIDE	1.58	1.53	
OXIDE OF NITROGEN	3.35	3.38	
PARTICULATE	0.168	0.158	
FORMALDEHYDE			
ACCELERATION (%opacity)	6.1		
LUGGING (Gen) (%opacity)	2.0		
PEAK (%opacity)	13.5		
IDLE CO %			
CO2			

16. Deterioration Factors

0.078
0.000
0.000
0.000
0.0
0.0
0.0

17. Certification Levels (Rounded Test Results)

Units-- g/kW-hr --Units

			STDs g/BHP-hr	STDs g/kW-hr	FELs
HC/OMHCE					
NMHC/OMNMHCE					
NMHC + NOx	3.5	3.6	3.0	4.0	NA
CARBON MONOXIDE	1.6	1.5	2.6	3.5	
OXIDE OF NITROGEN					
PARTICULATE	0.17	0.16	0.15	0.20	NA
FORMALDEHYDE					
ACCELERATION (%opacity)	6		20		
LUGGING (Gen) (%opacity)	2		15		
PEAK (%opacity)	14		50		
IDLE CO%					

California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER U-R-002-0329 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2006	6CEXL0409AAB	6.7	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Engine Control Modules	Loader, Tractor, Dozer, Pump and Compressor

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW < 225	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		CERT	--	--	3.6	1.6	0.17	6	2	14

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22ND day of November 2005.

Allen Lyons, Chief
Mobile Source Operations Division

Appendix C

Detailed Health Risk Calculations

Residential Receptor Exposure
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards

Receptor Type	Annual Mass GLC (ug/m3)	Annual Mass GLC (mg/m3)	Weight Fraction	Contaminant	Carcinogenic Risk: URF (ug/m3)	Carcinogenic Risk: CPF (mg/kg/day)	Carcinogenic Risk: RISK [1]	Chronic Noncarcinogenic Hazard Toxicological Endpoints [2]: REL (ug/m3)	RfD (mg/kg/day)	RESP [3]
Maximum Residential Receptors	1.77E-02	1.77E-05	1.00E+00	Diesel Particulate	4.1453E-04	1.1E+00	7.3E-06	5.0E+00	2.0E-03	8.6E-03
	-	-	-	B(a)P / Naphthalene	-	-	2.7E-09	-	-	3.9E-07
				Total			7.3E-06			8.6E-03

[1] Risk for naphthalene and benzo(a)pyrene were obtained from HARP modeling output files that evaluated cancer risk based on a 70-year residential exposure using "Derived (Adjusted)" analysis method. Exposure factors used to calculate contaminant intake for diesel particulates, in accordance with SJVAPCD Modeling Guidelines, are as follows:

exposure frequency (days/year)	350	
exposure duration (years)	70	
inhalation rate (m3/day)	27.5	(393 L/kg BW*day)
average body weight (kg)	70	
averaging time$_{(cancer)}$ (days)	25550	
averaging time$_{(noncancer)}$ (days)	25550	

[2] Chronic non-cacer impacts are combined result from diesel particulate matter and naphthalene. OEHHA has not publilshed factors for the evaluation of non-cancer risk impacts due to emissions of B(a)P.

[3] RESP = Respiratory System (only target organ for diesel particulates and naphthalene)

Worker Receptor Exposure
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards

Receptor Type	Annual Mass GLC (ug/m3)	Annual Mass GLC (mg/m3)	Weight Fraction	Contaminant	Carcinogenic Risk: URF (ug/m3)	Carcinogenic Risk: CPF (mg/kg/day)	Carcinogenic Risk: RISK [1]	Chronic Noncarcinogenic Hazard Toxicological Endpoints [2]: REL (ug/m3)	Chronic Noncarcinogenic Hazard Toxicological Endpoints [2]: RfD (mg/kg/day)	Chronic Noncarcinogenic Hazard Toxicological Endpoints [2]: RESP [3]
Maximum Worker Receptor	1.50E-02	1.50E-05	1.00E+00	Diesel Particulate	1.5716E-04	1.1E+00	2.4E-06	5.0E+00	2.9E-03	3.4E-03
	-	-	-	B(a)P / Naphthalene	-	-	1.5E-10	-	-	2.4E-07
				Total			2.4E-06			3.4E-03
Maximum School Worker Receptor	8.09E-03	8.09E-06	1.00E+00	Diesel Particulate	1.5716E-04	1.1E+00	1.3E-06	5.0E+00	2.9E-03	1.9E-03
	-	-	-	B(a)P / Naphthalene	-	-	2.3E-11	-	-	3.6E-08
				Total			1.3E-06			1.9E-03

[1] Exposure factors used to calculate contaminant intake:

exposure frequency (days/year)	240
exposure duration (years)	40
inhalation rate (m3/day)	16.2
average body weight (kg)	70
averaging time$_{(cancer)}$ (days)	14600
averaging time$_{(noncancer)}$ (days)	14600

[2] Chronic non-cacer impacts are combined result from diesel particulate matter and naphthalene. OEHHA has not publilshed factors for the evaluation of non-cancer risk impacts due to emissions of B(a)P.

[3] RESP = Respiratory System (only target organ for diesel particulates and naphthalene)

School Receptor Exposure
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards

Receptor Type	Annual Mass GLC (ug/m3)	Annual Mass GLC (mg/m3)	Weight Fraction	Contaminant	Carcinogenic Risk: URF (ug/m3)	Carcinogenic Risk: CPF (mg/kg/day)	Carcinogenic Risk: RISK [1]	Chronic Noncarcinogenic Hazard Toxicological Endpoints [2]: REL (ug/m3)	RfD (mg/kg/day)	RESP [3]
Maximum Child (Student) Receptor	8.09E-03	1.40E-06	1.00E+00	Diesel Particulate	4.1453E-04	1.1E+00	1.8E-07	5.0E+00	1.0E-03	5.4E-05
	-	-	-	B(a)P / Naphthalene	-	-	4.6E-11	-	-	3.6E-08
				Total			1.8E-07			5.4E-05

[1] Exposure factors used to calculate contaminant intake for child receptor:

exposure frequency (days/year)	180
exposure duration (years)	9
inhalation rate (m3/day)	14.2
average body weight (kg)	61.2
averaging time$_{(cancer)}$ (days)	3285
averaging time$_{(noncancer)}$ (days)	3285

[2] Chronic non-cacer impacts are combined result from diesel particulate matter and naphthalene. OEHHA has not publilshed factors for the evaluation of non-cancer risk impacts due to emissions of B(a)P.

[3] RESP = Respiratory System (only target organ for diesel particulates and naphthalene)

Appendix D

AERMOD Modeling Files

- Modeling and meteorological data files for all 5 years of analysis

(Electronic copy)

Year	Input File	Output File	Surface File	Upper Air File
2000	WAL_HRA0.ADI	WAL_HRA0.ADO	M0.SFC	M0.PFL
2001	WAL_HRA1.ADI	WAL_HRA1.ADO	M1.SFC	M1.PFL
2002	WAL_HRA2.ADI	WAL_HRA2.ADO	M2.SFC	M2.PFL
2003	WAL_HRA3.ADI	WAL_HRA3.ADO	M3.SFC	M3.PFL
2004	WAL_HRA4.ADI	WAL_HRA4.ADO	M4.SFC	M4.PFL

- Input/Output file for BPIP (BPI, PRO, SUP)
- Output file for highest impact, worst-case year 2002 (WAL_HRA2.ADO)

(Abridged hardcopy)

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes: 479 Source(s);   11 Source Group(s); and   16 Receptor(s)

**The Model Assumes A Pollutant Type of: TOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) =   10.00 ; Decay Coef. =   0.000   ; Rot. Angle =   0.0
Emission Units = GRAMS/SEC   ; Emission Rate Unit Factor =   0.10000E+07
Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =   1.7 MB of RAM.

**MODELOPTs:
CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
GENSET	0	0.10609E-02	729413.4	4129453.5	0.0	3.66	775.93	71.83	0.20	NO	NO	NO	HROFDY
PUMP	0	0.53423E-03	729626.9	4129268.2	0.0	4.57	775.93	72.57	0.10	YES	NO	NO	HROFDY
GATE	0	0.14742E-03	728752.2	4129571.0	0.0	3.84	366.00	51.71	0.10	NO	NO	NO	HROFDY
PARKING	0	0.73079E-03	729764.1	4129315.2	0.0	3.66	366.00	51.71	0.10	NO	NO	NO	HROFDY
SCALE	0	0.73079E-03	728978.3	4129771.2	0.0	3.66	366.00	51.71	0.10	NO	NO	NO	HROFDY
WAITING	0	0.14742E-03	728813.8	4129431.2	0.0	3.84	366.00	51.71	0.10	NO	NO	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0005900	0	0.14082E-04	728755.1	4129175.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005901	0	0.14082E-04	728755.1	4129183.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005902	0	0.14082E-04	728755.0	4129190.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005903	0	0.14082E-04	728755.0	4129197.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005904	0	0.14082E-04	728754.9	4129204.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005905	0	0.14082E-04	728754.9	4129212.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005906	0	0.14082E-04	728754.9	4129219.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005907	0	0.14082E-04	728754.9	4129226.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005908	0	0.14082E-04	728754.9	4129233.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005909	0	0.14082E-04	728754.9	4129241.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005910	0	0.14082E-04	728754.8	4129248.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005911	0	0.14082E-04	728754.8	4129255.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005912	0	0.14082E-04	728754.8	4129262.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005913	0	0.14082E-04	728754.8	4129270.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005914	0	0.14082E-04	728754.8	4129277.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005915	0	0.14082E-04	728754.8	4129284.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005916	0	0.14082E-04	728754.7	4129291.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005917	0	0.14082E-04	728754.7	4129299.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005918	0	0.14082E-04	728754.7	4129306.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005919	0	0.14082E-04	728754.6	4129313.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005920	0	0.14082E-04	728754.6	4129320.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005921	0	0.14082E-04	728754.6	4129328.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005922	0	0.14082E-04	728754.6	4129335.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005923	0	0.14082E-04	728754.6	4129342.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005924	0	0.14082E-04	728754.5	4129349.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005925	0	0.14082E-04	728754.5	4129357.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005926	0	0.14082E-04	728754.5	4129364.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005927	0	0.14082E-04	728754.4	4129371.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005928	0	0.14082E-04	728754.4	4129378.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005929	0	0.14082E-04	728754.4	4129385.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005930	0	0.14082E-04	728754.4	4129393.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005931	0	0.14082E-04	728754.4	4129400.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005932	0	0.14082E-04	728754.4	4129407.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005933	0	0.14082E-04	728754.3	4129414.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005934	0	0.14082E-04	728754.3	4129422.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005935	0	0.14082E-04	728754.2	4129429.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005936	0	0.14082E-04	728754.2	4129436.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005937	0	0.14082E-04	728754.2	4129443.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005938	0	0.14082E-04	728754.2	4129451.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005939	0	0.14082E-04	728754.2	4129458.2	0.0	1.83	3.37	0.20	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0005940	0	0.14082E-04	728754.2	4129465.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005941	0	0.14082E-04	728754.1	4129472.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005942	0	0.14082E-04	728754.1	4129480.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005943	0	0.14082E-04	728754.1	4129487.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005944	0	0.14082E-04	728754.1	4129494.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005945	0	0.14082E-04	728754.1	4129501.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005946	0	0.14082E-04	728754.1	4129509.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005947	0	0.14082E-04	728754.0	4129516.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005948	0	0.14082E-04	728754.0	4129523.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005949	0	0.14082E-04	728753.9	4129530.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005950	0	0.14082E-04	728753.9	4129538.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005951	0	0.14082E-04	728753.9	4129545.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005952	0	0.14082E-04	728753.9	4129552.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005953	0	0.14082E-04	728753.9	4129559.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005954	0	0.14082E-04	728753.9	4129567.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005955	0	0.14082E-04	728753.8	4129574.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005956	0	0.14082E-04	728753.8	4129581.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005957	0	0.14082E-04	728753.8	4129588.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005958	0	0.14082E-04	728753.8	4129595.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005959	0	0.14082E-04	728753.8	4129603.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005960	0	0.14082E-04	728753.8	4129610.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005961	0	0.14082E-04	728753.7	4129617.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005962	0	0.14082E-04	728753.7	4129624.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005963	0	0.14082E-04	728753.6	4129632.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005964	0	0.14082E-04	728753.6	4129639.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005965	0	0.14082E-04	728753.6	4129646.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005966	0	0.14082E-04	728753.6	4129653.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005967	0	0.14082E-04	728753.6	4129661.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005968	0	0.14082E-04	728753.6	4129668.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005969	0	0.14082E-04	728753.5	4129675.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005970	0	0.14082E-04	728753.5	4129682.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005971	0	0.14082E-04	728753.5	4129690.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005972	0	0.14082E-04	728753.4	4129697.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005973	0	0.14082E-04	728753.4	4129704.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005974	0	0.14082E-04	728753.4	4129711.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005975	0	0.14082E-04	728753.4	4129719.0	0.0	1.83	3.37	0.20	NO	HROFDY
L0005976	0	0.14082E-04	728753.4	4129726.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005977	0	0.14082E-04	728753.4	4129733.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005978	0	0.14082E-04	728753.3	4129740.8	0.0	1.83	3.37	0.20	NO	HROFDY
L0005979	0	0.14082E-04	728753.3	4129748.0	0.0	1.83	3.37	0.20	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0005980	0	0.14082E-04	728753.2	4129755.2	0.0	1.83	3.37	0.20	NO	HROFDY
L0005981	0	0.14082E-04	728753.2	4129762.5	0.0	1.83	3.37	0.20	NO	HROFDY
L0005982	0	0.14082E-04	728757.3	4129767.0	0.0	1.83	3.11	0.20	NO	HROFDY
L0005983	0	0.14082E-04	728762.9	4129770.8	0.0	1.83	3.11	0.20	NO	HROFDY
L0005984	0	0.14082E-04	728768.4	4129774.2	0.0	1.83	3.11	0.20	NO	HROFDY
L0005985	0	0.14082E-04	728774.0	4129778.0	0.0	1.83	3.11	0.20	NO	HROFDY
L0005986	0	0.14082E-04	728779.6	4129781.8	0.0	1.83	3.11	0.20	NO	HROFDY
L0005987	0	0.14082E-04	728785.1	4129785.5	0.0	1.83	3.11	0.20	NO	HROFDY
L0005988	0	0.14082E-04	728790.7	4129789.2	0.0	1.83	3.11	0.20	NO	HROFDY
L0005989	0	0.14082E-04	728796.2	4129792.8	0.0	1.83	3.11	0.20	NO	HROFDY
L0005990	0	0.14082E-04	728801.8	4129796.5	0.0	1.83	3.11	0.20	NO	HROFDY
L0005991	0	0.14082E-04	728807.4	4129800.2	0.0	1.83	3.11	0.20	NO	HROFDY
L0005992	0	0.14082E-04	728813.8	4129801.5	0.0	1.83	3.16	0.20	NO	HROFDY
L0005993	0	0.14082E-04	728820.6	4129801.8	0.0	1.83	3.16	0.20	NO	HROFDY
L0005994	0	0.14082E-04	728827.4	4129802.2	0.0	1.83	3.16	0.20	NO	HROFDY
L0005995	0	0.14082E-04	728834.2	4129802.5	0.0	1.83	3.16	0.20	NO	HROFDY
L0005996	0	0.14082E-04	728841.0	4129803.0	0.0	1.83	3.16	0.20	NO	HROFDY
L0005997	0	0.14082E-04	728847.8	4129803.2	0.0	1.83	3.16	0.20	NO	HROFDY
L0005998	0	0.14082E-04	728854.6	4129803.5	0.0	1.83	3.16	0.20	NO	HROFDY
L0005999	0	0.14082E-04	728861.4	4129804.0	0.0	1.83	3.16	0.20	NO	HROFDY
L0006000	0	0.14082E-04	728868.1	4129804.2	0.0	1.83	3.16	0.20	NO	HROFDY
L0006001	0	0.14082E-04	728874.9	4129804.8	0.0	1.83	3.16	0.20	NO	HROFDY
L0006534	0	0.56399E-05	728740.2	4129173.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006535	0	0.56399E-05	728740.3	4129181.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006536	0	0.56399E-05	728740.4	4129188.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006537	0	0.56399E-05	728740.4	4129195.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006538	0	0.56399E-05	728740.4	4129202.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006539	0	0.56399E-05	728740.5	4129210.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006540	0	0.56399E-05	728740.5	4129217.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006541	0	0.56399E-05	728740.6	4129224.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006542	0	0.56399E-05	728740.6	4129232.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006543	0	0.56399E-05	728740.6	4129239.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006544	0	0.56399E-05	728740.7	4129246.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006545	0	0.56399E-05	728740.8	4129253.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006546	0	0.56399E-05	728740.8	4129261.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006547	0	0.56399E-05	728740.8	4129268.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006548	0	0.56399E-05	728740.9	4129275.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006549	0	0.56399E-05	728740.9	4129282.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006550	0	0.56399E-05	728740.9	4129290.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006551	0	0.56399E-05	728741.0	4129297.2	0.0	1.83	3.38	0.20	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0006552	0	0.56399E-05	728741.0	4129304.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006553	0	0.56399E-05	728741.1	4129311.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006554	0	0.56399E-05	728741.1	4129319.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006555	0	0.56399E-05	728741.1	4129326.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006556	0	0.56399E-05	728741.2	4129333.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006557	0	0.56399E-05	728741.2	4129340.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006558	0	0.56399E-05	728741.2	4129348.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006559	0	0.56399E-05	728741.3	4129355.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006560	0	0.56399E-05	728741.4	4129362.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006561	0	0.56399E-05	728741.4	4129369.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006562	0	0.56399E-05	728741.4	4129377.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006563	0	0.56399E-05	728741.5	4129384.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006564	0	0.56399E-05	728741.5	4129391.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006565	0	0.56399E-05	728741.6	4129398.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006566	0	0.56399E-05	728741.6	4129406.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006567	0	0.56399E-05	728741.6	4129413.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006568	0	0.56399E-05	728741.7	4129420.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006569	0	0.56399E-05	728741.8	4129427.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006570	0	0.56399E-05	728741.8	4129435.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006571	0	0.56399E-05	728741.8	4129442.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006572	0	0.56399E-05	728741.9	4129449.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006573	0	0.56399E-05	728741.9	4129457.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006574	0	0.56399E-05	728741.9	4129464.2	0.0	1.83	3.38	0.20	NO	HROFDY
L0006575	0	0.56399E-05	728742.0	4129471.5	0.0	1.83	3.38	0.20	NO	HROFDY
L0006576	0	0.56399E-05	728742.0	4129478.8	0.0	1.83	3.38	0.20	NO	HROFDY
L0006577	0	0.56399E-05	728742.1	4129486.0	0.0	1.83	3.38	0.20	NO	HROFDY
L0006578	0	0.56399E-05	728741.1	4129492.2	0.0	1.83	2.98	0.20	NO	HROFDY
L0006579	0	0.56399E-05	728739.7	4129498.5	0.0	1.83	2.98	0.20	NO	HROFDY
L0006580	0	0.56399E-05	728738.3	4129504.8	0.0	1.83	2.98	0.20	NO	HROFDY
L0006581	0	0.56399E-05	728736.9	4129511.0	0.0	1.83	2.98	0.20	NO	HROFDY
L0006582	0	0.56399E-05	728735.5	4129517.2	0.0	1.83	2.98	0.20	NO	HROFDY
L0006583	0	0.56399E-05	728734.1	4129523.5	0.0	1.83	2.98	0.20	NO	HROFDY
L0006584	0	0.56399E-05	728732.8	4129529.8	0.0	1.83	2.98	0.20	NO	HROFDY
L0006585	0	0.56399E-05	728731.3	4129536.0	0.0	1.83	2.98	0.20	NO	HROFDY
L0006586	0	0.56399E-05	728731.1	4129542.8	0.0	1.83	3.21	0.20	NO	HROFDY
L0006587	0	0.56399E-05	728731.2	4129549.8	0.0	1.83	3.21	0.20	NO	HROFDY
L0006588	0	0.56399E-05	728731.3	4129556.5	0.0	1.83	3.21	0.20	NO	HROFDY
L0006589	0	0.56399E-05	728731.4	4129563.5	0.0	1.83	3.21	0.20	NO	HROFDY
L0006590	0	0.56399E-05	728731.6	4129570.5	0.0	1.83	3.21	0.20	NO	HROFDY
L0006591	0	0.56399E-05	728731.7	4129577.2	0.0	1.83	3.21	0.20	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0006592	0	0.56399E-05	728731.8	4129584.2	0.0	1.83	3.21	0.20	NO	HROFDY
L0006593	0	0.56399E-05	728732.0	4129591.0	0.0	1.83	3.21	0.20	NO	HROFDY
L0006594	0	0.56399E-05	728732.1	4129598.0	0.0	1.83	3.21	0.20	NO	HROFDY
L0006595	0	0.56399E-05	728732.2	4129604.8	0.0	1.83	3.21	0.20	NO	HROFDY
L0006596	0	0.56399E-05	728732.4	4129611.8	0.0	1.83	3.21	0.20	NO	HROFDY
L0006597	0	0.56399E-05	728732.5	4129618.8	0.0	1.83	3.21	0.20	NO	HROFDY
L0006598	0	0.56399E-05	728732.6	4129625.5	0.0	1.83	3.21	0.20	NO	HROFDY
L0006599	0	0.56399E-05	728732.8	4129632.5	0.0	1.83	3.21	0.20	NO	HROFDY
L0006600	0	0.56399E-05	728734.1	4129639.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006601	0	0.56399E-05	728735.7	4129646.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006602	0	0.56399E-05	728737.3	4129653.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006603	0	0.56399E-05	728739.0	4129660.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006604	0	0.56399E-05	728740.6	4129667.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006605	0	0.56399E-05	728742.2	4129674.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006606	0	0.56399E-05	728743.9	4129681.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006607	0	0.56399E-05	728745.6	4129688.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006608	0	0.56399E-05	728747.2	4129695.5	0.0	1.83	3.34	0.20	NO	HROFDY
L0006609	0	0.56399E-05	728747.5	4129702.5	0.0	1.83	3.28	0.20	NO	HROFDY
L0006610	0	0.56399E-05	728747.3	4129709.5	0.0	1.83	3.28	0.20	NO	HROFDY
L0006611	0	0.56399E-05	728747.1	4129716.5	0.0	1.83	3.28	0.20	NO	HROFDY
L0006612	0	0.56399E-05	728746.9	4129723.5	0.0	1.83	3.28	0.20	NO	HROFDY
L0006613	0	0.56399E-05	728746.8	4129730.8	0.0	1.83	3.28	0.20	NO	HROFDY
L0006614	0	0.56399E-05	728746.6	4129737.8	0.0	1.83	3.28	0.20	NO	HROFDY
L0006615	0	0.56399E-05	728746.4	4129744.8	0.0	1.83	3.28	0.20	NO	HROFDY
L0006616	0	0.56399E-05	728746.2	4129751.8	0.0	1.83	3.28	0.20	NO	HROFDY
L0006617	0	0.56399E-05	728746.1	4129758.8	0.0	1.83	3.28	0.20	NO	HROFDY
L0006618	0	0.56399E-05	728745.9	4129766.0	0.0	1.83	3.28	0.20	NO	HROFDY
L0006619	0	0.56399E-05	728750.1	4129771.0	0.0	1.83	3.33	0.20	NO	HROFDY
L0006620	0	0.56399E-05	728755.9	4129775.2	0.0	1.83	3.33	0.20	NO	HROFDY
L0006621	0	0.56399E-05	728761.6	4129779.5	0.0	1.83	3.33	0.20	NO	HROFDY
L0006622	0	0.56399E-05	728767.4	4129783.8	0.0	1.83	3.33	0.20	NO	HROFDY
L0006623	0	0.56399E-05	728773.1	4129788.0	0.0	1.83	3.33	0.20	NO	HROFDY
L0006624	0	0.56399E-05	728778.9	4129792.2	0.0	1.83	3.33	0.20	NO	HROFDY
L0006625	0	0.56399E-05	728784.6	4129796.5	0.0	1.83	3.33	0.20	NO	HROFDY
L0006626	0	0.56399E-05	728790.4	4129800.8	0.0	1.83	3.33	0.20	NO	HROFDY
L0006627	0	0.56399E-05	728796.1	4129805.2	0.0	1.83	3.33	0.20	NO	HROFDY
L0006628	0	0.56399E-05	728801.9	4129809.5	0.0	1.83	3.33	0.20	NO	HROFDY
L0006629	0	0.56399E-05	728808.4	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006630	0	0.56399E-05	728815.2	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006631	0	0.56399E-05	728822.1	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0006632	0	0.56399E-05	728828.9	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006633	0	0.56399E-05	728835.8	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006634	0	0.56399E-05	728842.7	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006635	0	0.56399E-05	728849.6	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006636	0	0.56399E-05	728856.4	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006637	0	0.56399E-05	728863.3	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006638	0	0.56399E-05	728870.2	4129810.5	0.0	1.83	3.19	0.20	NO	HROFDY
L0006905	0	0.13689E-04	729305.6	4129529.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006906	0	0.13689E-04	729298.3	4129529.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006907	0	0.13689E-04	729291.0	4129529.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006908	0	0.13689E-04	729283.7	4129529.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006909	0	0.13689E-04	729276.4	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006910	0	0.13689E-04	729269.1	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006911	0	0.13689E-04	729261.8	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006912	0	0.13689E-04	729254.4	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006913	0	0.13689E-04	729247.1	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006914	0	0.13689E-04	729239.8	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006915	0	0.13689E-04	729232.6	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006916	0	0.13689E-04	729225.2	4129529.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006917	0	0.13689E-04	729217.9	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006918	0	0.13689E-04	729210.6	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006919	0	0.13689E-04	729203.3	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006920	0	0.13689E-04	729196.0	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006921	0	0.13689E-04	729188.7	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006922	0	0.13689E-04	729181.4	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006923	0	0.13689E-04	729174.1	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006924	0	0.13689E-04	729166.8	4129529.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006925	0	0.13689E-04	729159.4	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006926	0	0.13689E-04	729152.1	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006927	0	0.13689E-04	729144.9	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006928	0	0.13689E-04	729137.6	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006929	0	0.13689E-04	729130.2	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006930	0	0.13689E-04	729122.9	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006931	0	0.13689E-04	729115.6	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006932	0	0.13689E-04	729108.3	4129530.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006933	0	0.13689E-04	729101.0	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006934	0	0.13689E-04	729093.7	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006935	0	0.13689E-04	729086.4	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006936	0	0.13689E-04	729079.1	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006937	0	0.13689E-04	729071.8	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0006938	0	0.13689E-04	729064.4	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006939	0	0.13689E-04	729057.2	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006940	0	0.13689E-04	729049.9	4129530.2	0.0	1.83	3.40	0.40	NO	HROFDY
L0006941	0	0.13689E-04	729042.6	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006942	0	0.13689E-04	729035.2	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006943	0	0.13689E-04	729027.9	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006944	0	0.13689E-04	729020.6	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006945	0	0.13689E-04	729013.3	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006946	0	0.13689E-04	729006.0	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006947	0	0.13689E-04	728998.7	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006948	0	0.13689E-04	728991.4	4129530.5	0.0	1.83	3.40	0.40	NO	HROFDY
L0006949	0	0.13689E-04	728984.1	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006950	0	0.13689E-04	728976.8	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006951	0	0.13689E-04	728969.5	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006952	0	0.13689E-04	728962.2	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006953	0	0.13689E-04	728954.9	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006954	0	0.13689E-04	728947.6	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006955	0	0.13689E-04	728940.2	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006956	0	0.13689E-04	728932.9	4129530.8	0.0	1.83	3.40	0.40	NO	HROFDY
L0006957	0	0.13689E-04	728925.6	4129531.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006958	0	0.13689E-04	728918.3	4129531.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006959	0	0.13689E-04	728911.0	4129531.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006960	0	0.13689E-04	728903.7	4129531.0	0.0	1.83	3.40	0.40	NO	HROFDY
L0006961	0	0.13689E-04	728901.9	4129536.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006962	0	0.13689E-04	728901.8	4129543.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006963	0	0.13689E-04	728901.8	4129550.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006964	0	0.13689E-04	728901.8	4129558.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006965	0	0.13689E-04	728901.7	4129565.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006966	0	0.13689E-04	728901.6	4129572.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006967	0	0.13689E-04	728901.6	4129579.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006968	0	0.13689E-04	728901.6	4129587.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006969	0	0.13689E-04	728901.6	4129594.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006970	0	0.13689E-04	728901.5	4129601.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006971	0	0.13689E-04	728901.4	4129608.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006972	0	0.13689E-04	728901.4	4129616.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006973	0	0.13689E-04	728901.4	4129623.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006974	0	0.13689E-04	728901.3	4129630.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006975	0	0.13689E-04	728901.3	4129637.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006976	0	0.13689E-04	728901.2	4129644.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006977	0	0.13689E-04	728901.2	4129652.0	0.0	1.83	3.36	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0006978	0	0.13689E-04	728901.2	4129659.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006979	0	0.13689E-04	728901.1	4129666.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006980	0	0.13689E-04	728901.1	4129673.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006981	0	0.13689E-04	728901.1	4129681.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006982	0	0.13689E-04	728901.0	4129688.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006983	0	0.13689E-04	728901.0	4129695.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006984	0	0.13689E-04	728900.9	4129702.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006985	0	0.13689E-04	728900.9	4129710.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006986	0	0.13689E-04	728900.9	4129717.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006987	0	0.13689E-04	728900.8	4129724.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006988	0	0.13689E-04	728900.8	4129731.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006989	0	0.13689E-04	728900.8	4129738.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006990	0	0.13689E-04	728900.8	4129746.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006991	0	0.13689E-04	728900.7	4129753.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006992	0	0.13689E-04	728900.6	4129760.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006993	0	0.13689E-04	728900.6	4129767.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006994	0	0.13689E-04	728900.6	4129775.0	0.0	1.83	3.36	0.40	NO	HROFDY
L0006995	0	0.13689E-04	728900.5	4129782.2	0.0	1.83	3.36	0.40	NO	HROFDY
L0006996	0	0.13689E-04	728900.5	4129789.5	0.0	1.83	3.36	0.40	NO	HROFDY
L0006997	0	0.13689E-04	728900.4	4129796.8	0.0	1.83	3.36	0.40	NO	HROFDY
L0006998	0	0.13689E-04	728905.9	4129798.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0006999	0	0.13689E-04	728913.2	4129798.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007000	0	0.13689E-04	728920.5	4129798.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007001	0	0.13689E-04	728927.8	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007002	0	0.13689E-04	728935.1	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007003	0	0.13689E-04	728942.3	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007004	0	0.13689E-04	728949.6	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007005	0	0.13689E-04	728956.9	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007006	0	0.13689E-04	728964.2	4129798.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007007	0	0.13689E-04	728971.5	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007008	0	0.13689E-04	728978.8	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007009	0	0.13689E-04	728986.1	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007010	0	0.13689E-04	728993.4	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007011	0	0.13689E-04	729000.6	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007012	0	0.13689E-04	729007.9	4129799.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007013	0	0.13689E-04	729015.2	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007014	0	0.13689E-04	729022.5	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007015	0	0.13689E-04	729029.8	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007016	0	0.13689E-04	729037.1	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007017	0	0.13689E-04	729044.4	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0007018	0	0.13689E-04	729051.7	4129799.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007019	0	0.13689E-04	729058.9	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007020	0	0.13689E-04	729066.2	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007021	0	0.13689E-04	729073.5	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007022	0	0.13689E-04	729080.8	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007023	0	0.13689E-04	729088.1	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007024	0	0.13689E-04	729095.4	4129799.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007025	0	0.13689E-04	729102.7	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007026	0	0.13689E-04	729110.0	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007027	0	0.13689E-04	729117.2	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007028	0	0.13689E-04	729124.6	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007029	0	0.13689E-04	729131.8	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007030	0	0.13689E-04	729139.1	4129799.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007031	0	0.13689E-04	729146.4	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007032	0	0.13689E-04	729153.7	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007033	0	0.13689E-04	729161.0	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007034	0	0.13689E-04	729168.2	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007035	0	0.13689E-04	729175.6	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007036	0	0.13689E-04	729182.9	4129800.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007037	0	0.13689E-04	729190.1	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007038	0	0.13689E-04	729197.4	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007039	0	0.13689E-04	729204.8	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007040	0	0.13689E-04	729212.0	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007041	0	0.13689E-04	729219.3	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007042	0	0.13689E-04	729226.6	4129800.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007043	0	0.13689E-04	729233.9	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007044	0	0.13689E-04	729241.2	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007045	0	0.13689E-04	729248.4	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007046	0	0.13689E-04	729255.8	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007047	0	0.13689E-04	729263.0	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007048	0	0.13689E-04	729270.3	4129800.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007049	0	0.13689E-04	729277.6	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007050	0	0.13689E-04	729284.9	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007051	0	0.13689E-04	729292.2	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007052	0	0.13689E-04	729299.5	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007053	0	0.13689E-04	729306.8	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007054	0	0.13689E-04	729314.1	4129800.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007055	0	0.13689E-04	729321.3	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007056	0	0.13689E-04	729328.6	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007057	0	0.13689E-04	729335.9	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0007058	0	0.13689E-04	729343.2	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007059	0	0.13689E-04	729350.5	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007060	0	0.13689E-04	729357.8	4129801.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007061	0	0.13689E-04	729365.1	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007062	0	0.13689E-04	729372.4	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007063	0	0.13689E-04	729379.6	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007064	0	0.13689E-04	729386.9	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007065	0	0.13689E-04	729394.2	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007066	0	0.13689E-04	729401.5	4129801.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007067	0	0.13689E-04	729408.8	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007068	0	0.13689E-04	729416.1	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007069	0	0.13689E-04	729423.4	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007070	0	0.13689E-04	729430.7	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007071	0	0.13689E-04	729437.9	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007072	0	0.13689E-04	729445.2	4129801.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007073	0	0.13689E-04	729452.5	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007074	0	0.13689E-04	729459.8	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007075	0	0.13689E-04	729467.1	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007076	0	0.13689E-04	729474.4	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007077	0	0.13689E-04	729481.7	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007078	0	0.13689E-04	729488.9	4129801.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007079	0	0.13689E-04	729496.2	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007080	0	0.13689E-04	729503.6	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007081	0	0.13689E-04	729510.8	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007082	0	0.13689E-04	729518.1	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007083	0	0.13689E-04	729525.4	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007084	0	0.13689E-04	729532.7	4129802.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007085	0	0.13689E-04	729540.0	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007086	0	0.13689E-04	729547.2	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007087	0	0.13689E-04	729554.6	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007088	0	0.13689E-04	729561.9	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007089	0	0.13689E-04	729569.1	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007090	0	0.13689E-04	729576.4	4129802.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007091	0	0.13689E-04	729583.7	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007092	0	0.13689E-04	729591.0	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007093	0	0.13689E-04	729598.3	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007094	0	0.13689E-04	729605.6	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007095	0	0.13689E-04	729612.9	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007096	0	0.13689E-04	729620.2	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007097	0	0.13689E-04	729627.4	4129802.5	0.0	1.83	3.39	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0007098	0	0.13689E-04	729634.8	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007099	0	0.13689E-04	729642.0	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007100	0	0.13689E-04	729649.3	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007101	0	0.13689E-04	729656.6	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007102	0	0.13689E-04	729663.9	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007103	0	0.13689E-04	729671.2	4129802.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007104	0	0.13689E-04	729678.4	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007105	0	0.13689E-04	729685.8	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007106	0	0.13689E-04	729693.1	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007107	0	0.13689E-04	729700.3	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007108	0	0.13689E-04	729707.6	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007109	0	0.13689E-04	729714.9	4129803.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007110	0	0.13689E-04	729722.2	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007111	0	0.13689E-04	729729.5	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007112	0	0.13689E-04	729736.8	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007113	0	0.13689E-04	729744.1	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007114	0	0.13689E-04	729751.4	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007115	0	0.13689E-04	729758.6	4129803.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007116	0	0.13689E-04	729765.9	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007117	0	0.13689E-04	729773.2	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007118	0	0.13689E-04	729780.5	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007119	0	0.13689E-04	729787.8	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007120	0	0.13689E-04	729795.1	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007121	0	0.13689E-04	729802.4	4129803.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007122	0	0.13689E-04	729809.7	4129803.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007123	0	0.13689E-04	729816.9	4129803.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007124	0	0.13689E-04	729824.2	4129803.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007125	0	0.13689E-04	729826.1	4129798.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007126	0	0.13689E-04	729826.0	4129791.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007127	0	0.13689E-04	729825.9	4129783.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007128	0	0.13689E-04	729825.9	4129776.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007129	0	0.13689E-04	729825.9	4129769.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007130	0	0.13689E-04	729825.8	4129761.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007131	0	0.13689E-04	729825.8	4129754.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007132	0	0.13689E-04	729825.8	4129747.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007133	0	0.13689E-04	729825.7	4129740.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007134	0	0.13689E-04	729825.7	4129732.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007135	0	0.13689E-04	729825.6	4129725.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007136	0	0.13689E-04	729825.6	4129718.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007137	0	0.13689E-04	729825.6	4129710.8	0.0	1.83	3.39	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0007138	0	0.13689E-04	729825.5	4129703.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007139	0	0.13689E-04	729825.5	4129696.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007140	0	0.13689E-04	729825.4	4129689.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007141	0	0.13689E-04	729825.4	4129681.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007142	0	0.13689E-04	729825.4	4129674.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007143	0	0.13689E-04	729825.3	4129667.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007144	0	0.13689E-04	729825.3	4129659.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007145	0	0.13689E-04	729825.2	4129652.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007146	0	0.13689E-04	729825.2	4129645.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007147	0	0.13689E-04	729825.2	4129637.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007148	0	0.13689E-04	729825.1	4129630.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007149	0	0.13689E-04	729825.1	4129623.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007150	0	0.13689E-04	729825.1	4129616.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007151	0	0.13689E-04	729825.0	4129608.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007152	0	0.13689E-04	729825.0	4129601.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007153	0	0.13689E-04	729824.9	4129594.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007154	0	0.13689E-04	729824.9	4129586.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007155	0	0.13689E-04	729824.9	4129579.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007156	0	0.13689E-04	729824.8	4129572.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007157	0	0.13689E-04	729824.8	4129565.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007158	0	0.13689E-04	729824.8	4129557.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007159	0	0.13689E-04	729824.7	4129550.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007160	0	0.13689E-04	729824.6	4129543.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007161	0	0.13689E-04	729824.6	4129535.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007162	0	0.13689E-04	729824.6	4129528.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007163	0	0.13689E-04	729824.6	4129521.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007164	0	0.13689E-04	729824.5	4129513.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007165	0	0.13689E-04	729824.4	4129506.5	0.0	1.83	3.39	0.40	NO	HROFDY
L0007166	0	0.13689E-04	729824.4	4129499.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007167	0	0.13689E-04	729824.4	4129492.0	0.0	1.83	3.39	0.40	NO	HROFDY
L0007168	0	0.13689E-04	729824.3	4129484.8	0.0	1.83	3.39	0.40	NO	HROFDY
L0007169	0	0.13689E-04	729824.3	4129477.2	0.0	1.83	3.39	0.40	NO	HROFDY
L0007170	0	0.13689E-04	729824.2	4129470.0	0.0	1.83	3.39	0.40	NO	HROFDY

**MODELOPTs:
CONC DFAULT ELEV

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
DPM	GENSET , PUMP , GATE , PARKING , SCALE , WAITING , L0005900, L0005901, L0005902, L0005903, L0005904, L0005905, L0005906, L0005907, L0005908, L0005909, L0005910, L0005911, L0005912, L0005913, L0005914, L0005915, L0005916, L0005917, L0005918, L0005919, L0005920, L0005921, L0005922, L0005923, L0005924, L0005925, L0005926, L0005927, L0005928, L0005929, L0005930, L0005931, L0005932, L0005933, L0005934, L0005935, L0005936, L0005937, L0005938, L0005939, L0005940, L0005941, L0005942, L0005943, L0005944, L0005945, L0005946, L0005947, L0005948, L0005949, L0005950, L0005951, L0005952, L0005953, L0005954, L0005955, L0005956, L0005957, L0005958, L0005959, L0005960, L0005961, L0005962, L0005963, L0005964, L0005965, L0005966, L0005967, L0005968, L0005969, L0005970, L0005971, L0005972, L0005973, L0005974, L0005975, L0005976, L0005977, L0005978, L0005979, L0005980, L0005981, L0005982, L0005983, L0005984, L0005985, L0005986, L0005987, L0005988, L0005989, L0005990, L0005991, L0005992, L0005993, L0005994, L0005995, L0005996, L0005997, L0005998, L0005999, L0006000, L0006001, L0006534, L0006535, L0006536, L0006537, L0006538, L0006539, L0006540, L0006541, L0006542, L0006543, L0006544, L0006545, L0006546, L0006547, L0006548, L0006549, L0006550, L0006551, L0006552, L0006553, L0006554, L0006555, L0006556, L0006557, L0006558, L0006559, L0006560, L0006561, L0006562, L0006563, L0006564, L0006565, L0006566, L0006567, L0006568, L0006569, L0006570, L0006571, L0006572, L0006573, L0006574, L0006575, L0006576, L0006577, L0006578, L0006579, L0006580, L0006581, L0006582, L0006583, L0006584, L0006585, L0006586, L0006587, L0006588, L0006589, L0006590, L0006591, L0006592, L0006593, L0006594, L0006595, L0006596, L0006597, L0006598, L0006599, L0006600, L0006601, L0006602, L0006603, L0006604, L0006605, L0006606, L0006607, L0006608, L0006609, L0006610, L0006611, L0006612, L0006613, L0006614, L0006615, L0006616, L0006617, L0006618, L0006619, L0006620, L0006621, L0006622, L0006623, L0006624, L0006625, L0006626, L0006627, L0006628, L0006629, L0006630, L0006631, L0006632, L0006633, L0006634, L0006635, L0006636, L0006637, L0006638, L0006905, L0006906, L0006907, L0006908, L0006909, L0006910, L0006911, L0006912, L0006913, L0006914, L0006915, L0006916, L0006917, L0006918, L0006919, L0006920, L0006921, L0006922, L0006923, L0006924, L0006925, L0006926, L0006927, L0006928, L0006929, L0006930, L0006931,

**MODELOPTs:
CONC DFAULT ELEV

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
	L0006932, L0006933, L0006934, L0006935, L0006936, L0006937, L0006938, L0006939, L0006940, L0006941, L0006942, L0006943,
	L0006944, L0006945, L0006946, L0006947, L0006948, L0006949, L0006950, L0006951, L0006952, L0006953, L0006954, L0006955,
	L0006956, L0006957, L0006958, L0006959, L0006960, L0006961, L0006962, L0006963, L0006964, L0006965, L0006966, L0006967,
	L0006968, L0006969, L0006970, L0006971, L0006972, L0006973, L0006974, L0006975, L0006976, L0006977, L0006978, L0006979,
	L0006980, L0006981, L0006982, L0006983, L0006984, L0006985, L0006986, L0006987, L0006988, L0006989, L0006990, L0006991,
	L0006992, L0006993, L0006994, L0006995, L0006996, L0006997, L0006998, L0006999, L0007000, L0007001, L0007002, L0007003,
	L0007004, L0007005, L0007006, L0007007, L0007008, L0007009, L0007010, L0007011, L0007012, L0007013, L0007014, L0007015,
	L0007016, L0007017, L0007018, L0007019, L0007020, L0007021, L0007022, L0007023, L0007024, L0007025, L0007026, L0007027,
	L0007028, L0007029, L0007030, L0007031, L0007032, L0007033, L0007034, L0007035, L0007036, L0007037, L0007038, L0007039,
	L0007040, L0007041, L0007042, L0007043, L0007044, L0007045, L0007046, L0007047, L0007048, L0007049, L0007050, L0007051,
	L0007052, L0007053, L0007054, L0007055, L0007056, L0007057, L0007058, L0007059, L0007060, L0007061, L0007062, L0007063,
	L0007064, L0007065, L0007066, L0007067, L0007068, L0007069, L0007070, L0007071, L0007072, L0007073, L0007074, L0007075,
	L0007076, L0007077, L0007078, L0007079, L0007080, L0007081, L0007082, L0007083, L0007084, L0007085, L0007086, L0007087,
	L0007088, L0007089, L0007090, L0007091, L0007092, L0007093, L0007094, L0007095, L0007096, L0007097, L0007098, L0007099,
	L0007100, L0007101, L0007102, L0007103, L0007104, L0007105, L0007106, L0007107, L0007108, L0007109, L0007110, L0007111,
	L0007112, L0007113, L0007114, L0007115, L0007116, L0007117, L0007118, L0007119, L0007120, L0007121, L0007122, L0007123,
	L0007124, L0007125, L0007126, L0007127, L0007128, L0007129, L0007130, L0007131, L0007132, L0007133, L0007134, L0007135,
	L0007136, L0007137, L0007138, L0007139, L0007140, L0007141, L0007142, L0007143, L0007144, L0007145, L0007146, L0007147,
	L0007148, L0007149, L0007150, L0007151, L0007152, L0007153, L0007154, L0007155, L0007156, L0007157, L0007158, L0007159,
	L0007160, L0007161, L0007162, L0007163, L0007164, L0007165, L0007166, L0007167, L0007168, L0007169, L0007170,

**MODELOPTs:
CONC DFAULT ELEV

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: PUMP

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	4.6,	21.7,	18.4,	-8.1,	0.4,	2	4.6,	23.4,	20.9,	-9.5,	0.6,
3	4.6,	24.3,	22.9,	-10.5,	0.7,	4	4.6,	24.6,	24.1,	-11.3,	0.9,
5	4.6,	24.1,	24.6,	-11.7,	1.0,	6	4.6,	22.9,	24.3,	-11.8,	1.1,
7	4.6,	20.9,	23.4,	-11.5,	1.1,	8	4.6,	18.4,	21.7,	-10.8,	1.1,
9	4.6,	15.2,	19.3,	-9.9,	1.1,	10	4.6,	18.4,	21.7,	-11.2,	1.1,
11	4.6,	20.9,	23.4,	-12.2,	1.0,	12	4.6,	22.9,	24.3,	-12.9,	0.9,
13	4.6,	24.1,	24.6,	-13.2,	0.7,	14	4.6,	24.6,	24.1,	-13.0,	0.6,
15	4.6,	24.3,	22.9,	-12.5,	0.4,	16	4.6,	23.4,	20.9,	-11.6,	0.2,
17	4.6,	21.7,	18.4,	-10.3,	0.0,	18	4.6,	19.3,	15.2,	-8.8,	-0.2,
19	4.6,	21.7,	18.4,	-10.3,	-0.4,	20	4.6,	23.4,	20.9,	-11.5,	-0.6,
21	4.6,	24.3,	22.9,	-12.3,	-0.7,	22	4.6,	24.6,	24.1,	-12.8,	-0.9,
23	4.6,	24.1,	24.6,	-12.9,	-1.0,	24	4.6,	22.9,	24.3,	-12.6,	-1.1,
25	4.6,	20.9,	23.4,	-11.9,	-1.1,	26	4.6,	18.4,	21.7,	-10.8,	-1.1,
27	4.6,	15.2,	19.3,	-9.4,	-1.1,	28	4.6,	18.4,	21.7,	-10.4,	-1.1,
29	4.6,	20.9,	23.4,	-11.1,	-1.0,	30	4.6,	22.9,	24.3,	-11.4,	-0.9,
31	4.6,	24.1,	24.6,	-11.4,	-0.7,	32	4.6,	24.6,	24.1,	-11.0,	-0.6,
33	4.6,	24.3,	22.9,	-10.3,	-0.4,	34	4.6,	23.4,	20.9,	-9.3,	-0.2,
35	4.6,	21.7,	18.4,	-8.0,	0.0,	36	4.6,	19.3,	15.2,	-6.5,	0.2,

**MODELOPTs:
CONC DFAULT ELEV

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(730310.6,	4128991.8,	0.0,	0.0,	0.0);	(730265.0,	4129639.0,	0.0,	0.0,	0.0);
(727173.4,	4129072.5,	0.0,	0.0,	0.0);	(728203.1,	4129686.0,	0.0,	0.0,	0.0);
(728203.1,	4129871.5,	0.0,	0.0,	0.0);	(728198.6,	4129435.2,	0.0,	0.0,	0.0);
(728209.2,	4129260.2,	0.0,	0.0,	0.0);	(727975.9,	4129122.5,	0.0,	0.0,	0.0);
(727557.2,	4129117.2,	0.0,	0.0,	0.0);	(730281.7,	4130145.5,	0.0,	0.0,	0.0);
(728553.7,	4129092.8,	0.0,	0.0,	0.0);	(729106.3,	4130042.8,	0.0,	0.0,	0.0);
(729817.9,	4130082.5,	0.0,	0.0,	0.0);	(728184.0,	4130003.0,	0.0,	0.0,	0.0);
(727460.4,	4130054.8,	0.0,	0.0,	0.0);	(725743.1,	4130066.8,	0.0,	0.0,	0.0);

**MODELOPTs:
CONC DFAULT ELEV

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 0 0 0 0
AND END DATE: 9999 99 99 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

**MODELOPTs:
CONC DFAULT ELEV

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: M2.SFC Met Version: 06341
Profile file: M2.PFL
Surface format: (3(I2,1X),I3,1X,I2,1X,F6.1,1X,3(F6.3,1X),2(F5.0,1X),F8.1,1X,F6.3,1X,2(F6.2,1X),F7.2,1X,F5.0,3(1X,F6.1))
Profile format: (4(I2,1X),F6.1,1X,I1,1X,F5.0,1X,F7.2,1X,F7.2,1X,F6.1,1X,F7.2)
Surface station no.: 93242 Upper air station no.: 23230
Name: UNKNOWN Name: OAKLAND/WSO_AP
Year: 2002 Year: 2002

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
02	01	01	1	01	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.40	3.28	1.00	999.00	999.	0.0	283.1	2.0
02	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.40	3.28	1.00	999.00	999.	0.0	283.1	2.0
02	01	01	1	03	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.40	3.28	1.00	999.00	999.	0.0	283.1	2.0
02	01	01	1	04	-48.6	0.491	-9.000	-9.000	-999.	791.	220.0	0.67	3.70	1.00	3.60	83.	10.0	282.0	2.0
02	01	01	1	05	-13.0	0.127	-9.000	-9.000	-999.	320.	14.3	0.37	4.20	1.00	2.10	103.	10.0	282.0	2.0
02	01	01	1	06	-33.4	0.309	-9.000	-9.000	-999.	396.	80.1	0.65	2.00	1.00	2.60	242.	10.0	282.0	2.0
02	01	01	1	07	-12.8	0.228	-9.000	-9.000	-999.	252.	83.2	0.46	6.60	1.00	2.10	135.	10.0	283.1	2.0
02	01	01	1	08	-7.9	0.143	-9.000	-9.000	-999.	126.	33.3	0.67	3.70	0.68	1.50	73.	10.0	283.1	2.0
02	01	01	1	09	7.8	0.323	0.185	0.008	29.	423.	-390.4	0.37	4.20	0.39	2.60	117.	10.0	284.2	2.0
02	01	01	1	10	90.7	0.418	0.845	0.006	240.	621.	-72.6	0.37	4.20	0.29	3.10	101.	10.0	285.4	2.0
02	01	01	1	11	29.6	0.339	0.619	0.007	289.	457.	-119.0	0.37	4.20	0.25	2.60	114.	10.0	285.9	2.0
02	01	01	1	12	32.5	0.186	0.676	0.009	343.	199.	-18.0	0.05	2.00	0.21	2.10	186.	10.0	287.0	2.0
02	01	01	1	13	39.5	0.366	0.765	0.007	409.	509.	-111.9	0.46	6.60	0.26	2.60	153.	10.0	288.1	2.0
02	01	01	1	14	76.1	0.323	1.063	0.007	571.	424.	-40.1	0.46	6.60	0.27	2.10	139.	10.0	289.2	2.0
02	01	01	1	15	51.5	0.430	0.952	0.005	605.	649.	-139.9	0.46	6.60	0.31	3.10	142.	10.0	290.4	2.0
02	01	01	1	16	18.6	0.414	0.680	0.006	611.	614.	-345.7	0.46	6.60	0.39	3.10	154.	10.0	289.2	2.0
02	01	01	1	17	-32.6	0.323	-9.000	-9.000	-999.	426.	93.0	0.37	4.20	0.63	3.10	111.	10.0	287.0	2.0
02	01	01	1	18	-43.3	0.387	-9.000	-9.000	-999.	554.	121.3	0.37	4.20	1.00	3.60	97.	10.0	285.4	2.0
02	01	01	1	19	-50.8	0.455	-9.000	-9.000	-999.	706.	167.8	0.37	4.20	1.00	4.10	114.	10.0	285.9	2.0
02	01	01	1	20	-64.0	0.586	-9.000	-9.000	-999.	1031.	284.2	0.37	4.20	1.00	5.10	107.	10.0	285.4	2.0
02	01	01	1	21	-58.2	0.521	-9.000	-9.000	-999.	869.	219.2	0.37	4.20	1.00	4.60	110.	10.0	285.4	2.0
02	01	01	1	22	-64.0	0.586	-9.000	-9.000	-999.	1031.	284.2	0.37	4.20	1.00	5.10	132.	10.0	285.4	2.0
02	01	01	1	23	-64.0	0.586	-9.000	-9.000	-999.	1032.	284.2	0.37	4.20	1.00	5.10	120.	10.0	285.9	2.0
02	01	01	1	24	-64.0	0.586	-9.000	-9.000	-999.	1032.	284.2	0.37	4.20	1.00	5.10	110.	10.0	285.4	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
02	01	01	01	10.0	1	-999.	-99.00	283.2	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

CONC DFAULT ELEV

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: DPM ***
INCLUDING SOURCE(S): GENSET , PUMP , GATE , PARKING , SCALE , WAITING , L0005900,
L0005901, L0005902, L0005903, L0005904, L0005905, L0005906, L0005907, L0005908, L0005909, L0005910, L0005911, L0005912,
L0005913, L0005914, L0005915, L0005916, L0005917, L0005918, L0005919, L0005920, L0005921, L0005922, L0005923, . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF TOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
730310.56	4128991.75	0.01772	730265.00	4129639.00	0.01183
727173.44	4129072.50	0.00165	728203.06	4129686.00	0.01022
728203.06	4129871.50	0.01012	728198.56	4129435.25	0.00809
728209.19	4129260.25	0.00616	727975.94	4129122.50	0.00337
727557.19	4129117.25	0.00225	730281.69	4130145.50	0.00282
728553.69	4129092.75	0.00798	729106.31	4130042.75	0.01497
729817.94	4130082.50	0.00719	728184.00	4130003.00	0.00806
727460.44	4130054.75	0.00372	725743.06	4130066.75	0.00129

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF TOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
DPM	1ST HIGHEST VALUE IS	0.01772 AT	(730310.56, 4128991.75, 0.00, 0.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.01497 AT	(729106.31, 4130042.75, 0.00, 0.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.01183 AT	(730265.00, 4129639.00, 0.00, 0.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.01022 AT	(728203.06, 4129686.00, 0.00, 0.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.01012 AT	(728203.06, 4129871.50, 0.00, 0.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00809 AT	(728198.56, 4129435.25, 0.00, 0.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00806 AT	(728184.00, 4130003.00, 0.00, 0.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00798 AT	(728553.69, 4129092.75, 0.00, 0.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00719 AT	(729817.94, 4130082.50, 0.00, 0.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00616 AT	(728209.19, 4129260.25, 0.00, 0.00, 0.00)	DC	
INGRESS	1ST HIGHEST VALUE IS	0.00342 AT	(728553.69, 4129092.75, 0.00, 0.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00332 AT	(728203.06, 4129686.00, 0.00, 0.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00304 AT	(728198.56, 4129435.25, 0.00, 0.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00293 AT	(728203.06, 4129871.50, 0.00, 0.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00235 AT	(728209.19, 4129260.25, 0.00, 0.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00208 AT	(728184.00, 4130003.00, 0.00, 0.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00202 AT	(729106.31, 4130042.75, 0.00, 0.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00162 AT	(730310.56, 4128991.75, 0.00, 0.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00109 AT	(727975.94, 4129122.50, 0.00, 0.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00088 AT	(727460.44, 4130054.75, 0.00, 0.00, 0.00)	DC	
EGRESS	1ST HIGHEST VALUE IS	0.00148 AT	(728553.69, 4129092.75, 0.00, 0.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00142 AT	(728203.06, 4129686.00, 0.00, 0.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00129 AT	(728198.56, 4129435.25, 0.00, 0.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00123 AT	(728203.06, 4129871.50, 0.00, 0.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00100 AT	(728209.19, 4129260.25, 0.00, 0.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00088 AT	(728184.00, 4130003.00, 0.00, 0.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00082 AT	(729106.31, 4130042.75, 0.00, 0.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00066 AT	(730310.56, 4128991.75, 0.00, 0.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00046 AT	(727975.94, 4129122.50, 0.00, 0.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00037 AT	(727460.44, 4130054.75, 0.00, 0.00, 0.00)	DC	

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF TOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					NETWORK OF TYPE	GRID-ID
GATE	1ST HIGHEST VALUE IS	0.00032 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.00021 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00019 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00017 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00014 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00013 AT (	728553.69,	4129092.75,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00013 AT (	728209.19,	4129260.25,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00008 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00008 AT (	727460.44,	4130054.75,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00007 AT (	727975.94,	4129122.50,	0.00,	0.00,	0.00)	DC	
GENSET	1ST HIGHEST VALUE IS	0.00002 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.00001 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00001 AT (	730265.00,	4129639.00,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00001 AT (	729817.94,	4130082.50,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (	730281.69,	4130145.50,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00000 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00000 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00000 AT (	728553.69,	4129092.75,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00000 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00000 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	
PUMP	1ST HIGHEST VALUE IS	0.00002 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.00000 AT (	730265.00,	4129639.00,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00000 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00000 AT (	729817.94,	4130082.50,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (	730281.69,	4130145.50,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00000 AT (	728553.69,	4129092.75,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00000 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00000 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00000 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00000 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF TOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					NETWORK OF TYPE	GRID-ID
SCALE	1ST HIGHEST VALUE IS	0.00108 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.00107 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00102 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00094 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00078 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00065 AT (	730265.00,	4129639.00,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00047 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00043 AT (	727460.44,	4130054.75,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00034 AT (	728209.19,	4129260.25,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00033 AT (	729817.94,	4130082.50,	0.00,	0.00,	0.00)	DC	
PARKING	1ST HIGHEST VALUE IS	0.00397 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.00062 AT (	730265.00,	4129639.00,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00040 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00040 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00039 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00037 AT (	728553.69,	4129092.75,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00033 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00032 AT (	728209.19,	4129260.25,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00031 AT (	729817.94,	4130082.50,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00027 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
YARD	1ST HIGHEST VALUE IS	0.01063 AT (	729106.31,	4130042.75,	0.00,	0.00,	0.00)	DC	
	2ND HIGHEST VALUE IS	0.01007 AT (	730310.56,	4128991.75,	0.00,	0.00,	0.00)	DC	
	3RD HIGHEST VALUE IS	0.00966 AT (	730265.00,	4129639.00,	0.00,	0.00,	0.00)	DC	
	4TH HIGHEST VALUE IS	0.00576 AT (	729817.94,	4130082.50,	0.00,	0.00,	0.00)	DC	
	5TH HIGHEST VALUE IS	0.00431 AT (	728203.06,	4129871.50,	0.00,	0.00,	0.00)	DC	
	6TH HIGHEST VALUE IS	0.00386 AT (	728203.06,	4129686.00,	0.00,	0.00,	0.00)	DC	
	7TH HIGHEST VALUE IS	0.00370 AT (	728184.00,	4130003.00,	0.00,	0.00,	0.00)	DC	
	8TH HIGHEST VALUE IS	0.00246 AT (	728198.56,	4129435.25,	0.00,	0.00,	0.00)	DC	
	9TH HIGHEST VALUE IS	0.00214 AT (	728553.69,	4129092.75,	0.00,	0.00,	0.00)	DC	
	10TH HIGHEST VALUE IS	0.00200 AT (	730281.69,	4130145.50,	0.00,	0.00,	0.00)	DC	

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF TOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
WAITING	1ST HIGHEST VALUE IS	0.00026 AT	(728198.56, 4129435.25, 0.00, 0.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00021 AT	(728203.06, 4129686.00, 0.00, 0.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00018 AT	(728209.19, 4129260.25, 0.00, 0.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00017 AT	(730310.56, 4128991.75, 0.00, 0.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00017 AT	(728553.69, 4129092.75, 0.00, 0.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00013 AT	(728203.06, 4129871.50, 0.00, 0.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00011 AT	(728184.00, 4130003.00, 0.00, 0.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00010 AT	(727975.94, 4129122.50, 0.00, 0.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00007 AT	(727557.19, 4129117.25, 0.00, 0.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00006 AT	(727460.44, 4130054.75, 0.00, 0.00, 0.00)	DC	
ALL	1ST HIGHEST VALUE IS	0.01772 AT	(730310.56, 4128991.75, 0.00, 0.00, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.01497 AT	(729106.31, 4130042.75, 0.00, 0.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.01183 AT	(730265.00, 4129639.00, 0.00, 0.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.01022 AT	(728203.06, 4129686.00, 0.00, 0.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.01012 AT	(728203.06, 4129871.50, 0.00, 0.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00809 AT	(728198.56, 4129435.25, 0.00, 0.00, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00806 AT	(728184.00, 4130003.00, 0.00, 0.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00798 AT	(728553.69, 4129092.75, 0.00, 0.00, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00719 AT	(729817.94, 4130082.50, 0.00, 0.00, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00616 AT	(728209.19, 4129260.25, 0.00, 0.00, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

```
**MODELOPTs:
CONC                        DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            7 Warning Message(s)
A Total of         2306 Informational Message(s)

A Total of         1079 Calm Hours Identified

A Total of         1227 Missing Hours Identified ( 14.01 Percent)

CAUTION!:  Number of Missing Hours Exceeds 10 Percent of Total!
           Data May Not Be Acceptable for Regulatory Applications.
           See Section 5.3.2 of "Meteorological Monitoring Guidance
           for Regulatory Modeling Applications" (EPA-454/R-99-005).


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
SO W320   572 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   573 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   574 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   575 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   576 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   577 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
OU W565  3387 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

Appendix E

HARP Modeling Files

- Dispersion Analysis Files (electronic copy only)
  - WALMART Project Files: ISC, INP, OUT, SRC, XOQ, PLT, BPIP, and SIT
- Risk Analysis Output Files (hardcopy and electronic copy)
  - Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt
  - Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt
  - Rep_Can_9yrC_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
  - Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
- Transaction File (electronic copy only)
  - WALMART Project Files: TRA
- Receptor File (electronic copy only)
  - WALMART Project Files: REC
- Meteorological Data File (electronic copy only)

This file: C:\0Projects\WalMart\0HARP\Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt

```
Created by HARP Version 1.3  Build 23.04.05
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 3/21/2007 10:21:29 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\0Projects\WalMart\0HARP\WALMART.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\0Projects\WalMart\0HARP\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Derived  (Adjusted) Method
Health effect:     Cancer Risk
Receptor(s):       All
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	91203	Naphthalene	Naphthalene	0.000E+00
0002	50328	B[a]P	Benzo[a]pyrene	0.000E+00

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1000 CO=100 DEV=101 PRO=101 STK=1 NAME=WAL-MART DC STACK 101 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
91203	Naphthalene	1	0	0.17	0
50328	B[a]P	1	0	0.000757	0

CANCER RISK REPORT

REC	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	4.54E-12	1.73E-11	2.60E-12	0.00E+00	0.00E+00	0.00E+00	6.34E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.34E-11	8.79E-11
0002	1.27E-11	4.85E-11	7.26E-12	0.00E+00	0.00E+00	0.00E+00	1.77E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-10	2.46E-10
0003	3.13E-11	1.20E-10	1.79E-11	0.00E+00	0.00E+00	0.00E+00	4.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E-10	6.07E-10
0004	5.87E-12	2.24E-11	3.36E-12	0.00E+00	0.00E+00	0.00E+00	8.21E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-10	1.14E-10
0005	8.34E-11	3.19E-10	4.77E-11	0.00E+00	0.00E+00	0.00E+00	1.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-09	1.62E-09
0006	1.49E-11	5.70E-11	8.54E-12	0.00E+00	0.00E+00	0.00E+00	2.09E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-10	2.89E-10
0007	1.38E-10	5.26E-10	7.88E-11	0.00E+00	0.00E+00	0.00E+00	1.92E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-09	2.67E-09
0008	2.86E-11	1.09E-10	1.64E-11	0.00E+00	0.00E+00	0.00E+00	4.00E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.26E-10	5.55E-10
0009	1.79E-11	6.83E-11	1.02E-11	0.00E+00	0.00E+00	0.00E+00	2.50E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-10	3.47E-10
0010	4.51E-11	1.72E-10	2.58E-11	0.00E+00	0.00E+00	0.00E+00	6.31E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.29E-10	8.74E-10
0011	1.04E-11	3.97E-11	5.95E-12	0.00E+00	0.00E+00	0.00E+00	1.45E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-10	2.01E-10
0012	7.38E-12	2.82E-11	4.22E-12	0.00E+00	0.00E+00	0.00E+00	1.03E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-10	1.43E-10
0013	6.91E-12	2.64E-11	3.95E-12	0.00E+00	0.00E+00	0.00E+00	9.66E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-10	1.34E-10
0014	8.51E-12	3.25E-11	4.87E-12	0.00E+00	0.00E+00	0.00E+00	1.19E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-10	1.65E-10
0015	1.38E-11	5.26E-11	7.88E-12	0.00E+00	0.00E+00	0.00E+00	1.92E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-10	2.67E-10
0016	9.62E-11	3.67E-10	5.50E-11	0.00E+00	0.00E+00	0.00E+00	1.34E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-09	1.86E-09

This file: C:\0Projects\WalMart\0HARP\Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt

```
Created by HARP Version 1.3  Build 23.04.05
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 3/21/2007 10:30:52 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\0Projects\WalMart\0HARP\WALMART.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\0Projects\WalMart\0HARP\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: Standard work schedule (49 wks/yr, 5 days/wk, 8 hrs/day, 40 yrs)
Analysis method:   Point estimate
Health effect:     Cancer Risk
Receptor(s):       All
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	91203	Naphthalene	Naphthalene	0.000E+00
0002	50328	B[a]P	Benzo[a]pyrene	0.000E+00

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1000 CO=100 DEV=101 PRO=101 STK=1 NAME=WAL-MART DC STACK 101 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
91203	Naphthalene	1	0	0.17	0
50328	B[a]P	1	0	0.000757	0

CANCER RISK REPORT

REC	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	9.07E-13	6.58E-12	8.56E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.44E-12	8.35E-12
0002	2.54E-12	1.84E-11	2.39E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-11	2.33E-11
0003	6.26E-12	4.54E-11	5.91E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.13E-11	5.76E-11
0004	1.17E-12	8.52E-12	1.11E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.63E-12	1.08E-11
0005	1.67E-11	1.21E-10	1.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-10	1.53E-10
0006	2.98E-12	2.16E-11	2.81E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-11	2.74E-11
0007	2.75E-11	2.00E-10	2.59E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-10	2.53E-10
0008	5.72E-12	4.15E-11	5.40E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E-11	5.26E-11
0009	3.58E-12	2.59E-11	3.37E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-11	3.29E-11
0010	9.02E-12	6.55E-11	8.51E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.40E-11	8.30E-11
0011	2.08E-12	1.51E-11	1.96E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-11	1.91E-11
0012	1.47E-12	1.07E-11	1.39E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-11	1.36E-11
0013	1.38E-12	1.00E-11	1.30E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-11	1.27E-11
0014	1.70E-12	1.23E-11	1.60E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-11	1.56E-11
0015	2.75E-12	2.00E-11	2.60E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-11	2.53E-11
0016	1.92E-11	1.39E-10	1.81E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-10	1.77E-10

This file: C:\0Projects\WalMart\0HARP\Rep_Can_9yrC_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt

```
Created by HARP Version 1.3  Build 23.04.05
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 3/21/2007 10:25:55 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\0Projects\WalMart\0HARP\WALMART.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\0Projects\WalMart\0HARP\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 9 year (child resident)
Analysis method:   Derived (OEHHA) Method
Health effect:     Cancer Risk
Receptor(s):       All
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	91203	Naphthalene	Naphthalene	0.000E+00
0002	50328	B[a]P	Benzo[a]pyrene	0.000E+00

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1000 CO=100 DEV=101 PRO=101 STK=1 NAME=WAL-MART DC STACK 101 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
91203	Naphthalene	1	0	0.17	0
50328	B[a]P	1	0	0.000757	0

CANCER RISK REPORT

REC	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
0001	1.11E-12	4.32E-12	1.71E-12	0.00E+00	0.00E+00	0.00E+00	9.19E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-11	1.63E-11
0002	3.09E-12	1.21E-11	4.78E-12	0.00E+00	0.00E+00	0.00E+00	2.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-11	4.56E-11
0003	7.63E-12	2.98E-11	1.18E-11	0.00E+00	0.00E+00	0.00E+00	6.34E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-10	1.13E-10
0004	1.43E-12	5.59E-12	2.21E-12	0.00E+00	0.00E+00	0.00E+00	1.19E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-11	2.11E-11
0005	2.03E-11	7.94E-11	3.14E-11	0.00E+00	0.00E+00	0.00E+00	1.69E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-10	3.00E-10
0006	3.64E-12	1.42E-11	5.62E-12	0.00E+00	0.00E+00	0.00E+00	3.02E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-11	5.37E-11
0007	3.35E-11	1.31E-10	5.18E-11	0.00E+00	0.00E+00	0.00E+00	2.79E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.61E-10	4.95E-10
0008	6.97E-12	2.72E-11	1.08E-11	0.00E+00	0.00E+00	0.00E+00	5.80E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.60E-11	1.03E-10
0009	4.36E-12	1.70E-11	6.74E-12	0.00E+00	0.00E+00	0.00E+00	3.62E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-11	6.43E-11
0010	1.10E-11	4.30E-11	1.70E-11	0.00E+00	0.00E+00	0.00E+00	9.14E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-10	1.62E-10
0011	2.53E-12	9.89E-12	3.91E-12	0.00E+00	0.00E+00	0.00E+00	2.10E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-11	3.74E-11
0012	1.80E-12	7.02E-12	2.78E-12	0.00E+00	0.00E+00	0.00E+00	1.49E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-11	2.65E-11
0013	1.68E-12	6.57E-12	2.60E-12	0.00E+00	0.00E+00	0.00E+00	1.40E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-11	2.48E-11
0014	2.07E-12	8.10E-12	3.20E-12	0.00E+00	0.00E+00	0.00E+00	1.72E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-11	3.06E-11
0015	3.35E-12	1.31E-11	5.18E-12	0.00E+00	0.00E+00	0.00E+00	2.79E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.62E-11	4.95E-11
0016	2.34E-11	9.15E-11	3.62E-11	0.00E+00	0.00E+00	0.00E+00	1.95E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-10	3.46E-10

This file: C:\0Projects\WalMart\0HARP\Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt

```
Created by HARP Version 1.3  Build 23.04.05
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 3/21/2007 10:21:46 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\0Projects\WalMart\0HARP\WALMART.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\0Projects\WalMart\0HARP\project.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: resident
Analysis method:   Derived (OEHHA) Method
Health effect:     Chronic HI
Receptor(s):       All
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.05

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	91203	Naphthalene	Naphthalene	0.000E+00
0002	50328	B[a]P	Benzo[a]pyrene	0.000E+00

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1000 CO=100 DEV=101 PRO=101 STK=1 NAME=WAL-MART DC STACK 101 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
91203	Naphthalene	1	0	0.17	0
50328	B[a]P	1	0	0.000757	0

CHRONIC HI REPORT

REC	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
0001	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-08	0.00E+00	0.00E+00	1.28E-08
0002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E-08	0.00E+00	0.00E+00	3.59E-08
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.86E-08	0.00E+00	0.00E+00	8.86E-08
0004	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-08	0.00E+00	0.00E+00	1.66E-08
0005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-07	0.00E+00	0.00E+00	2.36E-07
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.22E-08	0.00E+00	0.00E+00	4.22E-08
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.89E-07	0.00E+00	0.00E+00	3.89E-07
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-08	0.00E+00	0.00E+00	8.10E-08
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-08	0.00E+00	0.00E+00	5.06E-08
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-07	0.00E+00	0.00E+00	1.28E-07
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-08	0.00E+00	0.00E+00	2.94E-08
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-08	0.00E+00	0.00E+00	2.09E-08
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-08	0.00E+00	0.00E+00	1.95E-08
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-08	0.00E+00	0.00E+00	2.41E-08
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-08	0.00E+00	0.00E+00	3.90E-08
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.72E-07	0.00E+00	0.00E+00	2.72E-07

APPENDIX D

Noise Modeling Data

Fleet Distribution (by Vehicle Type and Temporal) for Non-Project Traffic under Existing, Baseline 2010 Conditions, and Baseline 2030 Conditions

Caltrans Vehicle Type Distribution

Highway Segment	Vehicle AADT Total	Truck AADT Total (by # of axles) 2	3	4	5+
State Route 140	9700	91	157	27	74

The fleet distrubtion (i.e, vehicle type) is based on Caltrans vehcile counts along SR 140 west of Santa Fe Avenue.
California Department of Transportation (Caltrans). 2006 (November). *2005 Annual Average Daily Truck Traffic on the California State Highway System*. Available at <http://traffic-counts.dot.ca.gov/truck2005final.pdf>.

This distribution of vehicle type is used for all roadway segments in the traffic study area of the project.

Default TNM Fleet Distribution

	Day	Evening	Night	Total
Autos	75.51	12.57	9.34	97.42
Medium Trucks	1.56	0.09	0.19	1.84
Heavy Trucks	0.64	0.02	0.08	0.74
Total (Temporal Distr)	77.71	12.68	9.61	100.00

The temporal distribution is based on the default distribution of the TNM model.

Temporal and Fleet Distribution used in TNM for Traffic Noise Estimates

Auto				Medium Truck				Heavy Truck				Tot.%
Total	day	eve	night	Total	day	eve	night	Total	day	eve	night	(cross chk)
96.40	**74.721**	**12.439**	**9.242**	0.94	**0.795**	**0.046**	**0.097**	2.66	**2.300**	**0.072**	**0.288**	100.00

Temporal Distributon of Employee Trips (in passenger vehicles)

Number of Employees by Shift (according to Project Description)

Tuesday-Friday 5:30 a.m.-4:00 p.m.	359
Tuesday-Friday 4:00 p.m.-2:30 a.m.	255
Tuesday-Friday 9:00 p.m.-7:30 a.m.	19
Sat-Mon 5:30 a.m.-4:00 p.m., plus another designated 6-hr day	282
Sat-Mon 4:00 p.m.-2:30 a.m., plus another designated 6-hr day	272
Sat-Mon 9:00 p.m.-7:30 a.m., plus another designated 6-hr day	13
Total Employees	1,200

This temporal distribution is used for the employee commute trips in passenger vehicles generated by the project.

Hourly Distribution of Employee Commute Trips According to Shift Change Times

	Tuesday - Friday			Saturday - Monday			Summary	
Hr of Day	Arrival	Depature	TNM Split	Arrival	Depature	TNM Split	Weekly Tot.	%
0:00								
1:00								
2:00		255			272			
3:00								
4:00								
5:00	359			282				
6:00			Daytime			Daytime	Daytime (7AM - 7PM)	
7:00		19	633		13	567	1200	50%
8:00								
9:00								
10:00								
11:00								
12:00								
13:00								
14:00								
15:00	255			272				
16:00		359			282			
17:00								
18:00								
19:00			Evening			Evening	Evening (7PM - 10 PM)	
20:00	19		19	13		13	32	1%
21:00								
22:00			Night			Night	Night (10PM - 7AM)	
23:00			614			554	1168	49%

Total/Crosscheck	
Trips	%
2400	100%

Summary of Truck Counts at Truck Gate at Apple Valley Facility on

	# Trucks		
Time	**Ingress**	**Egress**	**Total for Hour**
0:00	6	5	11
1:00	5	4	9
2:00	4	2	6
3:00	3	4	7
4:00	5	5	10
5:00	14	5	19
6:00	16	10	26
7:00	23	9	32
8:00	22	15	37
9:00	20	28	48
10:00	22	20	42
11:00	26	21	47
12:00	25	17	42
13:00	19	15	34
14:00	19	11	30
15:00	28	20	48
16:00	16	9	25
17:00	17	24	41
18:00	14	9	23
19:00	24	20	44
20:00	9	12	21
21:00	11	4	15
22:00	10	5	15
23:00	7	4	11
Daily Total	365	278	643

The above data was also used to estimate the temporal distribution of truck emissions in the Health Risk Assessment.

Consolidated Summary for TNM

	Daily Total/ Crosscheck	Day (7am - 7pm)	Evening (7pm - 10pm)	Night (10pm - 7am)
Number of Trucks	643	449	80	114
% of Daily Trucks	100%	53%	13%	34%

SR140 between SR99 and Parsons Avenue

Existing Conditions

```
  RUN NAME: SR140 BTWN SR99 AND PARSONS AVE        RUN DATE: 28 FEBRUARY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  12300     SPEED:  35     ACTIVE HALF WIDTH (FT):  12
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  67.84586334228516

DO YOU WANT A HARD COPY? (Y/N)
```

SR140 between SR99 and Parsons Avenue

Baseline 2010 No Project Conditions

```
  RUN NAME: SR140 BTWN SR99 AND PARSONS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  19500     SPEED:  35     ACTIVE HALF WIDTH (FT):  12
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  69.83570098876953

DO YOU WANT A HARD COPY? (Y/N)
```

SR140 between SR99 and Parsons Avenue

Baseline 2010 + Project

```
  RUN NAME: SR140 BTWN SR99 AND PARSONS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.30      12.32      9.49
M-TRUCKS
      0.79      0.05       0.10
H-TRUCKS
      2.45      0.11       0.40

ADT:  19705     SPEED:  35     ACTIVE HALF WIDTH (FT):  12
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.47219085693359

DO YOU WANT A HARD COPY? (Y/N)
```

SR140 between SR99 and Parsons Avenue

Baseline 2030 No Project Conditions

```
  RUN NAME: SR140 BTWN SR99 AND PARSONS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44      9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  19700     SPEED:  35     ACTIVE HALF WIDTH (FT):  12
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  69.88001251220703

DO YOU WANT A HARD COPY? (Y/N)
```

SR140 between SR99 and Parsons Avenue

Baseline 2030 + Project

```
  RUN NAME: SR140 BTWN SR99 AND PARSONS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.30      12.32      9.49
M-TRUCKS
      0.79      0.05       0.10
H-TRUCKS
      2.45      0.11       0.40

ADT:  19905     SPEED:  35     ACTIVE HALF WIDTH (FT):  12
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.51605224609375

DO YOU WANT A HARD COPY? (Y/N)
```

Existing Conditions

RUN NAME: SR140 BTWN PARSONS AVE AND SANTA FE AVE RUN DATE: 28 FEBRUARY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9300 SPEED: 40 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.83248901367188

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: SR140 BTWN PARSONS AVE AND SANTA FE AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 15500 SPEED: 40 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.03975677490234

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: SR140 BTWN PARSONS AVE AND SANTA FE AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.34	12.36	9.31
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.51	0.13	0.43

ADT: 15607 SPEED: 40 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.75669097900391

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: SR140 BTWN PARSONS AVE AND SANTA FE AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 15500 SPEED: 40 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.03975677490234

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: SR140 BTWN PARSONS AVE AND SANTA FE AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.25	12.32	9.46
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.50	0.13	0.43

ADT: 15666 SPEED: 40 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.77957153320312

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: PARSONS AVE BTWN SR140 AND CHILDS AVE RUN DATE:
28 FEBRUARY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.4642333984375

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: PARSONS AVE BTWN SR140 AND CHILDS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 8700 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.03553771972656

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

```
  RUN NAME: PARSONS AVE BTWN SR140 AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.45      12.31       9.68
M-TRUCKS
      0.79      0.05        0.10
H-TRUCKS
      2.27      0.07        0.28

ADT:  8798     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  67.06760406494141

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: PARSONS AVE BTWN SR140 AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  8100     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  66.72520446777344

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: PARSONS AVE BTWN SR140 AND CHILDS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.60	12.39	9.43
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.29	0.07	0.29

ADT: 8139 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 66.76521301269531

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: PARSONS AVE BTWN CHILDS AVE AND GERARD AVE RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4600 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 63.41624069213867

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: PARSONS AVE BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9900 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.59667205810547

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: PARSONS AVE BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9900 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.60806274414062

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: PARSONS AVE BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.55258178710938

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: PARSONS AVE BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.56396484375

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: CHILDS AVE BTWN SR99 AND PARSONS AVE RUN DATE:
01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 10700 SPEED: 35 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 66.44566345214844

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: CHILDS AVE BTWN SR99 AND PARSONS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 23000 SPEED: 35 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.55260467529297

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: CHILDS AVE BTWN SR99 AND PARSONS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.55	12.36	9.51
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.28	0.07	0.29

ADT: 23158 SPEED: 35 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.60243225097656

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: CHILDS AVE BTWN SR99 AND PARSONS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 29800 SPEED: 35 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.67744445800781

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: CHILDS AVE BTWN SR99 AND PARSONS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.59	12.38	9.45
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.29	0.07	0.29

ADT: 29958 SPEED: 35 ACTIVE HALF WIDTH (FT): 12
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.72086334228516

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: CHILDS AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE:
01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 6000 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.57012939453125

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: CHILDS AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 16500 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 69.81507873535156

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: CHILDS AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.34	12.27	9.84
M-TRUCKS	0.78	0.05	0.10
H-TRUCKS	2.27	0.07	0.28

ADT: 16756 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 69.87550354003906

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: CHILDS AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 23500 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.35086059570312

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: CHILDS AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.52	12.35	9.57
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.28	0.07	0.29

ADT: 23697 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.41165161132812

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: CHILDS AVE BTWN COFFEE ST AND KIBBY RD RUN DATE:
01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4000 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.00989532470703

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: CHILDS AVE BTWN COFFEE ST AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 9500 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.61817932128906

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: CHILDS AVE BTWN COFFEE ST AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	73.97	12.10	10.44
M-TRUCKS	0.77	0.04	0.09
H-TRUCKS	2.23	0.07	0.28

ADT: 9798 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.79998779296875

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: CHILDS AVE BTWN COFFEE ST AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 13100 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 73.01361083984375

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: CHILDS AVE BTWN COFFEE ST AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.35	12.27	9.83
M-TRUCKS	0.78	0.05	0.10
H-TRUCKS	2.27	0.07	0.28

ADT: 13297 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 73.09977722167969

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: COFFEE ST BTWN BAKER DR AND CHILDS AVE RUN DATE:
01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 2800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 61.26031875610352

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: COFFEE ST BTWN BAKER DR AND CHILDS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 5900 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 65.34892272949219

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

```
  RUN NAME: COFFEE ST BTWN BAKER DR AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.55      12.36      9.52
M-TRUCKS
      0.79      0.05       0.10
H-TRUCKS
      2.28      0.07       0.29

ADT:  5942     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  65.40065002441406

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: COFFEE ST BTWN BAKER DR AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44      9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  4900     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  64.54239654541016

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: COFFEE ST BTWN BAKER DR AND CHILDS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4900 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.55377960205078

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: COFFEE ST BTWN CHILDS AVE AND GERARD AVE RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 2000 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 59.79909515380859

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: COFFEE ST BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 11100 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 68.09353637695312

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

```
  RUN NAME: COFFEE ST BTWN CHILDS AVE AND GERARD AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  11100     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  68.10491943359375

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: COFFEE ST BTWN CHILDS AVE AND GERARD AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  17500     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.07061004638672

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: COFFEE ST BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 17500 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.08199310302734

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: GERARD AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 700 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 55.23994064331055

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: GERARD AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 3700 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 63.32249450683594

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: GERARD AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 3700 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 63.33388137817383

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: GERARD AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.45285034179688

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: GERARD AVE BTWN PARSONS AVE AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 4800 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.4642333984375

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: GERARD AVE BTWN COFFEE ST AND CAMPUS PKWY RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 300 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 53.84856796264648

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: GERARD AVE BTWN COFFEE ST AND CAMPUS PKWY RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 1500 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 61.68980407714844

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

```
  RUN NAME: GERARD AVE BTWN COFFEE ST AND CAMPUS PKWY        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  1500     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  61.70069122314453

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: GERARD AVE BTWN COFFEE ST AND CAMPUS PKWY        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  8900     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  69.42251586914062

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: GERARD AVE BTWN COFFEE ST AND CAMPUS PKWY RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 8900 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 69.43340301513672

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

```
  RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST        RUN DATE: 01 MARCH 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  1400     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  60.53839492797852

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 No Project Conditions

```
  RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  4500     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  66.46084594726562

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  4500     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  66.47173309326172

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  10700    SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.22241973876953

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 10700 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.23331451416016

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: CHILDS AVE BTWN KIBBY RD AND TOWER RD RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 2500 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 64.96876525878906

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: CHILDS AVE BTWN KIBBY RD AND TOWER RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 6000 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 69.62252807617188

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: KIBBY RD BTWN SR140 AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 6000 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 69.6329345703125

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: CHILDS AVE BTWN KIBBY RD AND TOWER RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 12400 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 72.77512359619141

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: CHILDS AVE BTWN KIBBY RD AND TOWER RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 12400 SPEED: 55 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 72.7855224609375

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

```
  RUN NAME: BAKER DR BTWN SR140 AND COFFEE ST        RUN DATE: 01 MARCH 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  1800     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  59.34153366088867

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 No Project Conditions

```
  RUN NAME: BAKER DR BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  5100     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  64.71613311767578

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: BAKER DR BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.52      12.35       9.56
M-TRUCKS
      0.79      0.05        0.10
H-TRUCKS
      2.28      0.07        0.29

ADT:  5142     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  64.77545166015625

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: BAKER DR BTWN SR140 AND COFFEE ST        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  10200    SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  67.726318359375

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: BAKER DR BTWN SR140 AND COFFEE ST RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 10200 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 67.73770141601562

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

RUN NAME: TOWER RD BTWN CHILDS AVE AND GERARD AVE RUN DATE: 01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 200 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 52.08771896362305

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: TOWER RD BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 300 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 54.70035171508789

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: TOWER RD BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	54.97	5.21	30.78
M-TRUCKS	0.28	0.02	0.03
H-TRUCKS	4.93	1.03	2.74

ADT: 838 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 65.15599060058594

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: TOWER RD BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 300 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 54.70035171508789

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: TOWER RD BTWN CHILDS AVE AND GERARD AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	59.59	5.64	33.37
M-TRUCKS	0.31	0.02	0.04
H-TRUCKS	0.89	0.03	0.11

ADT: 773 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 59.39652633666992

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

```
  RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE        RUN DATE: 01 MARCH 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  100     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  49.0775260925293

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 No Project Conditions

```
  RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  200     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  52.93950271606445

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	52.41	4.37	32.95
M-TRUCKS	0.23	0.01	0.03
H-TRUCKS	5.55	1.22	3.23

ADT: 703 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 50 FT** FROM CL WITHOUT BARRIER: 64.11972808837891

DO YOU WANT A HARD COPY? (Y/N)

RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE RUN DATE: 11 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	52.41	4.37	32.95
M-TRUCKS	0.23	0.01	0.03
H-TRUCKS	5.55	1.22	3.23

ADT: 703 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 75 FT** FROM CL WITHOUT BARRIER: 61.43069458007812

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

```
  RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  300     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  54.70035171508789

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

```
  RUN NAME: TOWER RD BTWN SR140 AND CHILDS AVE        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     60.05       5.85      32.64
M-TRUCKS
      0.32      0.02        0.04
H-TRUCKS
      0.94      0.03        0.12

ADT:  738     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  59.19247817993164

DO YOU WANT A HARD COPY? (Y/N)
```

Existing Conditions

RUN NAME: SR140 BTWN SANTA FE AVE AND KIBBY RD RUN DATE:
01 MARCH 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 7900 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 68.05311584472656

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: SR140 BTWN SANTA FE AVE AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 7900 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 68.90489959716797

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: SR140 BTWN SANTA FE AVE AND KIBBY RD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	73.85	12.22	9.59
M-TRUCKS	0.78	0.05	0.10
H-TRUCKS	2.68	0.18	0.56

ADT: 8052 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.14003753662109

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: SR140 BTWN SANTA FE AVE AND KIBBY ROD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 12000 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.72038269042969

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: SR140 BTWN SANTA FE AVE AND KIBBY ROD RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.54	12.36	9.53
M-TRUCKS	0.79	0.05	0.10
H-TRUCKS	2.28	0.07	0.29

ADT: 12087 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 70.77812957763672

DO YOU WANT A HARD COPY? (Y/N)

Existing Conditions

```
  RUN NAME: SR140 BTWN KIBBY RD AND TOWER ROAD        RUN DATE: 01 MARCH 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  7400     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  67.76917266845703

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 No Project Conditions

```
  RUN NAME: SR140 BTWN KIBBY RD AND TOWER ROAD        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  9700     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  69.79631805419922

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: 12.21        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     73.59      12.07      10.22
M-TRUCKS
      0.77      0.04       0.09
H-TRUCKS
      2.57      0.15       0.50

ADT:  10028     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.88407135009766

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: SR140 BTWN KIBBY RD AND TOWER ROAD        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  13300     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  71.16706848144531

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

RUN NAME: 12.21 RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.24	12.22	10.01
M-TRUCKS	0.78	0.04	0.09
H-TRUCKS	2.26	0.07	0.28

ADT: 13563 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 71.25581359863281

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN GERARD AVE AND COFFEE ST
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44      9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  2100     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  59.08477783203125

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN GERARD AVE AND COFFEE ST
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     56.27      7.49       18.35
M-TRUCKS
      0.46      0.03       0.06
H-TRUCKS
      9.70      2.10       5.54

ADT:  3660     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.44304656982422

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN GERARD AVE AND COFFEE ST
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44      9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  22900     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  69.46055603027344

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN GERARD AVE AND COFFEE ST
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.24      12.28      9.65
M-TRUCKS
      0.78      0.05       0.10
H-TRUCKS
      2.42      0.11       0.38

ADT:  23221     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  70.03177642822266

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 No Project Conditions

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44      9.24
M-TRUCKS
      0.80      0.05       0.10
H-TRUCKS
      2.30      0.07       0.29

ADT:  2200     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  59.28680419921875

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     71.77      11.11      13.95
M-TRUCKS
      0.70      0.04       0.09
H-TRUCKS
      2.03      0.06       0.25

ADT:  2498     SPEED:  35     ACTIVE HALF WIDTH (FT):  24
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  59.84223556518555

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 17400 SPEED: 35 ACTIVE HALF WIDTH (FT): 24
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 50 FT** FROM CL WITHOUT BARRIER: 68.26773834228516

DO YOU WANT A HARD COPY? (Y/N)

RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
RUN DATE: 11 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 17400 SPEED: 35 ACTIVE HALF WIDTH (FT): 24
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 288 FT** FROM CL WITHOUT BARRIER: 57.57229232788086

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	71.16	11.48	11.00
M-TRUCKS	0.73	0.04	0.09
H-TRUCKS	3.73	0.46	1.30

ADT: 18960 SPEED: 35 ACTIVE HALF WIDTH (FT): 24
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 50 FT** FROM CL WITHOUT BARRIER: 72.29221343994141

DO YOU WANT A HARD COPY? (Y/N)

RUN NAME: PROPOSED CAMPUS PKWY BTWN CHILDS AVE AND GERARD AVE
RUN DATE: 11 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	71.16	11.48	11.00
M-TRUCKS	0.73	0.04	0.09
H-TRUCKS	3.73	0.46	1.30

ADT: 18960 SPEED: 35 ACTIVE HALF WIDTH (FT): 24
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 288 FT** FROM CL WITHOUT BARRIER: 61.58540725708008

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

RUN NAME: GERARD AVE BTWN CAMPUS PKWY AND SITE ENTRANCE
RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.72	12.44	9.24
M-TRUCKS	0.80	0.05	0.10
H-TRUCKS	2.30	0.07	0.29

ADT: 600 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 57.71054458618164

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 + Project

RUN NAME: GERARD AVE BTWN CAMPUS PKWY AND SITE ENTRANCE RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	44.26	3.73	27.58
M-TRUCKS	0.19	0.01	0.02
H-TRUCKS	13.05	3.08	8.08

ADT: 2458 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 50 FT** FROM CL WITHOUT BARRIER: 72.87919616699219

DO YOU WANT A HARD COPY? (Y/N)

RUN NAME: GERARD AVE BTWN CAMPUS PKWY AND SITE ENTRANCE RUN DATE: 11 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

AUTOS
44.26 3.73 27.58
M-TRUCKS
0.19 0.01 0.02
H-TRUCKS
13.05 3.08 8.08

ADT: 2458 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL **AT 95 FT** FROM CL WITHOUT BARRIER: 68.62528991699219

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 No Project Conditions

RUN NAME: GERARD AVE BTWN CAMPUS PKWY AND SITE ENTRANCE
RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- ------- -----
AUTOS
74.72 12.44 9.24
M-TRUCKS
0.80 0.05 0.10
H-TRUCKS
2.30 0.07 0.29

ADT: 1400 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 61.39017868041992

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2030 + Project

RUN NAME: GERARD AVE BTWN CAMPUS PKWY AND SITE ENTRANCE
RUN DATE: 10 JULY 2007

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	51.91	6.32	20.51
M-TRUCKS	0.38	0.02	0.05
H-TRUCKS	11.45	2.58	6.78

ADT: 2961 SPEED: 45 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER: 73.80768585205078

DO YOU WANT A HARD COPY? (Y/N)

Baseline 2010 No Project Conditions

```
  RUN NAME: GERARD AVE BTWN SITE ENTRANCE AND TOWER RD
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80      0.05        0.10
H-TRUCKS
      2.30      0.07        0.29

ADT:  600     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  57.71054458618164

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2010 + Project

```
  RUN NAME: GERARD AVE BTWN SITE ENTRANCE AND TOWER RD        RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     60.18       7.11      25.10
M-TRUCKS
      0.42      0.02        0.05
H-TRUCKS
      4.24      0.78        2.09

ADT:  1138     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  65.52759552001953

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 No Project Conditions

```
  RUN NAME: GERARD AVE BTWN SITE ENTRANCE AND TOWER RD
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     74.72      12.44       9.24
M-TRUCKS
      0.80       0.05       0.10
H-TRUCKS
      2.30       0.07       0.29

ADT:  800     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  58.95988845825195

DO YOU WANT A HARD COPY? (Y/N)
```

Baseline 2030 + Project

```
  RUN NAME: GERARD AVE BTWN SITE ENTRANCE AND TOWER RD
      RUN DATE: 10 JULY 2007

     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS
     46.10       4.77      23.37
M-TRUCKS
      0.27       0.02       0.03
H-TRUCKS
     13.79       3.22       8.44

ADT:  2363     SPEED:  45     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5

BARRIER TYPE:NONE
CNEL AT 50 FT FROM CL WITHOUT BARRIER:  73.70720672607422

DO YOU WANT A HARD COPY? (Y/N)
```

APPENDIX E

Traffic Impact Study and Traffic Impact Analysis

Traffic Impact Study (DKS)

Merced Wal-Mart Distribution Center Traffic Impact Analysis

Draft Report

Prepared for

City of Merced

By

DKS Associates
1000 Broadway, Suite 450
Oakland, California 94607
(510) 763-2061

February 10, 2009

EXECUTIVE SUMMARY

The purpose of this study is to determine the potential transportation impacts of the proposed Wal-Mart Distribution Center located in the City of Merced. The proposed project consists of approximately 1.1 million square feet of warehouse, a 37,000 square foot office and support facility, a 17,000 square foot truck maintenance building and a 1,600 square foot fire pump house. It is estimated that the Wal-Mart Distribution Center would generate approximately 2,400 net new daily trips with 143 net new AM peak hour trips (87 inbound, 56 outbound) and 328 net new PM peak hour trips (45 inbound, 283 outbound trips).

This report analyzes the traffic conditions of intersection and roadway segments during the weekday A.M. and P.M. peak hours. The operation of these intersections and roadway segments was evaluated for the following scenarios: Existing Condition, 2010 Background Condition, 2010 Background with Project Condition, 2030 Cumulative No Project Condition and 2030 Cumulative with Project Condition. **Tables ES 1-A** and **ES 1-B** provide a summary of the intersection operation Level of Service (LOS). **Tables ES 2-A** and **ES 2-B** provide a summary of the roadway segment operation

It should be noted that under the 2010 Background and 2010 Background with Project Conditions, Campus Parkway was assumed to be constructed between Mission Interchange and Childs Avenue. It was assumed that the corridor would be extended north from Childs Avenue and completed by year 2030 and serve as a main corridor that would carry traffic to the area north of Merced. The traffic travel patterns within the area would, therefore, be different between 2010 Project Condition and 2030 Cumulative Condition.

Based on the analysis results and the threshold criteria, the proposed project would result in one significant transportation impact to the study intersections under the 2030 Cumulative with Project Condition PM peak period due to the development of the Wal-Mart Distribution Center. Additionally, one significant transportation impact to the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road under the 2030 Cumulative with Project Condition PM peak period due to the development of the distribution center.

Existing Condition

Under the Existing Condition, all study intersections and all roadway segments operate at acceptable Level of Services (LOS D or better) during the AM and PM peak hours.

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, four intersections, SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, 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, 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, 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, five intersections, SR 140 at Baker Drive, SR 140 at Kibby Road, Childs Avenue at SR 99 southbound off-ramp, Childs Avenue at SR 99 northbound off-ramp, and Mission Avenue and Coffee Street would all operated at LOS F. 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.

A Caltrans Peak Hour Signal Warrant analysis was performed at all unsignalized intersections. Based on the signal warrant analysis, the intersection of Childs Avenue and SR 99 northbound off-ramp meets the signal warrant under the Existing Condition PM peak hour. In addition, a signal warrant is also satisfied under the 2010 Background Condition at the intersections of SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp. Under the 2030 Cumulative Condition, the signal warrant would also be met at two other intersections, SR 140 and Kibby Road and Mission Avenue at Coffee Street

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

In addition, mitigation measures have been recommended for six intersections as a means to improve level of service from a deficient level, E or F, to an acceptable level of D or better. For the unsignalized intersections that would operate at a deficient Level of Services (LOS E or F), the installation of a traffic signal control (sometimes with lane additions as well) was recommended as an mitigation measure to improve intersection operation to an acceptable level.

One roadway segment, SR 140 between Santa Fe Avenue and Kibby Road, experienced a significant impact in the 2030 Cumulative with Project scenario for the PM peak hour. This impact would be mitigated by adding on lane in each direction in this segment. With the proposed mitigation, this segment would operated under LOS A, fully mitigating this impact resulting in no significant impaces.

Additionally, one mitigation measure is recommended for the roadway segment of Tower Road between SR 140 and Gerard Avenue. Restriping this segment is necessary since the existing striping has faded. In addition, at the intersections of Tower Road and Gerard Avenue and Tower Road and SR 140, intersection geometry should be improved to provide proper turning radii to accommodate the turning movements of standard trucks.

Table ES 1-A
AM Peak Hour Intersection Level of Service Summary

No.	INTERSECTION	Control	Existing		2010 Background Condition		2010 Background with Project Condition		Impact	2030 Cumulative No Project Condition		2030 Cumulative with Project Condition		Impact
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1	SR 140 / Parsons Avenue	Signalized	24.1	C	27.5	C	27.8	C	No	89.8	F	93.1	F	No
2	SR 140 / Baker Drive	Unsignalized	1.8		9.4		10.0		No	5.4		5.8		No
	SB Approach		18.8	C	40.2	E	43.2	E		>50.0 [c]	F	>50.0 [d]	F	
	EB Left		8.9	A	9.2	A	9.2	A		10.2	B	10.3	B	
3	SR 140 / Kibby Road	Unsignalized	3.7		5.2		5.2		No	39.1		46.2		No
	NB Approach		13.7	B	12.2	B	12.5	B		>50.0 [c]	F	>50.0	F	
	SB Approach		12.7	B	14.3	B	15.2	C		>50.0 [c]	F	>50.0	F	
	EB Left		7.8	A	7.8	A	7.9	A		9.6	A	9.6	A	
	WB Left		7.5	A	7.6	A	7.6	A		9.7	A	9.7	A	
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	12.3	B	22.0	C	22.3	C	No	>50.0	F	>50.0	F	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.5	C	>50.0 [c]	F	>50.0	F	No	>50.0	F	>50.0	F	No
6	Childs Avenue / Parsons Avenue	Signalized	33.8	C	46.4	D	46.6	D	No	66.0	E	66.4	E	No
7	Childs Avenue / Coffee Street	AWSC	30.4	C	36.9	D	37.1	D	No	28.6	C	28.6	C	No
8	Childs Avenue / Kibby Road	Unsignalized	3.2		4.2		4.2		No	2.5		2.5		No
	SB Approach		9.4	A	9.9	A	9.9	A		10.3	B	10.3	B	
	EB Left		7.5	A	7.8	A	7.8	A		7.7	A	7.7	A	
9	Childs Avenue / Tower Road	Unsignalized	1.2		1.1		2.5		No	1.2		1.7		No
	NB Approach		9.8	B	10.3	B	10.7	B		11.1	B	11.2	B	
	SB Approach		9.4	A	9.7	A	10.5	B		10.1	B	10.7	B	
	EB Left		7.4	A	7.5	A	7.5	A		7.6	A	7.6	A	
	WB Left		0.0	A	0.0	A	7.4	A		0.0	A	7.5	A	
10	Gerard Avenue / Coffee Street	AWSC	8.3	A	9.7	A	9.8	A	No	9.5	A	9.5	A	No
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9		6.9		No	7.1		7.1		No
	SB Approach		6.5	A	6.5	A	6.5	A		6.7	A	6.6	A	
	EB Left		7.1	A	7.1	A	7.3	A		7.2	A	7.3	A	
12	Childs Avenue / Campus Parkway	Unsig./Signalized	-	-	7.6		7.6		No	27.4	C	27.6	C	No
	NB Approach		-	-	9.3	A	9.3	A						
	WB Left		-	-	7.5	A	7.5	A						
13	Gerard Avenue / Campus Parkway	Signalized	-	-	23.4	C	30.6	C	No	28.8	C	31.0	C	No
14	Mission Avenue / SR 99 Southbound	Signalized	17.8	B	18.3	B	19.2	B	No	20.6	C	21.2	C	No
15	Mission Avenue / SR 99 Northbound	Signalized	24.1	C	29.8	C	27.9	C	No	28.3	C	30.6	C	No
16	Mission Avenue / Coffee Street	AWSC/Signalized	8.1	A	28.5	B	28.8	C	No	37.1	D	37.7	D	No

Source: DKS Associates

Notes: a. Delay = Intersection Average Delay (seconds/vehicle). For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
b. LOS = Level of Service.
c. AWSC = All-way stop control

Table ES 1-B
PM Peak Hour Intersection Level of Service Summary

No.	INTERSECTION	Control	Existing		2010 Background Condition		2010 Background with Project Condition		Impact	2030 Cumulative No Project Condition		2030 Cumulative with Project Condition		Impact
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1	SR 140 / Parsons Avenue	Signalized	24.4	C	47.9	D	49.9	D	No	37.7	D	38.7	D	No
2	SR 140 / Baker Drive	Unsignalized	2.3		13.9		15.3		No	6.1		6.6		No
	SB Approach		20.7	C	>50.0	F	>50.0	F		>50.0	F	>50.0	F	
	EB Left		8.2	A	9.2	A	9.2	A		9.6	B	9.7	A	
3	SR 140 / Kibby Road	Unsignalized	2.3		4.7		4.5		No	3.1		3.3		No
	NB Approach		13.1	B	13.4	B	13.9	B		>50.0	F	>50.0	F	
	SB Approach		12.0	B	16.3	C	17.4	C		36.6	E	44.8	E	
	EB Left		7.6	A	7.7	A	7.8	A		9.1	A	9.2	A	
	WB Left		0.0	A	7.9	A	7.9	A		0.0	A	0.0	A	
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	13.0	B	>50.0	F	>50.0	F	No	>50.0	F	>50.0	F	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.1	C	>50.0	F	>50.0	F	No	>50.0	F	>50.0	F	No
6	Childs Avenue / Parsons Avenue	Signalized	32.0	C	43.1	D	43.3	D	No	61.8	E	64.8	E	No
7	Childs Avenue / Coffee Street	AWSC	22.8	C	33.1	C	34.2	C	No	32.2	C	32.7	C	No
8	Childs Avenue / Kibby Road	Unsignalized	2.0		4.2		4.2		No	1.8		1.8		No
	SB Approach		9.2	A	10.1	B	10.1	B		12.1	B	12.1	B	
	EB Left		7.4	A	7.6	A	7.6	A		7.8	A	7.8	A	
9	Childs Avenue / Tower Road	Unsignalized	0.6		0.6		3.1		No	0.5		2.1		No
	NB Approach		9.6	A	10.4	B	11.7	B		12.8	B	15.0	B	
	SB Approach		9.6	A	9.5	A	10.6	B		12.8	B	13.5	B	
	EB Left		7.3	A	7.5	A	7.5	A		7.7	A	7.7	A	
	WB Left		0.0	A	0.0	A	7.5	A		0.0	A	8.0	A	
10	Gerard Avenue / Coffee Street	AWSC	7.1	A	8.4	A	8.5	A	No	9.8	A	10.0	A	No
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9		7.4		No	7.1		7.5		No
	SB Approach		6.9	A	6.9	A	6.7	A		7.0	A	6.9	A	
	EB Left		7.0	A	7.0	A	7.6	A		7.1	A	7.7	A	
12	Childs Avenue / Campus Parkway	Unsig./Signalized	-	-	3.5		3.7		No	28.0	C	28.4	C	No
	NB Approach		-	-	9.8	A	10.0	A						
	WB Left		-	-	7.5	A	7.5	A						
13	Gerard Avenue / Campus Parkway	Signalized	-	-	23.3	C	34.9	C	No	29.8	C	51.2	D	No
14	Mission Avenue / SR 99 Southbound	Signalized	17.6	B	13.6	B	15.3	B	No	21.5	B	22.1	C	No
15	Mission Avenue / SR 99 Northbound	Signalized	18.6	B	28.5	C	34.6	C	No	39.6	D	55.1	E	**Yes**
16	Mission Avenue / Coffee Street	AWSC	7.8	A	33.3	C	33.4	C	No	45.8	D	48.5	D	No

Source: DKS Associates

Notes: a. Delay = Intersection Average Delay (seconds/vehicle). For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
b. LOS = Level of Service
c. AWSC = All-way stop control

Table ES 2-A
AM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
1	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	12.7	B	18.6	C	18.6	C	17.4	C	17.4	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	12.4	B	16.6	B	17.2	B	18.6	C	19.0	C
2	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	34.9	A	34.7	A	34.6	A	29.2	B	28.9	B
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	34.5	A	32.1	A	32.0	A	32.2	A	32.1	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	39.9	A	39.6	A	39.5	A	39.1	A	39.1	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	38.8	A	38.8	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	68.0	D	68.4	D	69.2	D	82.3	E	82.7	E
3	Parsons Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	34.9	A	34.6	A	34.6	A	34.8	A	34.7	A
			from SR 140 to Childs Ave.	Travel Speed (mi/hr)	34.9	A	34.8	A	34.8	A	34.8	A	34.8	A
4	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	30.0	A	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	30.0	A	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	30.0	A	28.7	A	28.7	A	30.0	A	30.0	A
			from Gerard Ave. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	29.9	A	29.9	A
5	Gerard Avenue	Urban Class III	from Parson Ave. to Coffee Str.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-B
AM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
7	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	34.7	A	34.2	A	34.2	A	30.1	A	30.0	B
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	34.6	A	31.9	A	31.9	A	30.3	A	30.3	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	34.7	A	34.7	A	33.7	A	33.7	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	34.9	A	34.4	A	32.9	A	33.2	A	33.2	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
8	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	34.7	A	35.0	A	35.0	A	35.0	A	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	34.6	A	35.0	A	35.0	A	34.9	A	34.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-C
PM Peak Hour Roadway Segment Level of Service Summary

NO	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
1	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	15.5	B	20.1	C	20.1	C	21.7	C	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	17.4	B	28.4	D	28.7	D	28.7	D	29.0	D
2	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	34.5	A	31.5	A	31.3	A	31.9	A	31.8	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	34.8	A	33.9	A	33.7	A	32.6	A	32.3	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	40.0	A	39.9	A	39.9	A	39.6	A	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	39.9	A	39.7	A	39.7	A	39.6	A	39.5	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	68.0	D	66.5	D	67.5	D	79.8	D	80.5	E
3	Parsons Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	34.9	A	34.7	A	34.7	A	34.9	A	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	35.0	A	34.8	A	34.8	A	34.9	A	34.9	A
4	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	30.0	A	29.9	A	30.0	A	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	30.0	A	30.0	A	30.0	A	30.0	A	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.8	A	29.8	A	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.5	A	29.5	A	30.0	A	30.0	A
5	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-D
PM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
7	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	34.5	A	34.6	A	30.4	A	31.6	A	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	34.9	A	34.1	A	34.0	A	30.1	A	29.7	B
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	32.4	A	32.4	A	34.4	A	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	35.0	A	34.6	A	35.0	A	33.8	A	33.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
8	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	34.5	A	35.0	A	35.0	A	35.0	A	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	35.0	A	35.0	A	34.4	A	33.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

1. INTRODUCTION

The report provides an evaluation of the potential transportation impacts due to the proposed Wal-Mart regional distribution center in the City of Merced. The proposed project consists of a 1.1 million square foot regional distribution warehouse, a 37,000 square foot office and support facility, a 17,000 square foot truck maintenance building and a 1,600 square foot fire pump house. The project site plan is illustrated in **Figure 1**.

The project is located at the southern end of the City of Merced, approximately three miles from downtown and two miles east of State Route 99(SR 99). The project site is bounded by Childs Avenue to the north, Gerard Avenue to the south, Tower Road to the east and approximately a quarter mile east of the future Campus Parkway. Based on the City of Merced General Plan, the project site is designated for "Manufacturing Industrial" land uses and is part of the "Heavy Industrial District".

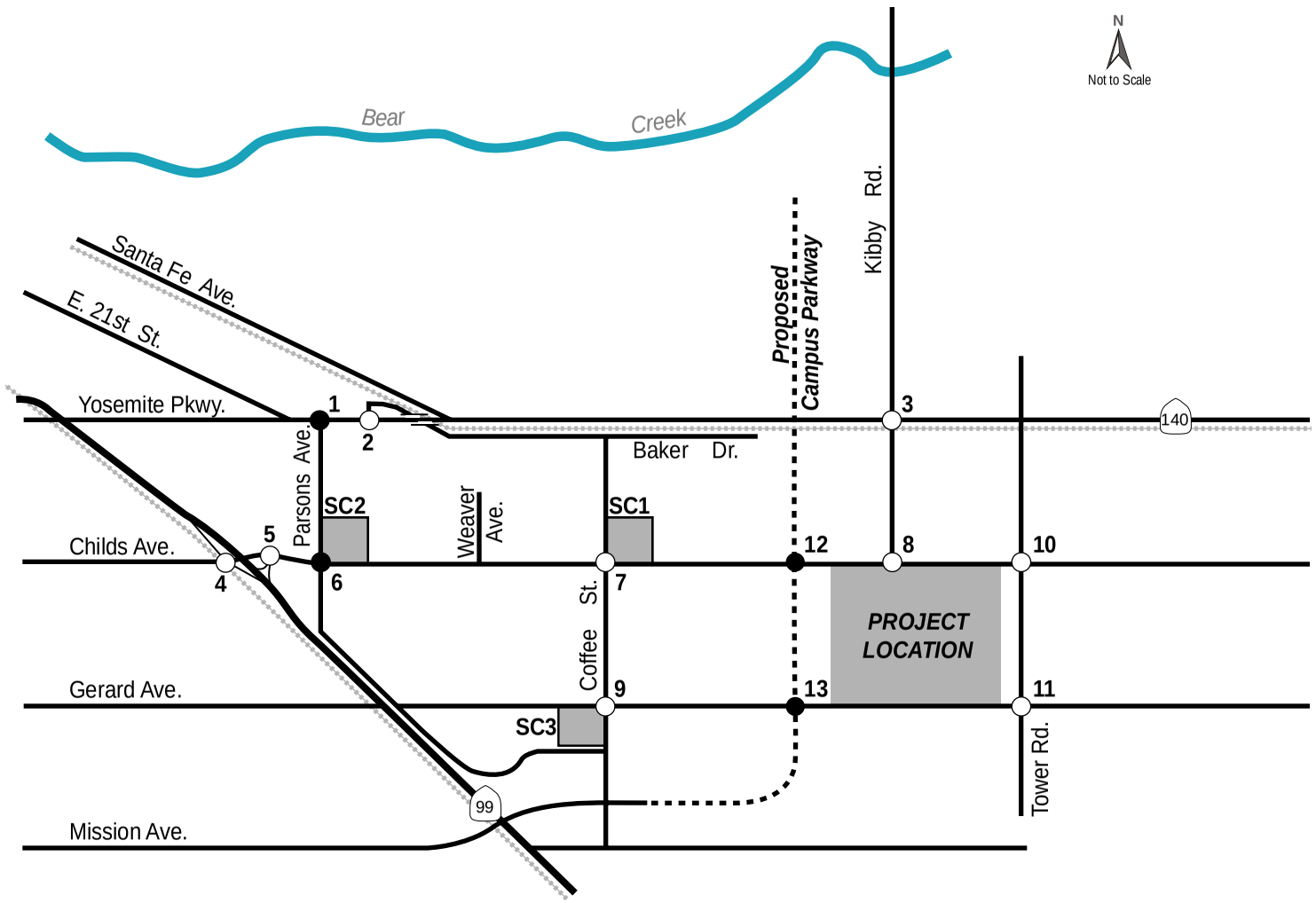
The transportation analysis represented in this study follows review and incorporation, where appropriate, of data provided by the City of Merced, the County of Merced, data collection from WILTEC in October, 2008, and *Traffic Impact Analysis for Merced Distribution Center* report prepared for CARTER & BURGESS, INC. by kdANDERSON Transportation Engineers in June, 2005.

1.1 Analysis Methodology

The following intersections and roadway segments were evaluated to determine the traffic conditions during the weekday AM and PM peak hours. It is assumed that the first phase of Campus Parkway would be built by year 2010 and will connect to the new Mission Interchange and end at Childs Ave. Therefore, the intersections of Childs Avenue at Campus Parkway and Gerard Avenue at Campus Parkway were analyzed only under the future scenarios.

Study Intersections:

1. SR 140 (Yosemite Parkway) / Parsons Avenue
2. SR 140 / Baker Drive
3. SR 140 / Kibby Road
4. Childs Avenue / SR 99 Southbound Off-Ramp
5. Childs Avenue / SR 99 Northbound Off-Ramp
6. Childs Avenue / Parsons Avenue
7. Childs Avenue / Coffee Street
8. Childs Avenue / Kibby Road
9. Childs Avenue / Tower Road
10. Gerard Avenue / Coffee Street
11. Gerard Avenue / Tower Road
12. Mission Avenue / SR 99 Southbound Off-Ramp
13. Mission Avenue / SR 99 Northbound Off-Ramp
14. Mission Avenue / Coffee Street
15. Childs Avenue / Campus Parkway
16. Gerard Avenue / Campus Parkway



X Study Intersection Number
● Signalized Study Intersection
○ Stop-Controlled Study Intersection

SC1 – Golden Valley High School
SC2 – Weaver Elementary School
SC3 – Pioneer Elementary School

06120-000•Merced Base Map.ai•10/2/07

DKS *Associates*
TRANSPORTATION SOLUTIONS

Figure 1
Study Locations and Project Location

Roadway and Freeway Segments:

1. SR 99 between SR 140 and Mission Avenue
2. SR 140 between SR 99 and Parsons Avenue
3. SR 140 between Parsons Avenue and Santa Fe Avenue
4. SR 140 between Santa Fe Avenue and Kibby Road
5. Parsons Avenue between Childs Avenue and SR140
6. Coffee Street between Baker Drive and Childs Avenue
7. Coffee Street between Childs Avenue to Gerard Avenue
8. Gerard Avenue between Parsons Avenue and Coffee Street
9. Gerard Avenue between Coffee Street to project site
10. Kibby Road between SR 140 and Childs Avenue
11. Childs Avenue between SR-99 and Parsons Avenue
12. Childs Avenue between Parsons Avenue and Coffee Street
13. Childs Avenue between Coffee Street and Kibby Road
14. Childs Avenue between Kibby Road and Tower Road
15. Campus Parkway between Coffee Street and Gerard Avenue
16. Campus Parkway between Gerard Avenue and Childs Avenue
17. Campus Parkway between Childs Avenue and SR-140

Intersections and roadway segments were evaluated for the following traffic scenarios:

Existing Condition – Operation analysis based on existing peak hour volumes and intersection and roadway segment lane geometry.

2010 Background Condition – Based on forecasted 2010 traffic volumes plus net-new trips related to approved residential projects in the vicinity of the proposed project.

2010 Background with Project Condition – 2010 Background Condition plus project-generated traffic estimated for the Wal-Mart Distribution Center project.

2030 Cumulative No Project Condition – Based on growth factors estimated from the County of Merced's Transportation Demand Model plus net-new trips related to approved residential project in the vicinity of the proposed project.

2030 Cumulative with Project Condition – 2030 Cumulative No Project Condition plus project generated traffic estimated for the Wal-Mart Distribution Center.

1.2 Project Trip Generation

The project trip generation was estimated based on a week-long trip generation survey conducted at the Wal-Mart distribution center in Apple Valley, San Bernardino County, in August 2006. It was assumed the number of trips generated by the project is proportional to the total number of employees.

1.3 Data Collection

1.3.1 Peak Hour Traffic Volumes

Intersection Volumes: Intersection turning movement volumes for the study intersections for the AM and PM peak hours were obtained from vehicle turning movement counts conducted by WILTEC in September, 2008. AM and PM peak hours were included for analysis since it is expected that daily staff shift changes will occur during these two periods. It should be noted that local schools were in session when the data were collected.

Freeway Volumes: Existing peak hour traffic volumes on SR 99 were obtained from the California Department of Transportation (Caltrans), District 10. The counts were conducted in August, 2005.

1.3.2 Trip Generation Survey at Existing Wal-Mart Distribution Center

A trip generation survey was conducted at the Wal-Mart distribution center in Apple Valley, San Bernardino County between August 9, 2006 and August 15, 2006. Based on the information obtained from Wal-Mart Stores, Inc., this distribution center currently has 1,201 employees including associates and drivers. **Table 1** summarizes the number of daily and peak hour trips automobile and truck trips entering and exiting the distribution center. The number of employees was used as the factor to determine the trip generation at Merced Wal-Mart Distribution Center.

Table 1
Surveyed Trip Generation
Wal-Mart Distribution Center in Apple Valley

	Daily Trips			AM (7:00-9:00 AM)			PM (4:00-6:00 PM)		
Direction	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**
Inbound	365	846	**1211**	32	55	**87**	20	25	**45**
Outbound	278	910	**1188**	28	28	**56**	24	259	**283**
Total	643	1756	**2399**	60	83	**143**	44	284	**328**

Source: DKS Associates, August 2006

1.3.3 Intersection and Roadway Configuration

Site visits were conducted during the month of October 2008 to confirm lane configurations and traffic control at study intersections and roadway segments.

1.4 Level of Service Calculations

The Level of Service (LOS) at the selected study intersections and roadway segments was determined based on methodology described below.

1.4.1 Intersection Level of Service

The analysis of intersection Level of Service (LOS) was conducted using the *TRAFFIX* analysis program. The analysis uses procedures from the 2000 Transportation Research Board *Highway Capacity Manual* (HCM) method for signalized intersections. The correlation between average stopped delay and level of service for both signalized and unsignalized intersections is shown in **Table 2**.

Table 2
Signalized and Unsignalized Intersection LOS Thresholds

Level of Service	Vehicle Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized Intersections [a]	
A	Delay ≤ 10.0	Delay ≤ 10.0	Free Flow/Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.
B	10 < Delay ≤ 20.0	10.0 < Delay ≤ 15.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers design to feel somewhat restricted within platoon of vehicles.
C	20.0 < Delay ≤ 35.0	15.0 < Delay ≤ 25.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	35.0 < Delay ≤ 55.0	25.0 < Delay ≤ 35.0	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	55.0 < Delay ≤ 80.0	35.0 < Delay ≤ 50.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues from upstream from intersection.
F	Delay > 80.0	Delay > 50.0	Forced flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Transportation Research Board, Special Report 209, Highway Capacity Manual 2000, Chapters 16, Exhibit 16-2 and Chapter 17, Exhibit 17-2.

Note: a. For a two-way stop controlled intersection, the Level of Service is based on the delay at the worst approach.

1.4.2 Roadway Segment Level of Service

Roadway segment analysis was conducted using Highway Capacity Software (HCS 2000). The analysis uses procedures from the 2000 Transportation Research Board *Highway Capacity Manual* (HCM) methods. Three types of roadway facilities and Measure of Effectiveness (MOE) were used to determine Level of Services as described below:

Two-lane highway: an undivided roadway with two lanes, one for use by traffic in each direction. Passing a slower traffic requires use of the opposing lane as sight distance and gaps in the opposing traffic stream permit. The Level of Service of a two-lane highway is determined based on the percentage of percent time vehicles spent following the vehicle ahead and average travel speed.

Urban Street: a roadway serving as collector street and local arterial. An urban street is occasionally interrupted by control at the intersections. The Level of Service of an urban street is determined based on average through-vehicle travel speed for the segment.

Freeway Segment: a divided highway with full control of access and without signalized or stop-controlled at-grade intersections. The Level of Service of a freeway segment is determined based on the density in terms of passenger cars per mile per lane.

Tables 3 through 5 list the correlation between MOE's and LOS for each type of roadway facilities.

Table 3
Two-Lane Highway LOS Thresholds

Two-Lane Highway Class	Class I		Class II
Level of Service	Percent Time-Spent - Following	Average Travel Speed mph	Percent Time-Spent - Following
A	≤ 35	> 55	≤ 40
B	< 35-50	> 50-55	> 40-55
C	< 50-65	> 45-50	> 55-70
D	< 65-80	> 40-45	> 70-85
E	> 80	≤ 40	> 85
F	The flow rate exceeds the segment capacity		

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 20, Exhibit 20-2 and Exhibit 20-4.

Table 4
Urban Street LOS Thresholds

Urban Street Class	Class I	Class II	Class III	Class IV
Range of Free-Flow Speed	55 to 45 mph	45 to 35 mph	35 to 30 mph	35 to 25 mph
Typical	50 mph	40 mph	35 mph	30 mph
Level of Service	Average Travel Speed (mph)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 15, Exhibit 15-2.

Table 5
Basic Freeway Segment LOS Thresholds

Level of Service	Density Range (passenger car/mile/lane)
A	0-11
B	> 11-18
C	> 18-26
D	> 26-35
E	> 35-45
F	>45

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 23.

2. EXISTING CONDITION

The following section presents an analysis of the existing conditions of various transportation system components.

2.1 Roadway Network

State Route 99 (SR 99) runs in the northwest-southeast direction through the City of Merced. It is a major regional freeway that runs parallel with Interstate 5 (I-5), serving both local and regional traffic. The north end of the freeway connects with I-5 in Red Bluff and the south end connects with I-5 in Bakersfield. Within the County of Merced, SR 99 carries a traffic volume of approximately 63,000 vehicles per day. The project site is located approximately two miles east of SR 99.

State Route 140 (SR 140/Yosemite Parkway) is a two-lane highway running in the east-west direction from the City of Merced to Yosemite National Park. A study segment of SR 140 between SR 99 and Santa Fe Avenue is classified as urban roadway. Currently, SR 140 between SR 99 and Parsons Avenue carries a traffic volume of approximately 12,300 vehicles per day. The project site is located approximately half a mile south of SR 140.

Childs Avenue is an urban street serving as a minor arterial road and includes one lane in each direction between SR 59, west of SR 99, to east of the Specific Urban Development Plan boundary, east of Tower Road. Childs Avenue runs in the east-west direction between West Avenue (west of SR 99) and Cunningham Road beyond the city's east boundary. Between SR 99 and Parson Avenue, Childs Avenue carries a traffic volume of approximately 10,700 vehicles per day. The project site is located immediately south of Childs Avenue.

Gerard Avenue is an urban street serving as a minor arterial road and includes one lane in each direction. Gerard Avenue runs in the east-west direction starting west of SR 99 in Merced and ending in Planada. Gerard Avenue terminates just west of SR 99 and continues east of SR 99. Gerard Avenue carries a traffic volume of approximately 3,900 vehicles per day between Parsons Avenue and Coffee Street. The project site is located immediately north of Gerard Avenue.

Mission Avenue is divided arterial and includes two lanes in each direction. Mission Avenue runs in the east-west direction starting west of SR 140 and ends at Coffee Street. It carries a traffic volume of approximately 1,800 vehicles per day between SR 99 and Coffee Street. The project site is located approximately one and a half mile north and east of Mission Avenue. The interchange at Mission Avenue and SR 99 and extension of Mission Avenue to Coffee Street opened in the summer of 2008.

Parsons Avenue is an urban street serving as a minor arterial road from Childs Avenue north to Old Lake Road and as a collector from Childs Avenue south to Coffee Road. and includes one lane in each direction. Parsons Avenue runs in the north-south direction between SR 140 and Gerard Avenue. It carries a traffic volume of approximately 4,600 vehicles per day between

Childs Avenue and Gerard Avenue. The project site is located approximately one and a half mile east of Parsons Avenue.

Coffee Street is an urban street serving as a local collector road and includes one lane in each direction. Coffee Street runs in the north-south direction between Baker Drive and Mission Avenue. However, there is a short interruption in the street grid between Gerard Avenue and South Parsons Avenue. It carries a traffic volume of approximately 2,000 vehicles per day between Childs Avenue and Gerard Avenue. The project site is located approximately one mile east of Coffee Street.

Kibby Road is a rural street serving as a local collector road and includes one lane in each direction. Kibby Road runs in the north-south direction between Childs Avenue and Yosemite Avenue. It carries a traffic volume of approximately 1,400 vehicles per day. The project site is located approximately immediately south of Kibby Road.

Tower Road is a two-lane rural street running in the north-south direction. The road connects to SR 140 on the north and to Gerard Avenue. on the south. Tower Road currently carries approximately 200 vehicles per day. The project site is located west of and adjacent to Tower Road.

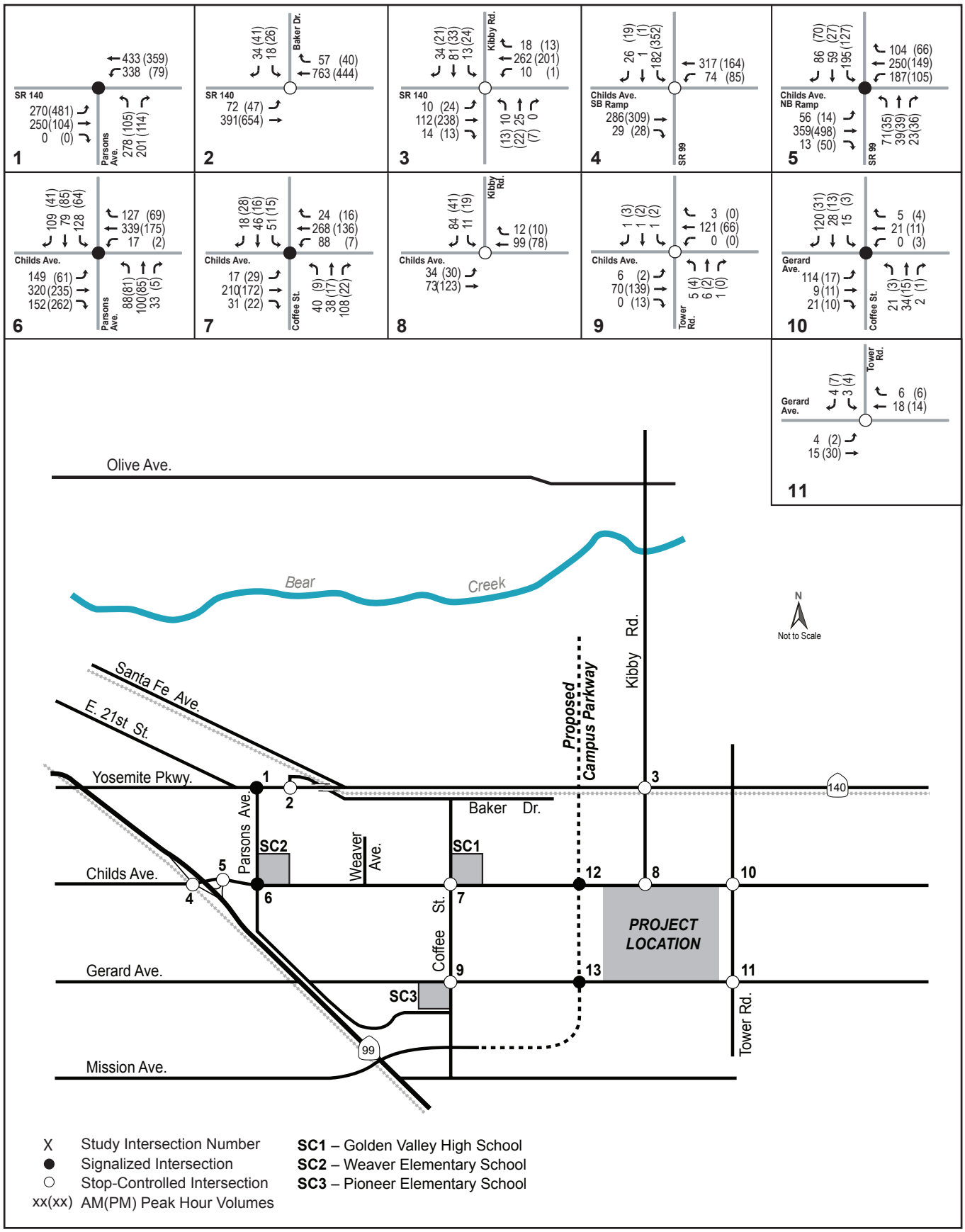
Baker Drive is a two-lane rural street serving as a local road. Baker Drive is oriented east to west connecting SR 140 on the west and Coffee Street on the east. The road carries approximately 1,000 vehicles per day. The project site is located roughly 0.7 mile east of Baker Drive.

2.2 Existing Intersection Operating Conditions

Level of service calculations were performed for the weekday AM and PM peak hours. The AM peak hour is the highest one-hour between 7:00 and 9:00 AM. The PM peak hour is the highest one-hour traffic volume between 4:00 and 6:00 PM. **Figure 2** illustrates the existing intersection traffic volumes at each study intersection. **Table 6** summarizes the results of the intersection level of service for the existing condition. Based on the LOS results, all study intersections operate at an acceptable LOS D or better. **Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

2.3 Existing Roadway Segment Operating Conditions

Based on the classification of the roadway segments described in section 2.1, eight roadway segments including freeway, state highway and urban street were evaluated for the existing AM and PM peak hour operating conditions. **Table 7** provides a summary of the roadway segments operational condition under the Existing Condition. As shown in **Table 7** all roadway segments currently operate at or above LOS D. Detailed Level of Service calculations are contained in **Appendix A**.



P06120-000-Merced Exist Vols.ai•10/2/07

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 2
Existing Condition
Weekday Peak Hour Intersection Volumes

Table 6
Existing Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	24.1	C	24.4	C
2	SR 140 / Baker Drive	Unsignalized	1.8		2.3	
	SB Approach		18.8	C	20.7	C
	EB Left		8.9	A	8.2	A
3	SR 140 / Kibby Road	Unsignalized	3.7		2.3	A
	NB Approach		13.7	B	13.1	B
	SB Approach		12.7	B	12.0	B
	EB Left		7.8	A	7.6	A
	WB Left		7.5	A	0.0	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	12.3	B	13.0	B
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.5	C	18.1	C
6	Childs Avenue / Parsons Avenue	Signalized	33.8	C	32.0	C
7	Childs Avenue / Coffee Street	Signalized	30.4	C	22.8	C
8	Childs Avenue / Kibby Road	Unsignalized	3.2		2.0	
	SB Approach		9.4	A	9.2	A
	EB Left		7.5	A	7.4	A
9	Childs Avenue / Tower Road	Unsignalized	1.2		0.6	
	NB Approach		9.8	B	9.6	A
	SB Approach		9.4	A	9.6	A
	EB Left		7.4	A	7.3	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	8.3	A	7.1	A
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9	
	SB Approach		6.5	A	6.9	A
	EB Left		7.1	A	7.0	A
14	Mission Avenue / SR 99 Southbound	Signalized	17.8	B	17.6	B
15	Mission Avenue / SR 99 Northbound	Signalized	24.1	C	18.6	B
16	Mission Avenue / Coffee Street	AWSC	8.1	A	7.8	A

Source: DKS Associates

Notes: a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. AWSC = All-way stop control

Table 7-A
Existing Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	422	34.9	A	612	34.5	A
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	615	34.5	A	489	34.8	A
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	737	39.9	A	482	40.0	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	437	40.0	A	632	39.9	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	422	34.9	A	612	34.5	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	615	34.5	A	489	34.8	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1230	68	D	1176	68	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	418	34.9	A	398	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	415	34.9	A	311	35.0	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	146	30.0	A	75	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	178	30.0	A	45	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	242	30.0	A	70	30.0	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	138	30.0	A	81	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	84	35.0	A	19	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	42	35.0	A	31	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	164	40.0	A	47	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	206	40.0	A	58	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 7-B
Existing Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	57	45.0	A	36	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	73	45.0	A	30	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	534	34.7	A	623	34.5	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	569	34.6	A	383	34.9	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	397	34.9	A	425	34.9	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	395	34.9	A	248	35.0	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	295	40.0	A	405	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	238	40.0	A	370	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

2.4 Existing Condition Traffic Signal Warrant Analysis

A peak hour traffic signal warrant analysis was conducted at all study unsignalized intersections in accordance with *California Manual on Uniform Traffic Control Devices (MUTCD)* - Section 4C. The signal warrant is met when either of two following criteria is satisfied.

Criterion 1: The criterion is satisfied when all three of the following conditions exist in the same one hour of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

Criterion 2: The criterion is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable Peak Hour Warrant Curves (illustrated in **Appendix B**) for the existing combination of approach lanes.

Table 8 summarizes the results of the signal warrant analysis. Detailed analysis results are contained in Appendix B. Based on the results, the intersection of Childs Avenue / SR 99 northbound off-ramp meets the signal warrant under the first criterion during the PM peak hour.

Table 8
Existing Condition
Signal Warrant Analysis

Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met	Criteria 1	Criteria 2	Warrant met
1 SR 140 / Baker Drive	No	No	No	No	No	No
2 SR 140 / Kibby Road	No	No	No	No	No	No
3 Childs Avenue / SR 99 Southbound Off-Ramp	No	No	No	No	No	No
4 Childs Avenue / SR 99 Northbound Off-Ramp	No	No	No	**Yes**	No	**Yes**
5 Childs Avenue / Kibby Road	No	No	No	No	No	No
6 Childs Avenue / Tower Road	No	No	No	No	No	No
7 Gerard Avenue / Coffee Street	No	No	No	No	No	No
8 Gerard Avenue / Tower Road	No	No	No	No	No	No
9 Mission Avenue / Coffee Street	No	No	No	No	No	No

Source: DKS Associates

2.5 Transit, Pedestrian and Bicycle Operations

2.5.1 Existing Transit Operations

The Transit Joint Powers Authority of Merced County (The BUS) has jurisdiction over public transit in the County of Merced. Currently, there are no bus routes that operate within the vicinity of the project site. The closest bus route is Route 5, "East-West City Shuttle". "East-West City Shuttle" provides weekday service between Merced Municipal Airport and Pioneer Elementary School between 9:30 AM and 5:45 PM with 45-minute frequency.

2.5.2 Pedestrian and Bicycle Circulation

Based on the field observations of traffic volumes and bicycle and pedestrian activities during the weekday AM and PM peak periods, pedestrian and bicycle activity is relatively light in the vicinity of the proposed project. There are no pedestrian sidewalks or bicycle facilities provided along the roadway segments adjacent to the project site.

2.6 Public Schools

The proposed project site is located within the Weaver Union Elementary School District for elementary and Merced Union High school District for high schools.

Elementary and Middle Schools

Pioneer Elementary School (Grades K-3) is located at the southwest corner of the Coffee Street and Gerard Avenue. Regular school days begin at 8:30 AM and end at 2:30 PM. The campus is open from 8:00 AM to 4:00 PM. Vehicular access to the site is provided via Gerard Avenue with designated area for parent pick-up/drop-off and visitor parking lot. A secondary entrance is provided via Coffee Street with designated areas for school bus pick-up/drop-off and staff parking and visitor parking for school related events.

Based on information received from school staff, several on-street parking activities including curbside and double parking occur along Gerard Avenue and Coffee Street during the after school pick-up period of 2:00-3:00 PM.

Weaver Elementary School (Grades 4-8) is located at the northeast corner of Coffee Street and Childs Avenue. Regular school days begin at 8:30 AM and end at 3:30 PM. The campus is open from 8:00 AM to 4:30 PM. Vehicular access to the site is provided via Childs Avenue with a designated area for parent pick-up/drop-off and school staff parking lot. A secondary entrance is provided via Coffee Street with designated areas for school bus pick-up/drop-off.

Based on information received from school staff, several on-street parking activities including curbside and double parking occur along Childs Avenue and Coffee Street.

High Schools

Golden Valley High School (Grades 9-12) is located at the northeast corner of Parsons Avenue and Childs Avenue. Regular school days begin at 8:00 AM and end at 3:00 PM. The campus is open from 7:00 AM to 4:00 PM. Vehicular access to the site is provided via Childs Avenue and Parsons Avenue. Vehicular accesses are provided from Parsons Avenue with designated areas for parent pick-up/drop-off, school bus pick-up/drop-off and student parking lot. The visitor and school staff parking lot is provided via Childs Avenue.

3. 2010 BACKGROUND CONDITION

This section discusses the traffic operating conditions of the study intersections and roadway segments under the 2010 Background Condition. The 2010 Background Condition includes the existing traffic volumes plus the addition of net-new trips expected to be generated by residential and commercial development projects approved by the City of Merced within the study area. The information and traffic data for these projects was provided by the City of Merced.

3.1 Roadway Improvements

Based on the information provided by Caltrans District 10 and the County of Merced, the following roadway improvements were assumed to be implemented prior to the anticipated completion data of the proposed project and thus were included in this analysis:

- Campus Parkway Phase 1 Project. The completion of this phase will provide a connection between the SR 99-Mission Interchange and Childs Avenue.
- The intersection of Mission Avenue and Coffee Street will change from all-way-stop-controlled to signalized-controlled as a measure to accommodate the construction of Campus Parkway and other approved projects near the intersection.
- Signalization of Gerard Avenue and Campus Parkway intersection. According to the Campus Parkway design plan provided by the County of Merced, each of the intersection approaches will consist of two through lanes, two left-turn lanes and one right-turn lane in each approach. Campus Parkway will be a four-lane roadway north of Gerard Avenue and will end at Childs Avenue.
- The intersection of Childs Avenue and Campus Parkway will be an unsignalized intersection.

3.2 Background Trip Generation

The trip generation for the approved residential and commercial projects in the study area was determined based on the standard trip rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 7th Edition, 2003 for weekday conditions, as summarized in **Table 9**.

Table 9
Approved Residential Projects – Trip Generation [1]

Approved Projects	Land Use [2]	Size	Unit	Daily Trip	AM Trip			PM Trip		
					Total	Inbound	Outbound	Total	Inbound	Outbound
1. Makinson	Residential	18	Units	172	14	4	10	18	11	7
2. Sierra Vista Subdivision	Residential	224	Units	2,144	168	42	126	226	142	84
3. Rennisance II	Residential	158	Units	1,512	119	30	89	160	101	59
4. Rennisance I	Residential	167	Units	1,598	125	31	94	169	106	63
5. Tuscany East	Residential	47	Units	450	35	9	26	47	30	17
6. Hartley Crossing	Residential	28	Units	268	21	5	16	28	18	10
8. Coffee Street Annexation	Residential	292	Units	2,794	219	55	164	295	186	109
8.Crossing at River Oaks	Residential	277	Units	2,651	208	52	156	280	176	104
9. Sand Castle	Residential	334	Units	3,196	251	63	188	337	212	125
10. Matthew Homes Condos	Residential (Condo)	296	Units	1,615	130	22	108	154	103	51
11. Alfarata Ranch #2	Residential	12	Units	106	9	2	7	12	8	4
12. Steiner Development										
Parcel A	Gas Station/Store	12	fuel pump	977	60	30	30	80	40	40
	Restaurant	4,000	sq ft	509	46	24	22	44	27	17
	Hotel/Motel	128,000	sq ft	1599	128	47	81	133	72	61
	Retail	4,000	sq ft	177	-	-	-	11	5	6
Parcel B	Gas Station/Store	12	fuel pump	977	60	30	30	80	40	40
	Restaurant	8,000	sq ft	1017	92	48	44	87	53	34
	Retail	145,030	sq ft	6428	-	-	-	393	173	220
Parcel C	Retail	11,950	sq ft	530	-	-	-	32	14	18
Total				**28,720**	**1,676**	**492**	**1,184**	**2,574**	**1,509**	**1,065**

Note: 1. The project descriptions were provided by the City of Merced
2. Trip generations were determined based on ITE Land Use 210 (Single-Family Detached Housing) for Residential Land Use, Land Uses 230 (Residential Condominium/Townhouse) for Residential (Condo), Land Use 814 (Special Retail Center) for Retail, Land Use 945 (Gasoline/Service Station with Convenience Market) for Gasoline/Store, Land Use 932 (High-Turnover (Sitdown) Restaurant) for Restaurant and Land Use 320 (Motel) for Hotel/ Motel.

3.3 Background Trip Distribution

Table 10 provides a summary of the trip distribution estimates of the approved residential projects within the study area. The trip distribution of the Steiner Development Project was based on the Project Trip Distribution discussed in *General Plan Amendment #00-01 for Steiner Development Expanded Initial Study#005* , with some adjustments based on the future year 2010 roadway network. **Table 11** provides a summary of the trip distribution estimates of this commercial development.

Table 10
Approved Residential Projects – Trip Distribution Assumptions

Original/Destination	Distribution Percentage
SR 99 North	14.0 %
SR 99 South	14.0 %
SR 140 East	10.0 %
SR 140 West	25.0 %
16 th Street North	25.0 %
Kibby Road north	2.0%
Childs Avenue East	2.0%
Childs Avenue West	8.0%
Total	100.0 %

Source: Traffic Impact Analysis for Merced Distribution Center prepared by KdANDERSON Transportation Engineering in June 2005, based on MCAG Travel Forecast Model data.

Table 11
Approved Commercial Development Projects – Trip Distribution Assumptions

Original/Destination	Distribution Percentage
SR 99 North	30 %
SR 99 South	30 %
North Merced	20 %
Childs Avenue West	10 %
Childs Avenue East	10 %
Total	100.0 %

Source: General Plan Amendment #00-01 for Steiner Development Expanded Initial Study #00-05

3.4 Background Traffic Volumes

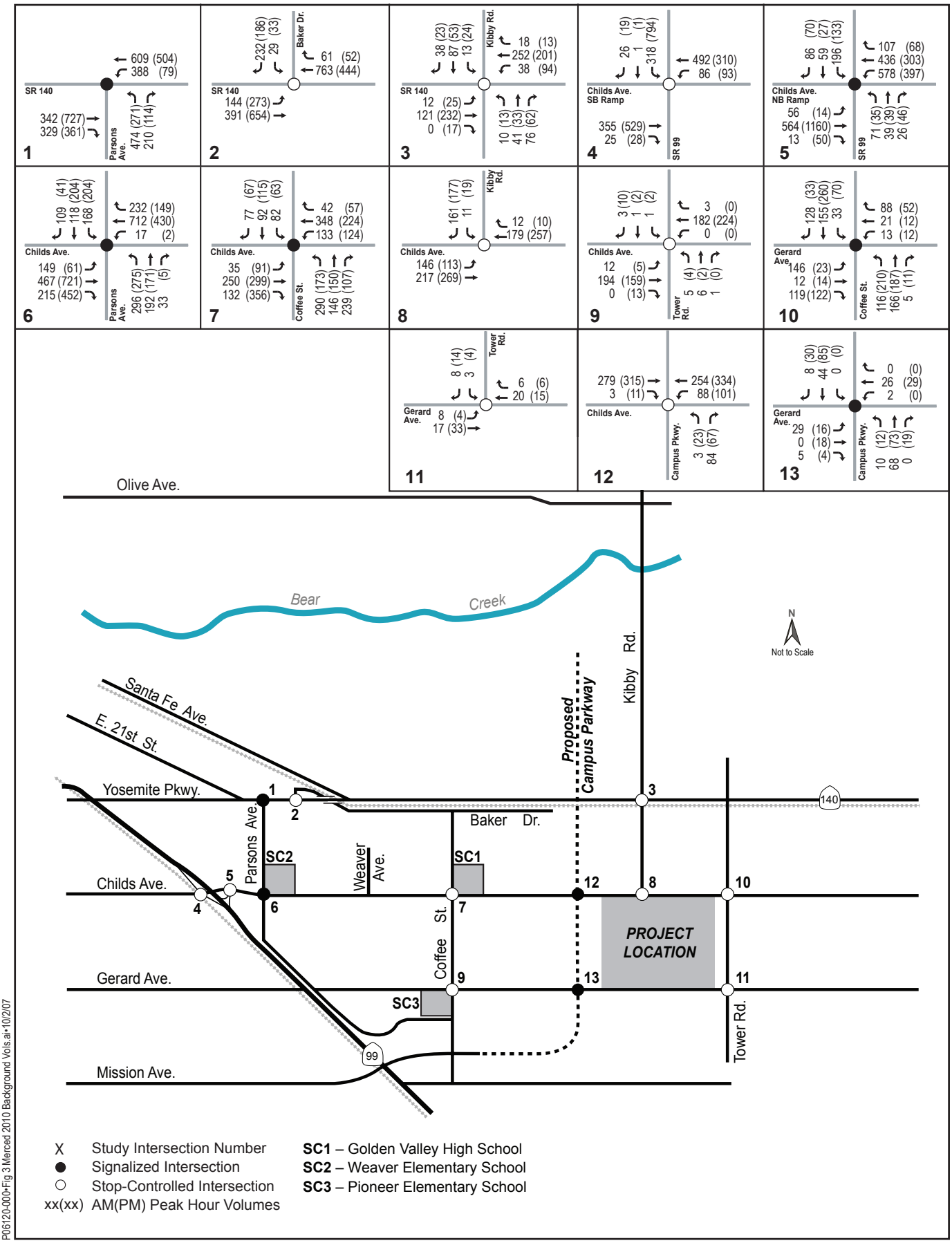
3.4.1 Intersection Volumes

The study incorporated forecasted traffic volumes and distribution patterns from a prior traffic impact analysis report prepared by KdANDERSON Transportation Engineering in June, 2005. DKS reviewed the report, its assumptions, data and findings prior to incorporating relevant

portions with the approved background project trips for the analysis. **Figure 3** illustrates the background condition traffic volumes at each study intersection.

3.4.2 Freeway Volumes

The 2010 Background Condition peak hour traffic volumes on SR 99 were developed from the existing traffic volumes, assuming a growth rate of 2.5 percent per year. The growth rate is based on a comparison of 2003 and 2005 traffic volumes provided by Caltrans.



P06120-000•Fig 3 Merced 2010 Background Vols.ai•10/2/07

DKS *Associates*
TRANSPORTATION SOLUTIONS

Figure 3
2010 Background Condition
Weekday Peak Hour Intersection Volumes

3.5 Intersection Operating Conditions

Table 12 summarizes the results of the intersection Level of Service calculations for the 2010 Background Condition. Detailed Level of Service calculations for the Background Condition are contained in **Appendix A**.

Under 2010 Background Conditions, two intersections, SR 140 at Baker Drive and Childs Avenue at SR 99 northbound off-ramp would deteriorate from an acceptable LOS (LOS D or better) to a deficient LOS (LOS E or F) during the AM peak hours. Three intersections during the PM peak hour, SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp would deteriorate from an acceptable LOS (LOS D or better) to LOS F. All other study intersections in both peak hours would continue to operate at acceptable LOS (LOS D or better).

3.6 Roadway Segment Operating Conditions

Table 13 summarizes the analysis results for the study roadway segments under the 2010 Background Condition. Based on the results, all of the study roadway segments would continue to operate at acceptable LOS (LOS D or better).

3.13 2010 Background Condition Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted per the Manual of Uniform Traffic Control Devices (MUTCD), California Supplement, at the three study unsignalized intersections under the 2010 Background Conditions that would operate at a deficient LOS. The analysis shows that under the 2010 Background Conditions, all of these three study intersections would meet the peak hour signal warrant during the AM and PM peak hours.

Table 14 summarizes the signal warrant analysis results. Detailed signal warrant analysis sheets are included in **Appendix B**.

Table 14
2010 Background 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**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Southbound Off-Ramp	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

Table 12
2010 Background Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	27.5	C	47.9	D
2	SR 140 / Baker Drive	Unsignalized	9.4		13.9	
	SB Approach		40.2	E	>50.0	F
	EB Left		9.2	A	9.2	A
3	SR 140 / Kibby Road	Unsignalized	5.2		4.7	
	NB Approach		12.2	B	13.4	B
	SB Approach		14.3	B	16.3	C
	EB Left		7.8	A	7.7	A
	WB Left		7.6	A	7.9	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [d]	22.0	C	>50.0	F
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0 [c]	F	>50.0	F
6	Childs Avenue / Parsons Avenue	Signalized	46.4	D	43.1	D
7	Childs Avenue / Coffee Street	Signalized	36.9	D	33.1	C
8	Childs Avenue / Kibby Road	Unsignalized	4.2		4.2	
	SB Approach		9.9	A	10.1	B
	EB Left		7.8	A	7.6	A
9	Childs Avenue / Tower Road	Unsignalized	1.1		0.6	
	NB Approach		10.3	B	10.4	B
	SB Approach		9.7	A	9.5	A
	EB Left		7.5	A	7.5	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	9.7	A	8.4	A
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9	
	SB Approach		6.5	A	6.9	A
	EB Left		7.1	A	7.0	A
12	Childs Avenue / Campus Parkway	Unsignalized	3.4		3.5	
	NB Approach		9.3	A	9.8	A
	WB Left		7.5	A	7.5	A
13	Gerard Avenue / Campus Parkway	Signalized	23.4	C	23.3	B
14	Mission Avenue / SR 99 Southbound	Signalized	18.3	B	13.6	B
15	Mission Avenue / SR 99 Northbound	Signalized	29.8	C	28.5	C
16	Mission Avenue / Coffee Street	Signalized	26.6	C	33.3	C

Source: DKS Associates

Notes:
a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
d. AWSC = All-way stop control

Table 13-A
2010 Background Condition
Roadway Segment-Level of Service Analysis

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	1758	18.6	C	1905	20.1	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	1571	16.6	B	2688	28.4	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	547	34.7	A	1024	31.5	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	968	32.1	A	748	33.9	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	945	39.6	A	618	39.9	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	505	40.0	A	864	39.7	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1244	68.4	D	1183	66.5	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	563	34.6	A	522	34.7	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	472	34.8	A	491	34.8	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	278	29.9	A	258	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	310	29.9	A	218	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	593	28.7	A	333	29.9	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	268	29.9	A	453	29.5	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	127	35.0	A	162	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	140	35.0	A	111	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	196	40.0	A	139	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	313	40.0	A	128	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 13-B
2010 Background Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	159	45.0	A	101	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	106	45.0	A	163	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	686	34.2	A	563	34.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	988	31.9	A	716	34.1	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	548	34.7	A	942	32.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	648	34.4	A	563	34.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	388	40.0	A	405	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	418	40.0	A	370	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	62	35.0	A	110	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	94	35.0	A	62	35.0	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	77	35.0	A	92	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	67	35.0	A	76	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

4. 2010 BACKGROUND WITH PROJECT CONDITION

This section evaluates the 2010 background traffic conditions plus project-generated traffic estimated for the proposed project.

4.1 Significance Criteria and Project Impacts

Based on the City of Merced's *General Plan*, an acceptable operating level of service (LOS) is defined at LOS D or better at all intersections and roadway segments.

A traffic impact would be considered significant if the project would:

- Cause an increase in traffic congestion resulting in intersection or roadway segment level of service (LOS) E or worse. For unsignalized intersections, the need for a traffic signal is to be determined based on the Manual of Uniform Traffic Control Devices Supplement to the California Traffic Manual traffic signal warrants,
- Cause an increase in the total intersection volumes or roadway segment volumes by more than five percent at an intersection or segment that is already operating at Level of Service E or F under the background condition,
- Cause an increase in traffic congestion that would exceed a level of service standard established in the countywide Congestion Management Plan or Caltrans for designated roads or highways,
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment),
- Block or fail to provide adequate emergency access,
- Result in inadequate parking capacity that would cause substantial vehicle stacking or otherwise compromise safety or,
- Conflict with adopted policies, plans, or programs supporting alternative transportation

As part of the project conditions, the City of Merced would abandon the Kibby Road right-of-way between Childs Avenue and Gerard Avenue to make way for the proposed project. As a result, Kibby Road would function in the street network as it would under existing conditions.

4.2 Trip Generation

Trip generation for the proposed project was based on the number of the employees estimated to be employed at the distribution center. According to the information provided by Wal-Mart Stores, Inc., the proposed project would employ approximately 1,200 employees as outlined in **Table 15**. The trip generation estimate also takes into consideration the number of heavy vehicles trips that would be part of the project. Due to the different vehicle characteristics between heavy vehicles and passenger cars, heavy vehicles were converted to passenger-car-

equivalents (PCE's) by the ratio of 4 vehicle trips per one (1) truck trip. **Table 16** summarizes the trip generation for the proposed project.

Table 15
Employees by Title and Division

Title/Division	Number of Employees
Drivers in Transportation	150
Associates in Transportation	64
Associates in Other Departments	986
Total Employees	1,200

Source: Wal-Mart Stores, Inc

Table 16
Proposed Project trip Generation

	Daily Trips			AM Peak Hour			PM Peak Hour		
Direction	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**
Expressed as Vehicles									
Inbound	365	846	**1,211**	32	55	**87**	20	25	**45**
Outbound	278	910	**1,188**	28	28	**56**	24	259	**283**
Total	643	1756	**2,399**	60	83	**143**	44	284	**328**
Passenger Car Equivalent									
Inbound	1,460	846	**2,306**	128	55	**183**	80	25	**105**
Outbound	1,112	910	**2,022**	112	28	**140**	96	259	**355**
Total	2,572	1,756	**4,328**	240	83	**323**	176	284	**460**

Source: DKS Associates

As a comparison, a shopping center of 49,500 square feet would generate 4,300 trips per day and 103 AM peak hour trips and 394 PM peak hour trips.

4.3 Trip Distribution

The direction of approach and departure for project trips of the proposed Wal-Mart Distribution Center were estimated based on regional distribution of residences in Merced County and around the study area. Based on prevailing traffic patterns, roadway capacity, consultation with the City of Merced and Wal-Mart Stores, Inc, SR 99, SR 140 and SR 152 were designated as the major routes that would service the proposed project site.

Table 17 shows the trip distribution patterns assumed for the proposed project. The project truck trips having their origins or destinations on SR 99 and SR 152 (ninety percent of the truck trips) would be assumed to access the project site via the Mission interchange and Campus Parkway. The other ten percent of truck trips from and to SR 140 West would be assumed to continue on SR 140 and use Tower Road. No trucks were assumed to travel along Parsons Avenue, Coffee Street, Childs Avenue and Gerard Avenue (west of Campus Parkway), based on the most direct access routes to and from the project site. Also the City has designated truck routes (per Chapter 10.40.010 of the City of Merced Municipal Code). Of these streets, only

Parsons Avenue between Yosemite Parkway and Childs Avenue is a designated truck route. Coffee Street, Childs Avenue and Gerard Avenue are not designated truck routes.

For trucks, full site access is proposed along Gerard Avenue between Tower Road and the future Campus Parkway, approximately a quarter mile east of Campus Parkway. The employee entrance is also along Gerard Avenue between Tower Road and the future Campus Parkway, approximately 1500 feet west of Tower Road and would include full access.

Table 17
Proposed Project Trip Distribution Assumption

Origin/ Destination	Percentage of Total Traffic (%)	
	Autos	Trucks
North Via State Route 99	40.0	31.0
East via SR 140	10.0	-
West via SR 140	3.0	10.0
West via SR 152	-	27.0
South via SR 99	20.0	32.0
North via E 16th Street	5.0	-
North via Santa Fe/ E 21st	5.0	-
North via Kibby Road	10.0	-
East via Childs Avenue	2.0	-
West via Childs Avenue	5.0	-
Total	**100.0**	**100.0**

Source: Traffic Impact Analysis for Merced Distribution Center

Figures 4 illustrates the project trips at each of the study intersections. **Figure 5** illustrates the total 2010 background with project condition traffic volumes at each of the study intersections for the AM and PM peak hours.

4.4 Intersection Operating Conditions

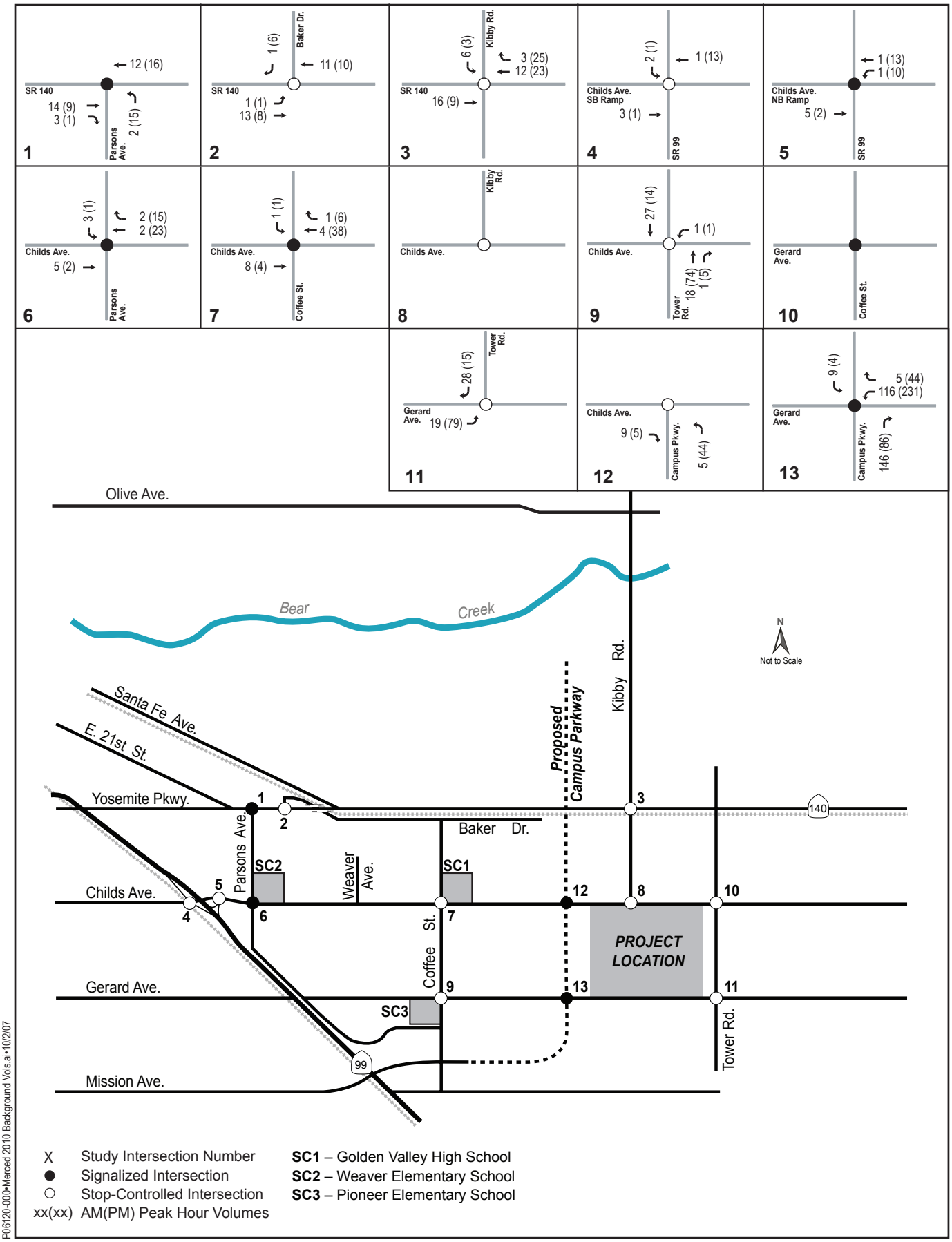
Intersection operational levels of service along with their associated delays are summarized in **Table 18**. **Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

The study intersections that operate at an acceptable LOS (LOS D or better) under the 2010 Background Condition would continue to operate at acceptable LOS under the 2010 Background with Project Condition. The addition of traffic generated by the proposed project would not result in any significant changes to intersection levels during either of the peak hours analyzed.

For the intersections that operate at LOS E or F under the 2010 Background Condition, the proposed project would not contribute more than five percent of the intersection total volume. Therefore, the proposed project would not result in any significant impact at the intersections.

4.5 Roadway Segment Operating Condition

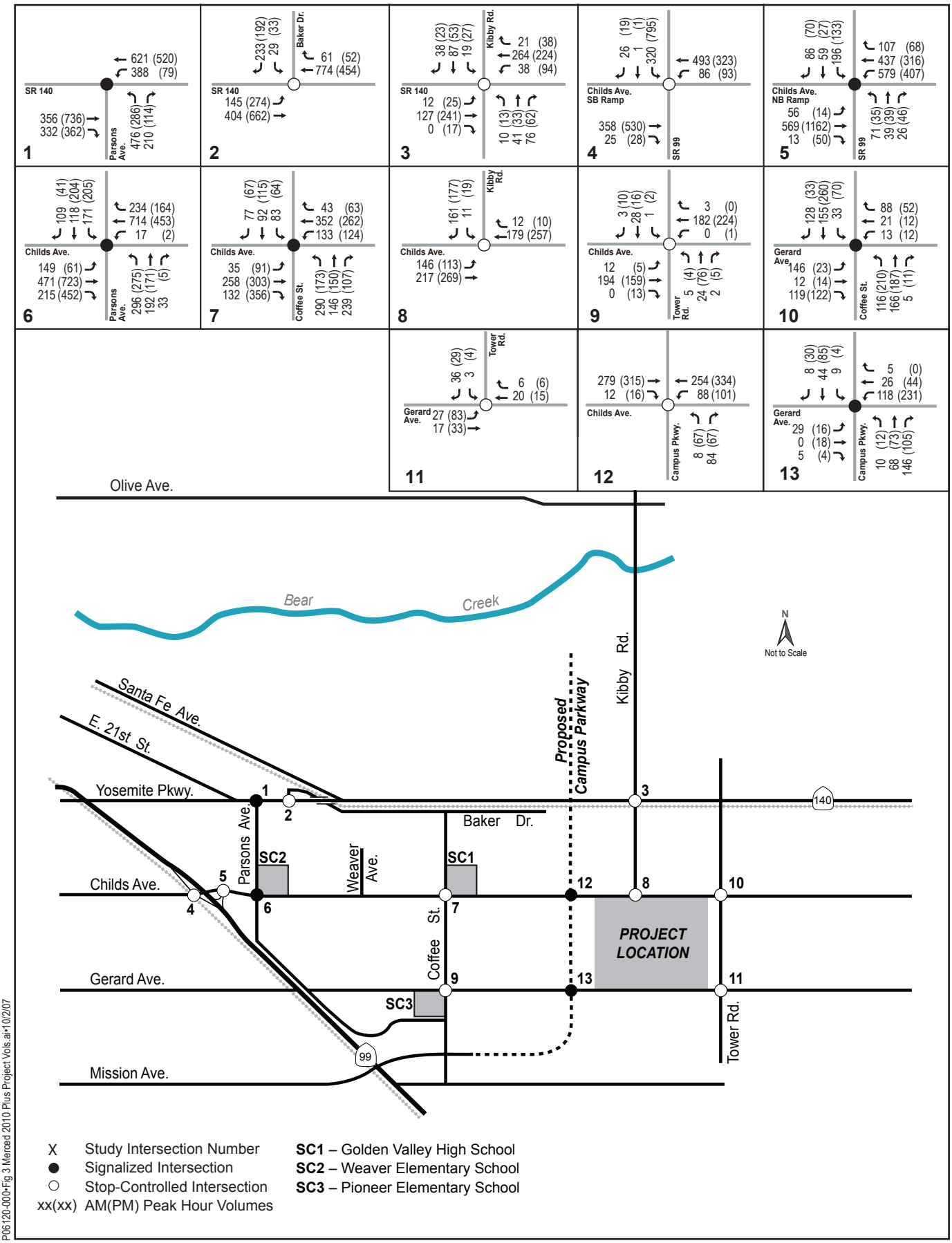
Table 19 provides a summary of the roadway segments operation conditions, including MOE's and LOS. Appendix B includes the detailed LOS calculation sheets. The addition of project generated trips would not worsen the level of service of the study roadway segments. All roadway segments would continue to operate at an acceptable LOS. The project would not result in a significant impact to the study roadway segments.



P06120-000•Merced 2010 Background Vols.ai•10/2/07

DKS *Associates*
TRANSPORTATION SOLUTIONS

Figure 4
Project Trip Assignment
2010 Background Condition



P06120-000•Fig 3 Merced 2010 Plus Project Vols.ai•10/2/07

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 5
2010 Background with Project Condition
Weekday Peak Hour Intersection Volumes

Table 18
2010 Background With Project Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour				PM Peak Hour			
			Delay[a]	LOS[b]	% Vol Incr[c]	Project Impact	Delay	LOS	% Vol Incr[c]	Project Impact
1	SR 140 / Parsons Avenue	Signalized	27.8	C		No	49.9	D		No
2	SR 140 / Baker Drive	Unsignalized	10.0		1.8	No	15.3		1.7	No
	SB Approach		43.2	E			>50.0	F		
	EB Left		9.2	A			9.2	A		
3	SR 140 / Kibby Road	Unsignalized	5.2			No	4.5			No
	NB Approach		12.5	B			13.9	B		
	SB Approach		15.2	C			17.4	C		
	EB Left		7.9	A			7.8	A		
	WB Left		7.6	A			7.9	A		
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [e]	22.3	C		No	>50.0	F	1.0	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0 [d]	F	0.4	No	>50.0	F	1.2	No
6	Childs Avenue / Parsons Avenue	Signalized	46.6	D		No	43.3	D		No
7	Childs Avenue / Coffee Street	Signalized	37.1	D		No	34.2	C		No
8	Childs Avenue / Kibby Road	Unsignalized	4.2			No	4.2			No
	SB Approach		9.9	A			10.1	B		
	EB Left		7.8	A			7.6	A		
9	Childs Avenue / Tower Road	Unsignalized	2.5			No	3.1			No
	NB Approach		10.7	B			11.7	B		
	SB Approach		10.5	B			10.6	B		
	EB Left		7.5	A			7.5	A		
	WB Left		7.4	A			7.5	A		
10	Gerard Avenue / Coffee Street	AWSC	9.8	A		No	8.5	A		No
11	Gerard Avenue / Tower Road	Unsignalized	6.9			No	7.4			No
	SB Approach		6.5	A			6.7	A		
	EB Left		7.3	A			7.6	A		
12	Childs Avenue / Campus Parkway	Unsignalized	3.4			No	3.7			No
	NB Approach		9.3	A			10.0	A		
	WB Left		7.4	A			7.5	A		
13	Gerard Avenue / Campus Parkway	Signalized	30.6	C		No	34.9	C		No
14	Mission Ave / SR 99 Southbound Off-Ramp	Signalized	19.2	B		No	15.3	B		No
15	Mission Ave / SR 99 Northbound Off-Ramp	Signalized	27.9	C		No	34.6	C		No
16	Mission Ave / Coffee Street	Signalized	28.8	C		No	33.4	C		No

Source: DKS Associates

Notes:
a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. % Vol Incr = percent increase in the intersection traffic volumes due to the project trips. Percent increase is reported only at any of the intersections that would already operate at an unacceptable LOS without the project.
d. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
e. AWSC = All-way stop control

Table 19-A
2010 Background With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	1758	18.6	C	1905	20.1	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	1632	17.2	B	2723	28.7	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	564	34.6	A	1034	31.3	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	982	32.0	A	779	33.7	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	957	39.5	A	634	39.9	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	519	40.0	A	873	39.7	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1272	69.2	D	1215	67.5	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	683	34.2	A	400	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	565	34.6	A	537	34.7	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	475	34.8	A	492	34.8	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	279	29.9	A	264	29.9	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	311	29.9	A	219	30.0	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	597	28.7	A	364	29.8	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	274	29.9	A	456	29.5	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	127	35.0	A	162	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	140	35.0	A	111	35.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	203	40.0	A	142	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 19-B
2010 Background With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	159	45.0	A	101	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	106	45.0	A	163	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	691	34.2	A	1102	30.4	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	991	31.9	A	739	34.0	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	556	34.7	A	945	32.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	893	32.9	A	328	35.0	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	391	40.0	A	406	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	419	40.0	A	383	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	211	35.0	A	196	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	210	35.0	A	293	35.0	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	78	35.0	A	105	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	70	35.0	A	77	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

4.6 2010 Background Condition with Project Traffic Signal Warrant Analysis

Table 20 summarizes the traffic signal warrant analysis results. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Similar to the 2010 background condition, all three unsignalized intersections that would operate at deficient LOS would continue to meet the peak hour signal warrant during the AM and PM peak hours.

Table 20
2010 Background 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**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Southbound Off-Ramp	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

4.7 State Highway Analysis

The project-related traffic increment utilizing area state highways is below the Caltrans State Highway trips at state highway facilities. As a result, state highway analysis based on the *Caltrans Guide for the Preparation of Traffic Impact Studies (State of California Department of Transportation, December 2002)* is not required and not included in this study.

4.8 Truck Turning Radii Evaluation

A truck turning radii analysis was conducted to evaluate the potential affect of Wal-Mart trucks at the intersection of Gerard Avenue and Campus Parkway and also at the new Mission Interchange at SR 99.

It is anticipated that truck traffic to the proposed Wal-Mart Distribution Center would access the project site via SR 99, SR 140 and new Campus Parkway. Intersection layouts at both of these locations were provided by the California Department of Transportation, District 10, the County of Merced, and also the City of Merced.

Following the Surface Transportation Assistance Act (STAA) truck turning radii standard, the CAD based Auto-Turn program was used to generate turning paths of a standard semi-trailer truck, at particular approaches. It was determined that the standard semi-trailer trucks would be able to perform adequate turning movements at SR 99/ Mission Avenue interchange and at Gerard Avenue/ Campus Parkway intersection. The illustrations of the truck turning paths are included in **Appendix C.**

4.9 Delivery Truck Parking Area

During the weekday operating hours, there would be merchandise trucks arriving at the Wal-Mart Distribution Center for delivery purposes. These trucks would be scheduled to arrive at a certain hour before their delivery appointment time. If non-Wal-Mart trucks arrive more than one hour prior to their scheduled appointment, then these delivery trucks would have to stop and wait somewhere outside the distribution center. In general, truck parking activities could potentially create access and circulation impacts in the area. According to the site plan received from the Wal-Mart Stores, Inc., it is expected that these delivery trucks would stop along the access roadway to the trailer parking and warehouse. As a means to accommodate these trucks, the access roadway may be widened to include a lay-by or parking lane for trucks waiting to pass through the security gate. Therefore, it is expected that these delivery trucks would not cause any access or circulation impacts to the nearby streets within the study area.

4.10 The Potential Conflict of School Buses and Wal-Mart Trucks

Based on the designated truck routes to and from the proposed Wal-Mart Distribution Center and school bus routes, school buses and Wal-Mart Trucks would share the same roadway segment of SR 140 between SR 99 and Tower Road and a segment of Mission Avenue between SR 99/Mission Avenue Interchange and Coffee Street.

SR 140 between SR 99 and Tower Road

The Golden Valley High School Bus Route 20 runs between the north end of the City of Merced and the school from 6:00 AM and 8:05 AM and between 3:05 PM and 5:10 PM. The bus travels along SR 140 segment between Parsons Avenue and Kibby Road for a short period between 6:15 AM and 6:25 AM and between 4:00 PM and 4:05 PM.

The Pioneer Elementary School Bus Route 8 runs between the school and SR 140 at Arbodeda Drive from 2:00 PM to 3:18 PM. The bus travels on the SR 140 segment between Kibby Road and Tower Road for a short period between 3:18 PM and 4:00 PM.

Mission Avenue between SR 99/Mission Avenue Interchange and Coffee Street

The Golden Valley High School Bus Route 24 runs between the south end of the City of Merced and the school between 5:50 AM and 8:05 AM and between 2:45 PM and 5:15 PM. The bus travels on the Mission Avenue segment between SR 99/Mission Avenue Interchange and Coffee Street for a short period between 6:40 AM and 6:50 AM.

The Weaver Elementary School Bus Route 8 runs between the school and Bear Creek Drive at Arbodeda Drive from 3:40 PM to 4:28 PM. The bus travels on the SR 140 segment between Kibby Road and Tower Road for a short period between 4:25 PM and 4:28 PM.

4.11 Parking Analysis

Parking demand at the proposed project was estimated based on the number of the employees, as a proportion to the number of employees at an analogous Wal-Mart Distribution Center in Apple Valley, San Bernardino County. According to the information provided by the Wal-Mart Stores, Inc., the proposed project would employ the same number of employees as the Wal-Mart Distribution Center in Apple Valley. Therefore, it was assumed that the parking demands for both distribution centers would be the same. **Table 21** summarizes the projected parking

demand for the largest shift, and the parking supply at the proposed Wal-Mart Distribution Center. Compared to the number of off-street parking spaces required based on the City of Merced Municipal Code, the proposed project would satisfy the City of Merced off-street parking requirements.

Table 21
Parking Analysis
Wal-Mart Distribution Center

Parking Area	Parking Demand [a] (spaces)	Parking Supply [b] (spaces)	The City of Merced Code Requirement [c]	
			Rate	Requirement (Spaces)
Employee /Visitor	380	850	One for each two employees and one for each vehicle used to conduct business.	180 [d]
Truck/Trailer Parking	1,227	1,600		1,227 [e]
Non-Truck Parking	138	200		138 [e]
Loading Dock	189	300		189 [e]
Total	**1,934**	**2,950**	-	**1,734**

Source: DKS Associates, August 2006

Note: a. Parking demand based on parking demand surveyed conducted at Wal-Mart Distribution Center in Apple Valley.
b. Parking Supply is based on the information provided by Wal-Mart Stores, Inc.
c. City of Merced Municipal Code Title 20. Zoning, Industrial use-Warehouse (20.58.150).
d. The required spaces were estimated based on the largest shift of 359 employees at the proposed project.
e. Assumed the surveyed demand represents the number of vehicle activities.

4.12 Transit, Pedestrian and Bicycle Review

Transit Operation

Route 5, "East-West City Shuttle", runs within the project study area on Parsons Avenue between Childs Avenue and SR 140 and on SR 140 between Parsons Avenue and Santa Fe Avenue. The Parsons Avenue segment would serve as a potential route for the project auto trips, while the SR 140 segment would serve both the project auto and truck trips. The increase in the traffic volumes on these roadway segments, however, would be relatively low and, therefore, is not expected to cause in a significant impact to the transit service. Please see the "Roadway Segment – Level of Service Analysis" for further analysis.

Pedestrian and Bicycle

Currently the pedestrian and bicycle activities in the vicinity of the project are relatively light. However, due to the approved residential projects located west of the project site, an increase in pedestrian and bicycle activities would be anticipated, especially on Gerard Avenue and the future Campus Parkway. The Merced County Association of Governments provides the City of Merced bikeway map as illustrated in Appendix E.

4.13 Construction Traffic Impacts

Construction period trip generation estimates were based on the size of the building area to be constructed on the site. Using a factor of 0.42 trips per day per 1,000 square feet of industrial

construction (provided by the City of Merced), the estimated number of vehicle trips would be 486 per day (based on 1,155,600 square feet of total building area to be constructed). It was assumed that all construction workers would work the same eight hour shift, and arrive or depart during off-peak hours to avoid conflicts with adjacent street peak traffic conditions. This is a typical assumption based on construction trip behavior at large construction sites in the Central Valley, which have conditions limiting time periods of construction activity. It was also assumed that truck trips would be evenly spaced throughout the day such that ten percent of truck trips would arrive or depart during each peak hour of construction activity. Also, parking would be required for construction related activities, including workers and trucks.

By comparison, the number of construction trips would be about one-fifth of the daily number of trips, compared to the condition after the proposed project is built and occupied.

5. 2030 CUMULATIVE NO PROJECT CONDITION

This section discusses the traffic operating conditions of the study intersections and roadway segments under the 2030 Cumulative Condition. The forecasted intersection and roadway segment traffic volumes were developed from the MCAG travel demand forecast model plus the addition of net-new trips expected to be generated by approved projects within the study area.

5.1 Roadway Improvements

In addition to the roadway improvement discussed in Section 3, the following roadway improvements were assumed to be implemented after the anticipated completion date of the proposed project, and thus were included in this analysis.

- Extension of Campus Parkway with two lanes in each direction north of Childs Avenue to connect to SR 140 by providing two loop ramps on the north side of SR 140.
- Access from Campus Parkway to the new University of California Merced and the development areas north of Merced.
- New traffic signal at the intersection of Childs Avenue and Campus Parkway.
- SR 99 would be upgraded to a 6-lane facility with three lanes in each direction.
- Replacement of the Bradley Overhead Bridge on SR 140 with a four-lane facility with a continuous left-turn lane including SR 140 from Parsons Avenue to past Santa Fe Avenue
- Realignment and upgrading of Baker Drive and Santa Fe Avenue with signals at Kelly Avenue and Santa Fe Avenue.

5.2 2030 Cumulative Background Trip Generation

In addition to the approved projects described in Section 3, it was assumed the Merced Gateway Park project would be developed by year 2030 and, therefore, included in the 2030 Cumulative Condition. The trip generation for the Merced Gateway Park was determined based on the standard trip rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 7th Edition, 2003 for weekday conditions, as summarized in **Table 22**.

Table 22
Merced Gateway Park – Trip Generation [1]

Project Location	Land Use [2]	Size	Unit	Daily Trip	AM Trip			PM Trip		
					Total	Inbound	Outbound	Total	Inbound	Outbound
North Site	Retail	553,000	sq ft	24,509	-	-	-	*1499*	*660*	*839*
	Internal Trip Reduction				-	-	-	*-120*	*-59*	*-61*
	Net External Trip							1379	601	778
	Restaurant	56,000	sq ft	7,120	645	335	310	612	373	239
	Hotel	42,000	sq ft	760	52	32	20	55	29	26
	Theatre	3600	Seats	-	-	-	-	252	98	154
	Sub-Total	**651,000**	sq ft	**32,389**	**697**	**367**	**330**	**2298**	**1101**	**1197**
South Site	Retail	150,000	sq ft	6,648	-	-	-	*407*	*179*	*228*
	Internal Trip Reduction				-	-	-	*-93*	*-40*	*-53*
	Net External Trip							314	139	175
	Restaurant	18,000	sq ft	2,289	207	108	99	197	120	77
	Office	472,000	sq ft	5,197	732	644	88	703	120	583
	Internal Trip Reduction				-	-	-	*-49*	*-32*	*-17*
	Net External Trip				-	-	-	654	88	566
	Hotel	83,500	sq ft	1,520	104	63	41	110	58	52
	Sub-Total	**723,500**	sq ft	**15,654**	**1043**	**815**	**228**	**1275**	**405**	**870**
Total		**1,374,500**	sq ft	**48,043**	**1,740**	**1,182**	**558**	**3,573**	**1,506**	**2,067**

Note: 1. The project descriptions were provided by the City of Merced
2. Trip generations were determined based on ITE Land Use 814 (Special Retail Center) for Retail, Land Use 932 (High-Turnover (Sitdown) Restaurant) for Restaurant, Land Use 310 (Hotel) for Hotel, Land Use 444 (Movie Theater with Matinee) for Theatre and Land Use 710 (General Office) for Office.

5.3 2030 Cumulative Trip Distribution

It was assumed that the trip distribution patterns of Merced Gateway Park would be similar to Steiner Commercial Development project, as described in Section 3.3.

Figure 6 illustrates the 2030 cumulative condition traffic volumes at each of the study intersections.

5.4 Intersection Operating Conditions

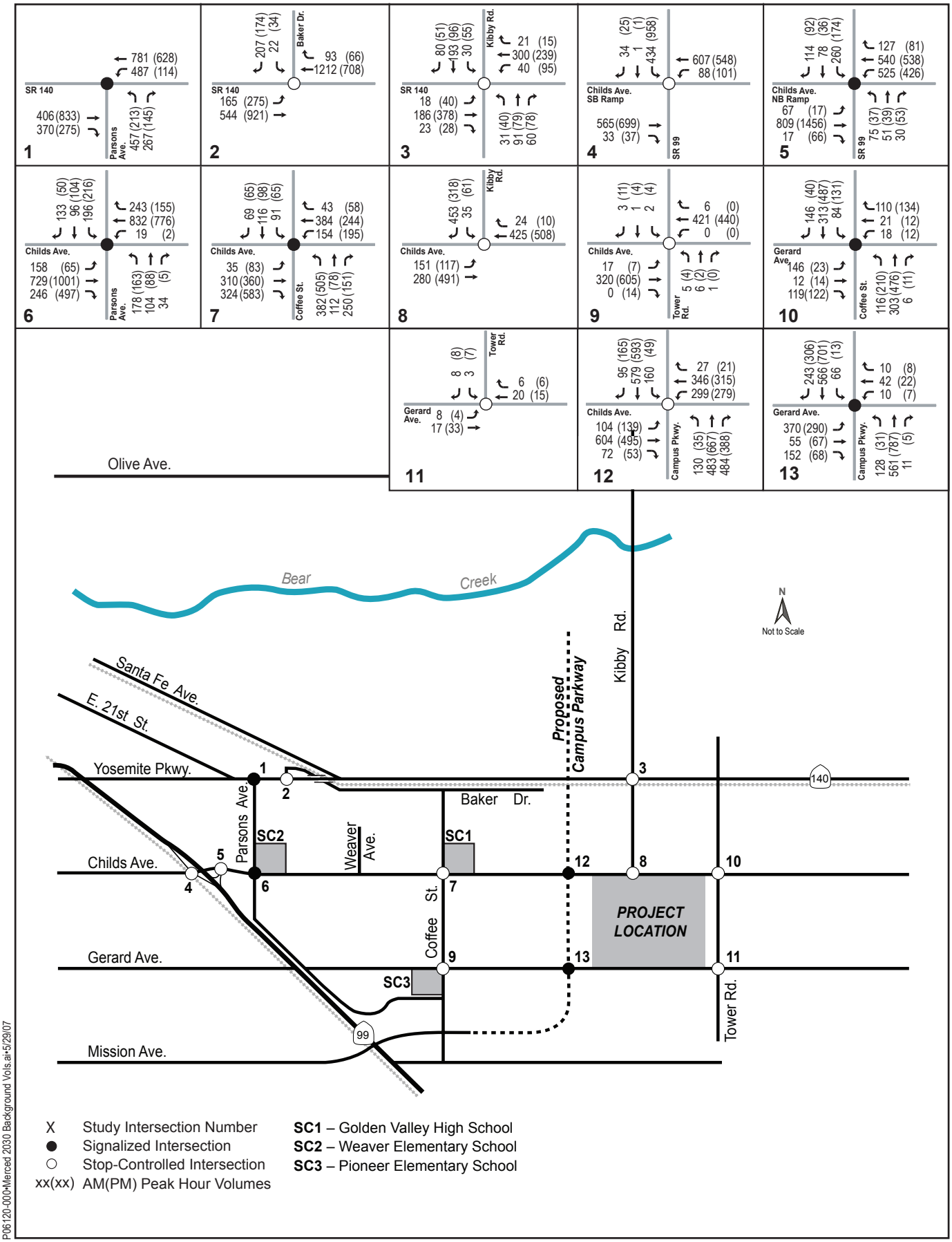
Table 23 summarizes the results of the intersection level of service calculations for the 2030 Cumulative No Project Condition. Detailed Level of Service calculations sheets are included in **Appendix A**.

Cumulative traffic growth would cause five of the sixteen study intersections to operate at an unacceptable LOS (LOS E or F) during both AM and PM peak hours. These intersections are:

- SR 140 at Baker Drive
- SR 140 at Kibby Road
- Childs Avenue at SR 99 southbound off-ramp
- Childs Avenue at SR 99 northbound off-ramp
- Childs Avenue at Parsons Avenue

In addition, the intersection of SR 140 and Parsons Avenue would operate under an unacceptable LOS F during the AM peak hour only.

All other intersections would continue to operate at acceptable LOS (LOS D or better).



P06120-0004/Merced 2030 Background Vols.ai•5/29/07

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 6
2030 Cumulative No Project Condition
Weekday Peak Hour Intersection Volumes

Table 23
2030 Cumulative No Project Condition
Intersection Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	89.8	F	37.7	D
2	SR 140 / Baker Drive	Unsignalized	5.4		6.1	
	SB Approach		>50.0 [c]	F	>50.0	F
	EB Left		10.2	B	9.6	B
3	SR 140 / Kibby Road	Unsignalized	39.1		3.1	
	NB Approach		>50.0 [c]	F	>50.0	F
	SB Approach		>50.0 [c]	F	36.6	E
	EB Left		9.6	A	9.1	A
	WB Left		9.7	A	0.0	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [d]	>50.0	F	>50.0	F
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0	F	>50.0	F
6	Childs Avenue / Parsons Avenue	Signalized	66.0	E	61.8	E
7	Childs Avenue / Coffee Street	Signalized	28.6	C	32.2	C
8	Childs Avenue / Kibby Road	Unsignalized	2.5		1.8	
	SB Approach		10.3	B	12.1	B
	EB Left		7.7	A	7.8	A
9	Childs Avenue / Tower Road	Unsignalized	1.2		0.5	
	NB Approach		11.1	B	12.8	B
	SB Approach		10.1	B	12.8	B
	EB Left		7.6	A	7.7	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	9.5	A	9.8	A
11	Gerard Avenue / Tower Road	Unsignalized	7.1		7.1	
	SB Approach		6.7	A	7.0	A
	EB Left		7.2	A	7.1	A
12	Childs Avenue / Campus Parkway	Signalized	27.4	C	28.0	C
13	Gerard Avenue / Campus Parkway	Signalized	28.8	C	29.8	C
14	Mission Avenue / SR 99 Southbound	Signalized	20.6	C	21.5	B
15	Mission Avenue / SR 99 Northbound	Signalized	28.3	C	39.6	D
16	Mission Avenue / Coffee Street	Signalized	37.1	D	45.8	D

Source: DKS Associates

Notes: a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
d. AWSC = All-way stop control

5.5 Roadway Segment Operating Conditions

Table 24 summarizes the roadway segment operating level of service under the 2030 Cumulative No Project Condition. The detailed level of service calculations are included in **Appendix B**. The addition of cumulative growth traffic would cause the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road to deteriorate from LOS D to LOS E during the AM peak hour. All other study roadway segments would continue to operate at an acceptable LOS (LOS D or better).

Table 24-A
2030 Cumulative No Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	2531	17.4	C	3164	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	2712	18.6	C	4173	28.7	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	1179	29.2	B	989	31.9	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	959	32.2	A	924	32.6	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	1096	39.1	A	919	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	1157	38.8	A	955	39.6	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1871	82.3	E	1729	79.8	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	514	34.8	A	422	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	473	34.8	A	408	34.9	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	96	30.0	A	92	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	200	30.0	A	50	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	206	30.0	A	365	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	270	29.9	A	232	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	157	35.0	A	148	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	60	35.0	A	59	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	350	40.0	A	305	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	267	40.0	A	366	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 24-B
2030 Cumulative No Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	70	45.0	A	69	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	110	45.0	A	76	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	1125	30.1	A	1013	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	1109	30.3	A	1125	30.1	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	783	33.7	A	644	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	850	33.2	A	770	33.8	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	297	40.0	A	221	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	280	40.0	A	233	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	133	40.0	A	355	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	231	40.0	A	236	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	576	35.0	A	643	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	707	34.9	A	1264	34.4	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	612	35.0	A	536	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	554	35.0	A	464	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	581	35.0	A	662	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	528	35.0	A	494	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

5.6 2030 Cumulative No Project Condition Traffic Signal Warrant Analysis

Table 24 summarizes the traffic signal warrant analysis performed at the five unsignalized intersections that would operate at unacceptable level of service under the 2030 Cumulative No Project Condition. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Based on the signal warrant analysis results, all five intersections would meet the signal warrant during the AM peak hour while four intersections would meet the signal criteria during the PM peak hour.

Table 24
2030 Cumulative No 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

See Section 2.4 for definition of criteria.

6. 2030 CUMULATIVE WITH PROJECT CONDITION

This section evaluates the 2030 Cumulative with Project Condition. In addition, all roadway improvements are assumed to be implemented and thus were included in this analysis. An adjustment was made to the distribution and assignment of trips to account for the extension of the Campus Parkway corridor and to allow for more circulation via Campus Parkway rather than via Parsons Avenue. The truck trips were also adjusted to allow for circulation via Campus Parkway between SR 140 and Gerard Avenue rather than Tower Road.

Figures 7 and 8 illustrate the estimated project trips and peak hour traffic volumes at each of the study intersections for the 2030 Cumulative with Project Condition.

6.1 Intersection Operating Conditions

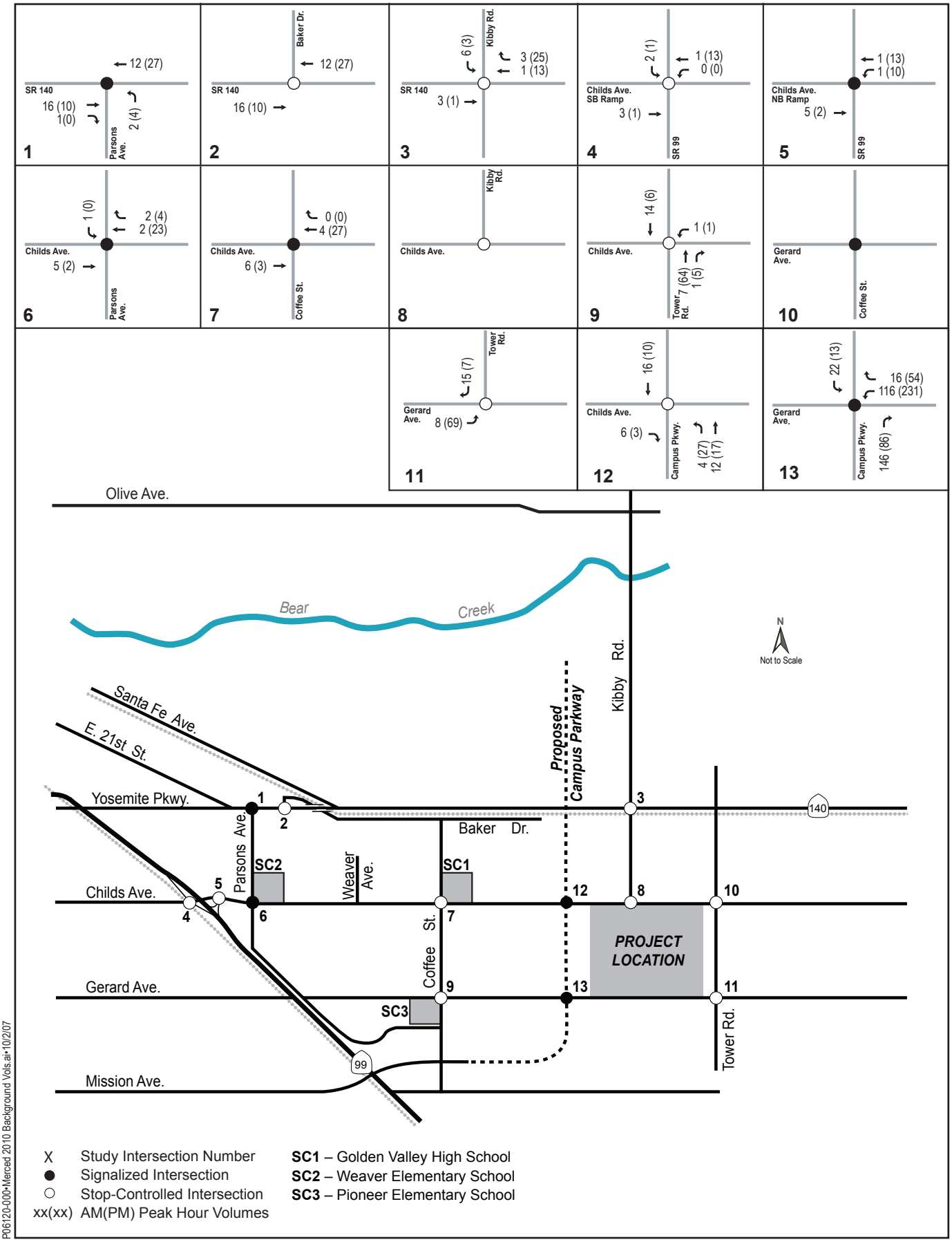
Intersection operational levels of service along with their associated delays are summarized in **Table 25. Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

The study intersections that would operate at acceptable LOS (LOS D or better) under the 2030 Cumulative No Project Condition would continue to operate at acceptable LOS under the 2030 Cumulative with Project Condition with the exception of one intersection. At the intersection of Mission Avenue at SR 99 northbound off-ramp, the LOS would deteriorate from D to E.

For the intersections that would operate at LOS E or F under the 2030 Cumulative No Project Condition, the proposed project would not contribute more than five percent of the intersection total volume at any of the intersections during either the AM or PM peak hours. Overall, the proposed project would result in significant cumulative impacts at one intersection during the PM peak hour.

6.2 Roadway Segment Operating Condition

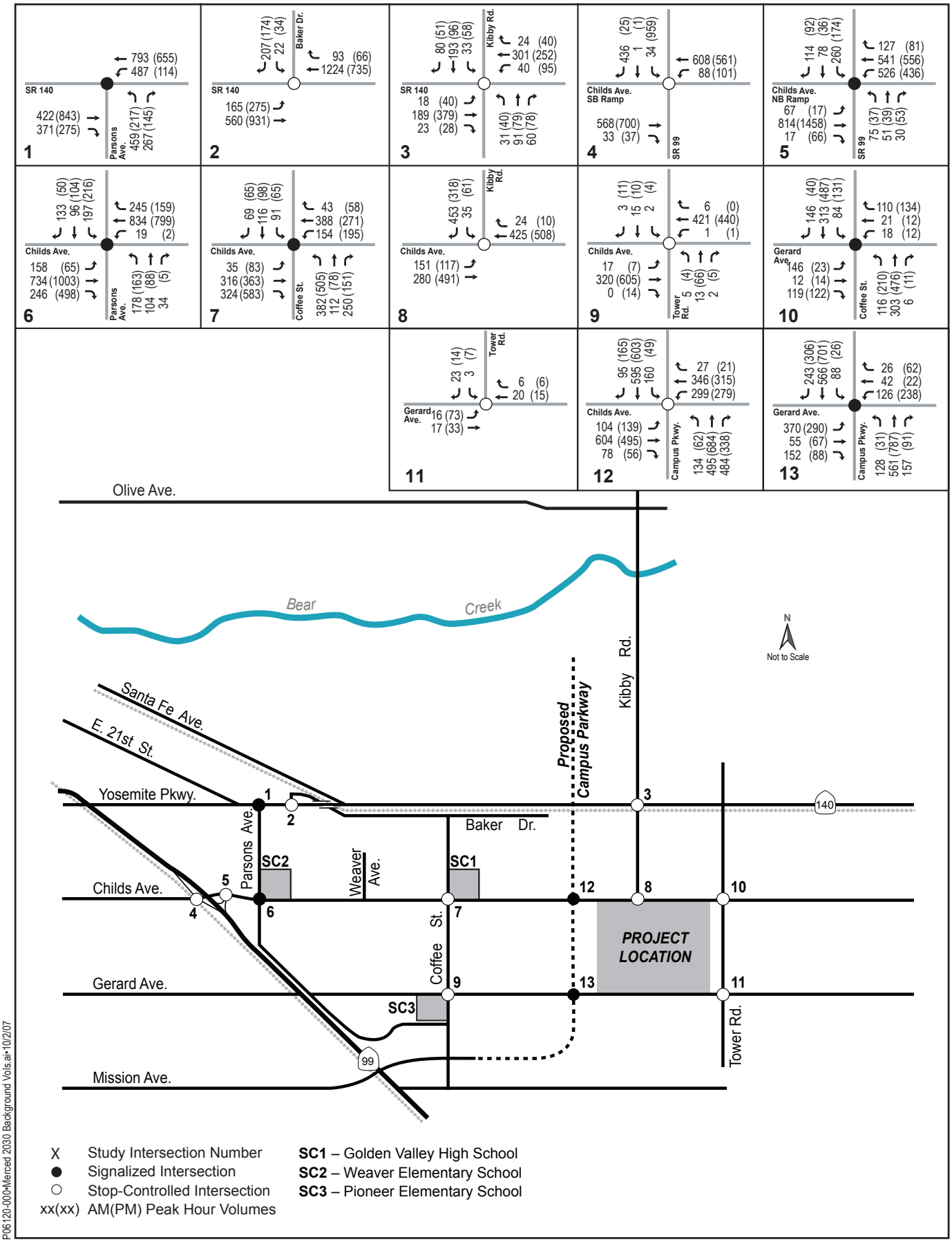
Table 26 provides a summary of the roadway segments operation conditions, including MOE's and LOS. **Appendix B** includes the detailed LOS calculation sheets. The addition of project traffic would cause the segment of SR 99 between Santa Fe Avenue and Kibby Road to deteriorate from LOS D under the 2030 Cumulative No Project Condition to LOS E during the PM Peak hour. This would be a significant cumulative project impact. All other study roadway segments would operate at an acceptable LOS (LOS D or better).



P06120-000•Merced 2010 Background Vols.ai•10/2/07

DKS *Associates*
TRANSPORTATION SOLUTIONS

Figure 7
Project Trip Assignment
2030 Cumulative Condition



P06120-0004/Merced 2030 Background Vols.ai•10/2/07

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 8
2030 Cumulative with Project Condition
Weekday Peak Hour Intersection Volumes

Table 25
2030 Cumulative With Project Condition
Intersection Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour				PM Peak Hour			
			Delay[a]	LOS[b]	% Vol Incr[c]	Project Impact	Delay	LOS	% Vol Incr[c]	Project Impact
1	SR 140 / Parsons Avenue	Signalized	93.1	F	1.2	No	38.7	D		No
2	SR 140 / Baker Drive	Unsignalized	5.8		1.5	No	6.6		2.0	No
	SB Approach		>50.0 [d]	F			>50.0	F		
	EB Left		10.3	B			9.7	A		
3	SR 140 / Kibby Road	Unsignalized	46.2		0.7	No	3.3		2.8	No
	NB Approach		>50.0	F			>50.0	F		
	SB Approach		>50.0	F			44.8	E		
	EB Left		9.6	A			9.2	A		
	WB Left		9.7	A			0.0	A		
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC	>50.0	F	0.2	No	>50.0	F	0.6	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0	F	0.2	No	>50.0	F	0.9	No
6	Childs Avenue / Parsons Avenue	Signalized	66.4	E	0.4	No	64.8	E	1.2	No
7	Childs Avenue / Coffee Street	Signalized	28.6	C		No	32.7	C		No
8	Childs Avenue / Kibby Road	Unsignalized	2.5			No	1.8			No
	SB Approach		10.3	B			12.1	B		
	EB Left		7.7	A			7.8	A		
9	Childs Avenue / Tower Road	Unsignalized	1.7			No	2.1			No
	NB Approach		11.2	B			15.0	B		
	SB Approach		10.7	B			13.5	B		
	EB Left		7.6	A			7.7	A		
	WB Left		7.5	A			8.0	A		
10	Gerard Avenue / Coffee Street	AWSC [e]	9.5	A		No	10.0	A		No
11	Gerard Avenue / Tower Road	Unsignalized	7.1			No	7.5			No
	SB Approach		6.6	A			6.9	A		
	EB Left		7.3	A			7.7	A		
12	Childs Avenue / Campus Parkway	Signalized	27.6	C		No	28.4	C		No
13	Gerard Avenue / Campus Parkway	Signalized	31.0	C		No	51.2	D		No
14	Mission Avenue / SR 99 Southbound Off-Ramp	Signalized	21.2	C		No	22.1	D		No
15	Mission Avenue / SR 99 Northbound Off-Ramp	Signalized	30.6	C		No	55.1	E		**Yes**
16	Mission Avenue / Coffee Street	Signalized	37.7	D		No	48.5	D		No

Source: DKS Associates

Notes:
a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. % Vol Incr = percent increase in the intersection traffic volumes due to the project trips. Percent increase is reported only at any of the intersections that would already operate at an unacceptable LOS without the project.
d. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
e. AWSC = All-way stop control

Table 26-A
2030 Cumulative With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	2531	17.4	C	3164	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	2773	19.0	C	4208	29.0	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	1196	28.9	B	999	31.8	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	973	32.1	A	955	32.3	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	1109	39.1	A	944	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	1173	38.8	A	964	39.5	A
		Two-lane Highway Class I	from Santa Fe Ave. to Kibby Rd	Percent Time-Spent-Following	1899	82.7	E	1766	80.5	E
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	515	34.7	A	428	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	474	34.8	A	409	34.9	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	96	30.0	A	92	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	200	30.0	A	50	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	208	30.0	A	381	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	273	29.9	A	234	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	157	35.0	A	148	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	60	35	A	59	35	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	353	40.0	A	307	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	269	40.0	A	382	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 26-B
2030 Cumulative With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	70	45.0	A	69	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	110	45.0	A	76	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	1130	30.0	B	1015	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	1112	30.3	A	1148	29.7	B
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	789	33.7	A	647	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	854	33.2	A	799	33.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	300	40.0	A	222	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	281	40.0	A	246	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	133	40.0	A	355	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	231	40.0	A	236	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	722	34.9	A	729	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	823	34.9	A	1495	33.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	626	35.0	A	573	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	573	35.0	A	475	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	594	35.0	A	687	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	544	35.0	A	503	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

6.3 2030 Cumulative with Project Condition Traffic Signal Warrant Analysis

Table 27 summarizes the traffic signal warrant analysis performed at the five unsignalized intersections that would operate at an unacceptable level of service under the 2030 Cumulative No Project Condition. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Similar to the 2030 Cumulative No Project Condition, a signal warrant would be met at all five intersections during the AM peak hour and four intersections during the PM peak hour.

Table 27
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

See Section 2.4 for definition of criteria.

7. MITIGATION MEASURES

Mitigation measures are recommended for the project impacts and projected transportation deficiencies.

7.1 Intersection Mitigation Measures

7.1.1 Intersection Mitigation Measure 1 – Mission Avenue at SR 99 Northbound Off-Ramp

Under the 2030 Cumulative with Project Condition PM peak hour, the intersection would deteriorate from LOS D to E, resulting in a significant impact. Under this condition, traffic would increase in the westbound-right movement and northbound-right movements traveling between NB SR 99 and the proposed project site.

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.

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 PM peak hour under 2030 Cumulative with Project Conditions.

7.1.2 Intersection Mitigation Measure 2 - Intersection of SR 140 and Parsons Avenue

Under the 2030 Cumulative No Project Conditions, traffic on SR 140 would operate at deficient LOS F due to high traffic volumes along SR 140. In order to achieve acceptable levels of service, the intersection would have to have a revised traffic signal timing plan as part of a regular signal maintenance routine. This measure would improve the intersection to operate at an acceptable LOS of D during the AM peak hour for the 2030 Cumulative No Project Condition.

7.1.3 Intersection Mitigation Measure 3 - Intersection of SR 140 and Baker Drive

Under the 2010 Background and 2030 Cumulative No Project Conditions, traffic on Baker Drive would operate at deficient LOS (LOS E or F) due to high traffic volumes on SR 140. The intersection would also meet the traffic signal warrant under both 2010 Background and 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service, the intersection would have to be signalized to accommodate the southbound left-turn traffic. This measure would improve the intersection to LOS C during both AM and PM peak hours under the 2010 Background Conditions and the 2030 Cumulative No Project Conditions.

7.1.4 Intersection Mitigation Measure 4 – Intersection of SR 140 and Kibby Road

Under the 2030 Cumulative No Project Conditions, the northbound and southbound traffic on Kibby Road would deteriorate to deficient LOS. Even though the peak hour traffic volumes on SR 140 would be relatively light, the operating condition would not be improved by lane re-striping or adding a lane in any direction. The intersection would also meet the traffic signal

warrant under the 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service, the intersection would have to be signalized and the signal would need to be synchronized with the railroad signal just south of the intersection. The measure would improve the operating condition on Kibby Road approaches to acceptable LOS (LOS D or better) and maintain the intersection operating conditions at LOS B during both AM and PM peak hours.

7.1.5 Intersection Mitigation Measure 5 - Intersection of Childs Avenue and SR 99 northbound off-ramp

This intersection would operate at LOS F under the 2010 Background and 2030 Cumulative No Project Conditions during both AM and PM peak hours. The intersection would also meet the peak hour traffic signal warrant under both 2010 Background and 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service under 2010 Background Conditions, the intersection would have to be signalized and the eastbound approach would have to widened to two lanes. The intersection would operate at acceptable levels of service under 2030 Cumulative No Project Conditions by adding the second westbound left-turn lane in addition to widening the eastbound approach. The mitigation measure, however, may not be feasible within the existing right-of-way due to the overcross structure. The measures would improve the intersection to LOS C during the AM and PM peak hours under both the 2010 Background Conditions and the 2030 Cumulative No Project Conditions.

7.1.6 Intersection Mitigation Measure 6 - Intersection of Childs Avenue and SR 99 southbound off-ramp

This intersection would operate at LOS F during the PM peak hour and would meet a peak hour signal warrant under the 2010 Background Conditions. This intersection would operate at LOS F the 2030 Cumulative No Project Conditions during the both AM and PM peak hours.

The mitigation measure would require adding a second left-turn lane to the southbound approach, adding a westbound left-turn lane, and that the intersection be signalized and coordinated with the intersection of Childs Avenue at SR 99 northbound off-ramp. The measures would improve the intersection to LOS C during the PM peak hour under the 2010 Background Conditions and for both peak hours for the 2030 Cumulative No Project Condition.

7.1.7 Intersection Mitigation Measure 7 - Intersection of Childs Avenue and Parsons Avenue

Under 2030 Cumulative No Project Conditions, traffic at the intersection would deteriorate to LOS E for both of the AM and PM peak hours. In order to achieve acceptable levels of service, the signalized intersection would need a revised signal timing plan as part of a regular signal maintenance routine. This measure would improve the intersection to operate at an acceptable LOS D during the AM and PM peak hours for the 2030 Cumulative No Project Condition.

7.2 Roadway Segment Mitigation Measures

7.2.1 Roadway Mitigation Measure 1 - SR 140 between Santa Fe Avenue and Kibby Road

It was determined that the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road would operate at LOS E and D during the AM and PM peak hours respectively, under the 2030 Cumulative No Project Condition. An increase in traffic volume due to the project development would deteriorate the segment to LOS E during the PM peak hour. The roadway is currently classified as a two-lane highway. 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.

7.2.2 Roadway Mitigation Measure 3 -Tower Road between SR 140 and Gerard Avenue

Tower Road would be one of the truck access routes to the proposed Wal-Mart Distribution Center. Based on field observations, this roadway segment has poor pavement conditions, and the pavement markings along the middle of the road are faded. It is recommended that the roadway segment between SR 140 and Gerard Avenue be improved to address these issues. 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). It is also recommended that the intersection of Tower Road and SR 140 be widened to accommodate truck turning activities (such as providing turn bays and acceleration lane). The mitigation measure would help maintain traffic flow on SR 140. As a Caltrans facility, the roadway widening on SR 140 shall follow Caltrans design standards and will need to be approved by Caltrans.

7.3 Mitigation Fees

As per the City of Merced Standards and the Municipal Code requirements, WalMart will be required to comply with the following:

- Full right-of-way dedication and street improvements around the perimeter of the site, including Gerard Avenue, Childs Avenue, and Tower Road
- The City of Merced's Public Facilities Impact Fees (PFIF) (in 2009 dollars but will increase over time with annual adjustments each January, etc.), which are calculated at a 2009 rate of $3,812 per every 1,000 square feet of building area for a Light Industrial use, of which $2,900 per 1,000 square feet are set aside for traffic signals and roadway improvements (the rest covers fire, police, and parks/bikeways);
- The Regional Transportation Impact Fees (RTIF), which are calculated at a September 2008 of $1,409 per each 1,000 square feet of building area, and are also subject to annual increases in July of each year;
- The special fee for a traffic signal at Highway 140 and Kibby Road spelled out in Section 3.06 of the Development Agreement for Lyons Investments (dated October 19, 1998) to which this property is a part. Section 3.06 reads as follows:

"In lieu of having to install a traffic signal at Highway 140 and Kibby Road, Owner agrees to pay the City the sum of Three Hundred and Fifty Thousand Dollars ($350,000), increased by percent change in the All Urban Consumers Index, U.S. City Average (USCA), as supplied by the Bureau of Labor Statistics and payable at building permit at $0.125 per square feet of building. For example, for 10,000 square feet of construction, Owner would pay $1,250 adjusted by multiplying $1,250 by current quarter CPI (USCA divided by the base index. The funds collected shall be used for the signal at Highway 140 and Kibby Road and/or arterial roads, Eastern Beltway [now known as Campus Parkway], or collection streets within the vicinity of the Property."

7.4 Delivery Truck Parking Area

According to the site plan received from the Wal-Mart Stores, Inc., it is expected that non Wal-Mart delivery trucks would stop along the access roadway to the trailer parking and warehouse. It is recommended that the access roadway be designed to have a temporary parking area located between Gerard Avenue and the truck entrance. The parking area should be paved and marked as a designated temporary parking for delivery trucks. This would alleviate potential access and circulation issues along the access roadway.

7.5 Update of Safe Routes to School Plans

It is recommended that school bus and pedestrian routes in the vicinity of the Wal-Mart Distribution Center be updated taking into account the potential truck routes. Updating the Safe Route to School Plans would help minimize potential conflicts between school and Wal-Mart traffic.

7.6 Project's Share of Traffic

Table 28 provides a breakdown of project traffic for the purposes of calculating the fiar share contribution towards any mitigation measures.

Table 28
Project's Share of Traffic
2030 Cumulative with Project Condition

No	Study Intersection	Trips (veh/hr)						Percentages(%)					
		Project		2030 Cumulative		Total		Project		2030 Cumulative		Total	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	SR 140 / Parsons Avenue	31	41	2620	2302	2651	2343	1.2%	1.7%	98.8%	98.3%	100.0%	100.0%
2	SR 140 / Baker Drive	29	34	2028	1745	2057	1779	1.4%	1.9%	98.6%	98.1%	100.0%	100.0%
3	SR 140 / Kibby Road	13	43	1942	1580	1955	1623	0.7%	2.6%	99.3%	97.4%	100.0%	100.0%
4	Childs Avenue / SR 99 SB Off-Ramp	6	15	2588	2376	2594	2391	0.2%	0.6%	99.8%	99.4%	100.0%	100.0%
5	Childs Avenue / SR 99 NB Off-Ramp	7	25	2842	2725	2849	2750	0.2%	0.9%	99.8%	99.1%	100.0%	100.0%
6	Childs Avenue / Parsons Avenue	10	32	2765	2667	2775	2699	0.4%	1.2%	99.6%	98.8%	100.0%	100.0%
7	Childs Avenue / Coffee Street	9	32	1110	1075	1119	1107	0.8%	2.9%	99.2%	97.1%	100.0%	100.0%
8	Childs Avenue / Kibby Road	0	0	469	665	469	665	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
9	Childs Avenue / Tower Road	23	77	405	679	428	756	5.4%	10.2%	94.6%	89.8%	100.0%	100.0%
10	Gerard Avenue / Coffee Street	5	18	693	749	698	767	0.7%	2.3%	99.3%	97.7%	100.0%	100.0%
11	Gerard Avenue / Tower Road	23	77	117	161	140	238	16.4%	32.4%	83.6%	67.6%	100.0%	100.0%
12	Mission Avenue / SR 99 SB Off-Ramps	165	165	2032	2332	2197	2497	7.5%	6.6%	92.5%	93.4%	100.0%	100.0%
13	Mission Avenue / SR 99 NB Off-Ramps	263	317	2656	3447	2919	3764	9.0%	8.4%	91.0%	91.6%	100.0%	100.0%
14	Mission Avenue / Coffee Street	262	317	2665	3493	2927	3810	9.0%	8.3%	91.0%	91.7%	100.0%	100.0%
15	Campus Parkway / Childs Avenue	300	383	1876	1916	2176	2299	13.8%	16.7%	86.2%	83.3%	100.0%	100.0%
16	Campus Parkway / Childs Avenue	33	48	1397	1415	1430	1463	2.3%	3.3%	97.7%	96.7%	100.0%	100.0%

PROPOSED PROJECT ALTERNATIVES

Project alternatives were developed to reduce or eliminate the potentially significant adverse environment impact of the project while attempting to meet the project objectives. The alternatives would either relocate the project site to different location or continue to develop the project at the same location as the proposed project with a project size reduction. This section discusses the potential operational impacts to the intersections and roadways in the vicinity of the alternative project sites.

8.1 No Project - Alternative

This alternative assumes that the site will not be developed with the proposed project. The project site is designated for industrial use under the Merced General Plan and zoning ordinance. Therefore, it is assumed that under this alternative, the project site would be developed with a project that includes approximately one million square feet of warehouse or industrial use.

Transportation Related Impact

For the purposes of this analysis, it was assumed that the General Plan land use would result in similar transportation impacts as the proposed project, as the trip generation would be approximately the same. It was assumed that the site would accommodate an industrial or warehouse land use of a size similar to the proposed project. And based on the location of the site and its proximity to SR 99, it would function similarly to the proposed project in terms of the number of employees, trucks trips and auto traffic

8.2 Redesigned Site Plan – Alternative

The alternative would shift project facilities including truck loading area, trailer parking areas and the employee parking lot to the eastern edge of the proposed project site. Driveway access to the project site for tractor trailers would be shifted from the west edge of the project site to a point near the eastern edge of the project site.

Transportation Related Impact

By shifting project activities towards the east, there would be some moderate shift in travel patterns for vehicles accessing the site. Study intersections that would potentially be affected are along Childs, Gerard, Tower and Campus Parkway in the immediate site vicinity. However, based on the analysis of the proposed project, these intersections would continue to operate at the same levels of service regardless of where the access points, buildings and parking lots are located on the site. There would be some differences in traffic volumes at the nearby intersections, based on whether the vehicles access the site from one street compared to another, but not enough to result in a change in service level compared to the proposed project analysis. Further away from the project site there would be no changes in intersection operating conditions based on the redesigned site plan, as the site plan changes would not result in changes to circulation patterns away from the site. On site, truck queuing issues would still need to be addressed, as with the proposed project.

8.3 Reduced Site Plan and Operations – Alternative

The alternative assumes that the project site would be developed with a reduction of the project site plan and it operations. The following revision would be made to the proposed project.

- Building size would be reduced by 25 percent to 825,000 square feet
- Total impervious surface area would be reduced by 25 to approximately 52.5 acres
- Number of employees would be reduced by 25 percent to approximately 900 employees
- Number of tractor trailer daily trips to and from the project site would be reduced by 25 percent to approximately 782 daily trips

Transportation Related Impact

A reduced site plan and operations alternative would result in proportionately less traffic. The number of employee trips and truck trips would be reduced as noted above. However, the reduced site plan would not result in less transportation impacts compared to the proposed project. Traffic signal warrants would still be met at the same unsignalized intersections, as they would be satisfied regardless of the proposed project or its alternatives. It is also likely that the cumulative intersection impact at the intersection of Mission Avenue and SR 99 southbound off-ramps would also occur under this alternative.

8.4 Alternative Site 1

This alternative site is located immediately south of the project site between Mission Avenue and Gerard Ave. Figure 9 illustrates alternative project locations relative to the proposed project site. This site is within the Merced city limits.

Transportation Related Impact

Under this alternative it assumed that both auto and truck trips would use the same routes to travel to or from the site as they would under the proposed project location. However, auto trips from SR 99 north would now be assumed to access the site vicinity through the SR 99/Mission interchange instead of the SR 99/Childs Avenue interchange. While this may result in slightly better intersection operations at the Childs/Parsons and Childs/ Coffee intersections, no additional transportation impacts would be anticipated under this alternative.

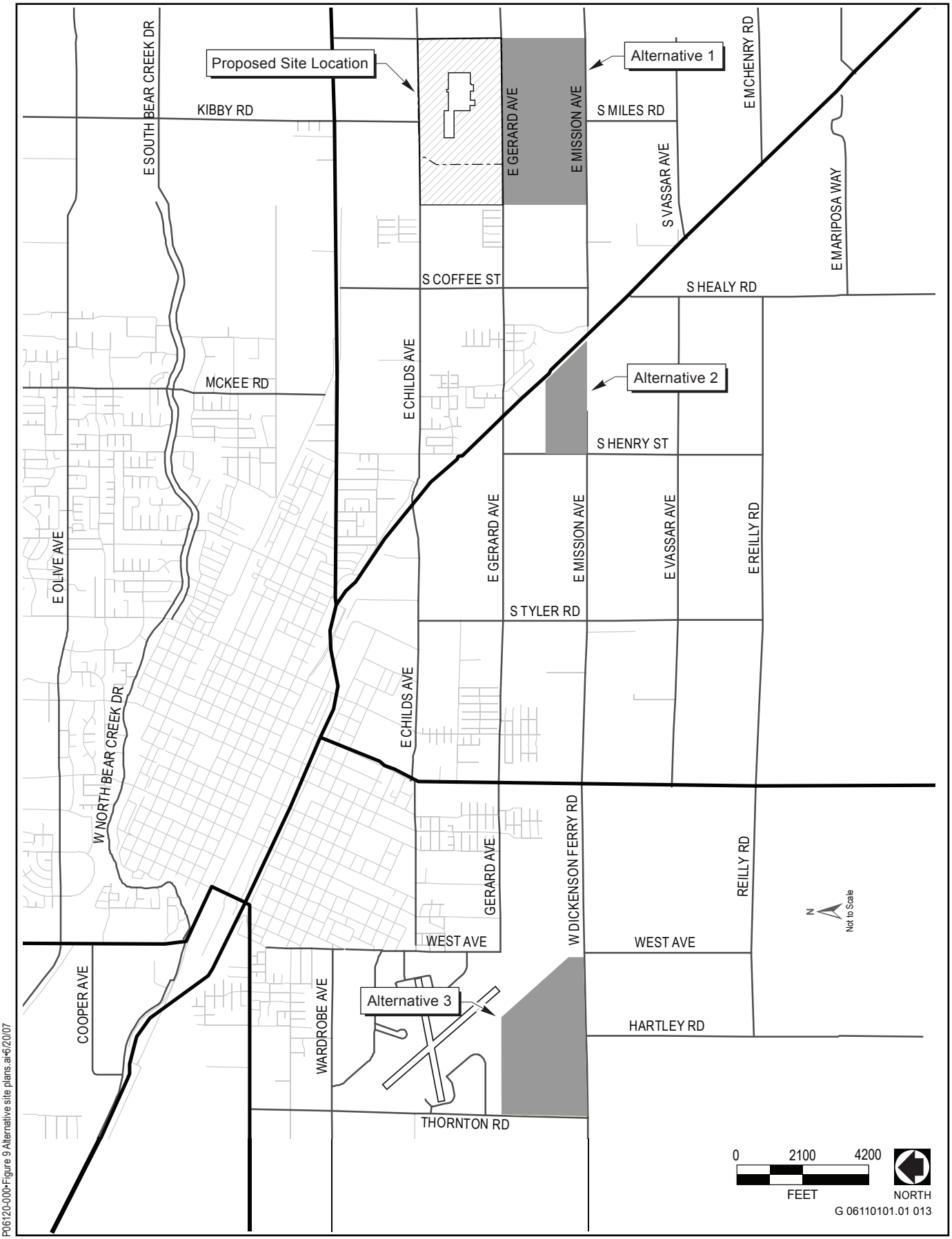
8.5 Alternative Site 2

The alternative site is located on the west side of Highway 99, approximately 1.8 miles west of the project site. It is bounded by Highway 99 to the east, Mission Avenue to the south and Henry St to the west. Figure 9 illustrates alternative project locations relative to the proposed project site. This site is in unincorporated Merced County.

Transportation Related Impact

More truck trips from SR 99 and SR 140 would now be assumed to use the SR 99/Mission interchange to access the site. Truck trips from SR 152 would be assumed to use California

Highway 59 and Mission Avenue. It was assumed that auto trips from Kibby Road, SR 140 East, Childs Avenue east of Tower would use Campus Parkway as a major route to the project site.



DKS Associates
TRANSPORTATION SOLUTIONS

Figure 9
Project Alternative Site Locations

Auto trips from SR 140 between Parsons Avenue and Santa Fe Avenue were assumed to use SR 99 via Parsons Avenue and Childs Avenue. The auto trips from other area were assumed to use SR 99. A few trips Childs Avenue, west of SR 99 would be expected to use Tyler Road and Mission Avenue.

As a result, it is anticipated that traffic conditions at the study intersections along Childs Avenue (at Parsons Avenue and SR 99 northbound and southbound ramps) would worsen when compared to the proposed project site location. However, an increase in traffic volumes due to the project trips would not be trigger any new impacts at these intersections and thus no significant impacts at any of the study intersections would be anticipated.

8.6 Alternative Site 3

The alternative site is located approximately 5.8 miles west of the project site. It is between Dickenson Ferry Road, Thornton Road, and immediately south of Merced Municipal Airport, as illustrated in Figure 9. This site is in unincorporated Merced County.

Transportation Related Impact

Most truck trips would access the project site via the SR 99/ Mission interchange. Truck trips from SR 140 West and SR 152 would be assumed to use Thornton Road and California Highway 59 respectively. It was assumed that auto trips from the area north of the project site would access the project site via SR 140 West, Thornton Road, Childs Avenue and California Highway 59.

The study intersections analyzed under the proposed project condition would not be significantly impacted by the project trips for this alternative, and many would experience less traffic as the alternative site is much further west. However, an increase in traffic volumes due to the project would be expected along a different set of travel routes. Because the analysis of the proposed project did not extend this far west, the potential transportation impacts of this alternative site would need to be investigated at several additional intersections and roadway segments not previously analyzed. These include those listed below:

Intersections:

- Dickenson Ferry/Thornton.
- Thornton/ SR 140
- Dickenson Ferry-Mission/ California Highway 59
- Childs/California Highway 59

Roadway Segments

- Thornton Rd between SR 140 and Dickenson Ferry Road
- California Highway 59 between Mission Avenue and Childs Avenue
- Childs Avenue between California Highway 59 and SR 99
- Mission Avenue between Thornton Road and SR 99

9. CONCLUSION

This section summarizes the potential traffic impacts identified in the previous sections and presents recommended mitigation measures.

The study determined the potential transportation impacts of the proposed Wal-Mart Distribution Center. Sixteen study intersections and seventeen roadway segments were selected to evaluate their operating conditions under Existing Condition, 2010 Background Condition, 2010 Background with Project Conditions, 2030 Cumulative No Project Condition and 2030 Cumulative with Project Conditions. In addition, two new intersections along Campus Parkway at Childs Avenue and at Gerard Avenue were also included in this study.

The City and County of Merced has proposed to construct a new Campus Parkway corridor that will connect the Mission Interchange at SR 99 to the area north of Merced. Based on the information provided by the County of Merced, Campus Parkway Phase 1 would be constructed between Mission Interchange and Childs Avenue and would be finished before 2010. It was expected that by year 2030, the Campus Parkway corridor would be completed and extended beyond Childs Avenue, connecting SR 140 by two loop ramps on the north side of SR 140.

The project trips generated by Wal-Mart Distribution Center were estimated based on the current trip generation of a similar Wal-Mart distribution center, in Apple Valley, San Bernardino County. It was assumed that Wal-Mart truck routes to the project site would be via SR99, SR 140, Campus Parkway, Tower Road and Gerard Avenue (between Campus Parkway and Tower Road).

Following the *Guide for the Preparation of Traffic Impact Studies* developed by State of California Department of Transportation (Caltrans), the study used several Measures of Effectiveness (MOE) to evaluate the Level of Services (LOS) of the study intersections and roadway segments under different study conditions. The study concluded that the proposed development of the Wal-Mart Distribution Center would result in a significant cumulative project transportation impact to the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road under 2030 Cumulative with Project Condition, during the PM peak hour. Adding a lane in each direction would fully mitigate this impact and return the roadway segment LOS to acceptable levels. In addition, one other roadway segment mitigation measure has been proposed to restore the LOS to acceptable levels.

To address operating deficiencies and the cumulative project impact, mitigation measures were recommended that would improve the operating conditions of intersections that are currently or projected to be deficient. One intersection, Mission Avenue at SR 99 northbound off-ramp would experience a significant impact as a result of the proposed project during the 2030 Cumulative with Project Condition, during the PM peak hour. However, restriping at this intersection would fully mitigate this impact and return the intersection LOS to acceptable levels. For six intersections experiencing operating deficiencies under various non-project conditions, mitigation measures have been suggested to restore the LOS to acceptable levels. In addition, several project alternatives were evaluated to determine the potential transportation related impacts.

TABLE OF CONTENTS

Executive Summary **1**

1. Introduction **9**

1.1 Analysis Methodology 9
1.2 Project Trip Generation 11
1.3 Data Collection 12
1.4 Level of Service Calculations 12

2. Existing Condition **16**

2.1 Roadway Network 16
2.2 Existing Intersection Operating Conditions 17
2.3 Existing Roadway Segment Operating Conditions 17
2.4 Existing Condition Traffic Signal Warrant Analysis 22
2.5 Transit, Pedestrian and Bicycle Operations 23
2.6 Public Schools 23

3. 2010 Background Condition **24**

3.1 Roadway Improvements 24
3.2 Background Trip Generation 24
3.3 Background Trip Distribution 26
3.4 Background Traffic Volumes 26
3.5 Intersection Operating Conditions 29
3.6 Roadway Segment Operating Conditions 29
3.13 2010 Background Condition Traffic Signal Warrant Analysis 29

4. 2010 Background with Project Condition **33**

4.1 Significance Criteria and Project Impacts 33
4.2 Trip Generation 33
4.3 Trip Distribution 34
4.4 Intersection Operating Conditions 35
4.5 Roadway Segment Operating Condition 36
4.6 2010 Background Condition with Project Traffic Signal Warrant Analysis 42
4.7 State Highway Analysis 42
4.8 Truck Turning Radii Evaluation 42
4.9 Delivery Truck Parking Area 43
4.10 The Potential Conflict of School Buses and Wal-Mart Trucks 43
4.11 Parking Analysis 43
4.12 Transit, Pedestrian and Bicycle Review 44
4.13 Construction Traffic Impacts 44

5. 2030 Cumulative No Project Condition **46**

5.1 Roadway Improvements 46
5.2 2030 Cumulative Background Trip Generation 46
5.3 2030 Cumulative Trip Distribution 48
5.4 Intersection Operating Conditions 48

5.5 Roadway Segment Operating Conditions 51
5.6 2030 Cumulative No Project Condition Traffic Signal Warrant Analysis 54

6. 2030 Cumulative with Project Condition 55

6.1 Intersection Operating Conditions 55
6.2 Roadway Segment Operating Condition 55
6.3 2030 Cumulative with Project Condition Traffic Signal Warrant Analysis 61

7. Mitigation Measures 62

7.1 Intersection Mitigation Measures 62
7.2 Roadway Segment Mitigation Measures 64
7.3 Mitigation Fees 64
7.4 Delivery Truck Parking Area 65
7.5 Update of Safe Routes to School Plans 65
7.6 Project's Share of Traffic 65

8. Proposed Project Alternatives 67

8.1 No Project - Alternative 67
8.2 Redesigned Site Plan – Alternative 67
8.3 Reduced Site Plan and Operations – Alternative 68
8.4 Alternative Site 1 68
8.5 Alternative Site 2 68
8.6 Alternative Site 3 71

9. Conclusion 72

Appendix A Level of Service Calculations
Appendix B Peak Hour Signal Warrant Analysis
Appendix C The Illustrations of The Truck Turnings
Appendix D Merced Wal-Mart Distribution Center Project Information
Appendix E The City of Merced Bikeway Map

LIST OF FIGURES

Figure 1 Project Study Area 10
Figure 2 Existing Conditions Peak Hour Volumes 18
Figure 3 2010 Background Conditions Peak Hour Traffic Volumes 28
Figure 4 2010 Background with Project Condition - Peak Hour Project Trips 37
Figure 5 2010 Background with Project Condition – Peak Hour Volumes 38
Figure 6 2030 Cumulative No Project Condition - Peak Hour Volumes 49
Figure 7 2030 Cumulative with Project Condition - Peak Hour Project Trip 56
Figure 8 2030 Cumulative with Project Condition – Peak Hour Volumes 57
Figure 9 Alternative Project Site Locations 70

LIST OF TABLES

Table ES 1-A AM Peak Hour Intersection Level of Service Summary 3
Table ES 1-B PM Peak Hour Intersection Level of Service Summary 4
Table ES 2-A AM Peak Hour Roadway Segment Level of Service Summary 5
Table ES 2-A AM Peak Hour Roadway Segment Level of Service Summary 5
Table ES 2-B AM Peak Hour Roadway Segment Level of Service Summary 6
Table ES 2-C PM Peak Hour Roadway Segment Level of Service Summary 7
Table ES 2-D PM Peak Hour Roadway Segment Level of Service Summary 8
Table 1 Surveyed Trip Generation Wal-Mart Distribution Center in Apple Valley 12
Table 2 Signalized and Unsignalized Intersection LOS Thresholds 13
Table 3 Two-Lane Highway LOS Thresholds 14
Table 4 Urban Street LOS Thresholds 15
Table 5 Basic Freeway Segment LOS Thresholds 15
Table 6 Existing Condition Intersection-Level of Service Analysis 19
Table 7-A Existing Condition Roadway Segment-Level of Service Analysis 20
Table 7-B Existing Condition Roadway Segment-Level of Service Analysis 21
Table 8 Existing Condition Signal Warrant Analysis 22
Table 9 Approved Residential Projects – Trip Generation [1] 25
Table 10 Approved Residential Projects – Trip Distribution Assumptions 26
Table 11 Approved Commercial Development Projects – Trip Distribution Assumptions 26
Table 14 2010 Background Condition Signal Warrant Analysis 29
Table 12 2010 Background Condition Intersection-Level of Service Analysis 30
Table 13-A 2010 Background Condition Roadway Segment-Level of Service Analysis 31
Table 13-B 2010 Background Condition Roadway Segment-Level of Service Analysis 32
Table 15 Employees by Title and Division 34
Table 16 Proposed Project trip Generation 34
Table 17 Proposed Project Trip Distribution Assumption 35
Table 18 2010 Background With Project Condition Intersection-Level of Service Analysis 39
Table 19-A 2010 Background With Project Condition Roadway Segment-Level of Service Analysis 40
Table 19-B 2010 Background With Project Condition Roadway Segment-Level of Service Analysis 41
Table 20 2010 Background with Project Condition Signal Warrant Analysis 42
Table 21 Parking Analysis 44
Wal-Mart Distribution Center 44
Table 22 Merced Gateway Park – Trip Generation [1] 47
Table 23 2030 Cumulative No Project Condition Intersection Level of Service Analysis 50
Table 24-A 2030 Cumulative No Project Condition Roadway Segment-Level of Service Analysis .52
Table 24-B 2030 Cumulative No Project Condition Roadway Segment-Level of Service Analysis .53
Table 24 2030 Cumulative No Project Condition Signal Warrant Analysis 54
Table 25 2030 Cumulative With Project Condition Intersection Level of Service Analysis 58
Table 26-A 2030 Cumulative With Project Condition Roadway Segment-Level of Service Analysis 59
Table 26-B 2030 Cumulative With Project Condition Roadway Segment-Level of Service Analysis 60
Table 27 2030 Cumulative with Project Condition Signal Warrant Analysis 61
Table 28 Project's Share of Traffic 2030 Cumulative with Project Condition 66

APPENDICES

Merced Wal-Mart Distribution Center
Traffic Impacts Analysis

APPENDIX A

Merced Wal-Mart Distribution Center

Level of Service Calculation

Existing Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	Existing AM
Command:	Default Command
Volume:	Existing AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	C	24.1	0.556	C	24.1	0.556	+ 0.000 D/V
# 2 SR 140 / Baker	C	18.8	0.000	C	18.8	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	13.7	0.000	B	13.7	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	B	12.3	0.508	B	12.3	0.508	+ 0.000 V/C
# 5 Childs / SR 99 NB	C	18.5	0.784	C	18.5	0.784	+ 0.000 V/C
# 6 Childs / Parsons	D	51.9	0.713	D	51.9	0.713	+ 0.000 D/V
# 7 Childs / Coffee	C	30.4	0.340	C	30.4	0.340	+ 0.000 D/V
# 8 Childs / KIbby	A	9.4	0.000	A	9.4	0.000	+ 0.000 D/V
# 9 Childs / Tower	A	9.8	0.000	A	9.8	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.3	0.257	A	8.3	0.257	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.019	A	6.9	0.019	+ 0.000 V/C
# 12 MIssion / SR 99 SB	B	17.8	0.083	B	17.8	0.083	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	24.1	0.040	C	24.1	0.040	+ 0.000 D/V
# 14 Mission / Coffee	A	8.1	0.127	A	8.1	0.127	+ 0.000 V/C
# 15 Gerard / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C
# 42 Childs / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.556
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 24.1
Optimal Cycle: 57 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	20	0	20		0	0	0		0	17	17		5	20	0	
Lanes:	1	0 0	0	1	0	0 0	0	0	0	0 1	0		1	0 1	0	0
Volume Module:																
Base Vol:	156	0	152		0	0	0		0	285	137		278	459	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	156	0	152		0	0	0		0	285	137		278	459	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	156	0	152		0	0	0		0	285	137		278	459	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	156	0	152		0	0	0		0	285	137		278	459	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	156	0	152		0	0	0		0	285	137		278	459	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		1.00	1.00	1.00		1.00	0.96	0.96		0.95	1.00	1.00	
Lanes:	1.00	0.00	1.00		0.00	0.00	0.00		0.00	0.68	0.32		1.00	1.00	0.00	
Final Sat.:	1805	0	1615		0	0	0		0	1227	590		1805	1900	0	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.00	0.09		0.00	0.00	0.00		0.00	0.23	0.23		0.15	0.24	0.00	
Crit Moves:	****									****			****			
Green/Cycle:	0.20	0.00	0.20		0.00	0.00	0.00		0.00	0.39	0.39		0.26	0.65	0.00	
Volume/Cap:	0.43	0.00	0.47		0.00	0.00	0.00		0.00	0.59	0.59		0.59	0.37	0.00	
Uniform Del:	35.0	0.0	35.3		0.0	0.0	0.0		0.0	24.2	24.2		32.4	8.1	0.0	
IncremntDel:	0.8	0.0	1.1		0.0	0.0	0.0		0.0	1.4	1.4		2.1	0.2	0.0	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	0.00	1.00		0.00	0.00	0.00		0.00	1.00	1.00		1.00	1.00	0.00	
Delay/Veh:	35.9	0.0	36.4		0.0	0.0	0.0		0.0	25.5	25.5		34.5	8.3	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	35.9	0.0	36.4		0.0	0.0	0.0		0.0	25.5	25.5		34.5	8.3	0.0	
LOS by Move:	D	A	D		A	A	A		A	C	C		C	A	A	
HCM2kAvgQ:	5	0	5		0	0	0		0	11	11		8	6	0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: C[18.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0 1!	0	0	0	0 1!	0	0	1	0 1	0	0	1	0 0	1	0
Volume Module:																
Base Vol:	2	1	5		24	0	64		37	391	0		0	588	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	2	1	5		24	0	64		37	391	0		0	588	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	2	1	5		24	0	64		37	391	0		0	588	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	2	1	5		24	0	64		37	391	0		0	588	30	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	1100	1083	391		1071	1068	603		618	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	191	219	662		200	223	503		972	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	162	211	662		192	215	503		972	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.01	0.00	0.01		0.12	0.00	0.13		0.04	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.9	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	325	xxxxx		xxxx	349	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.1	xxxxx		xxxxx	1.0	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	16.4	xxxxx		xxxxx	18.8	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	C	*		*	C	*		*	*	*		*	*	*	
ApproachDel:	16.4				18.8				xxxxxx				xxxxxx			
ApproachLOS:	C				C				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 3.7 Worst Case Level Of Service: B[13.7]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	18	39		0			17	47		37			23	125		24			2	253		17		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	18	39		0			17	47		37			23	125		24			2	253		17		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	18	39		0			17	47		37			23	125		24			2	253		17		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
FinalVolume:	18	39		0			17	47		37			23	125		24			2	253		17		
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2			7.1	6.5		6.2			4.1	xxxx		xxxxx			4.1	xxxx		xxxxx		
FollowUpTim:	3.5	4.0		3.3			3.5	4.0		3.3			2.2	xxxx		xxxxx			2.2	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	491	457		137			460	452		253			270	xxxx		xxxxx			149	xxxx		xxxxx		
Potent Cap.:	492	503		917			515	506		791			1305	xxxx		xxxxx			1445	xxxx		xxxxx		
Move Cap.:	428	493		917			477	497		791			1305	xxxx		xxxxx			1445	xxxx		xxxxx		
Volume/Cap:	0.04	0.08		0.00			0.04	0.09		0.05			0.02	xxxx		xxxx			0.00	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			0.1	xxxx		xxxxx			0.0	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			7.8	xxxx		xxxxx			7.5	xxxx		xxxxx		
LOS by Move:	*	*		*			*	*		*			A	*		*			A	*		*		
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	471	xxxx		xxxxx			xxxx	570		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	0.4	xxxx		xxxxx			xxxxx	0.6		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	13.7	xxxx		xxxxx			xxxxx	12.7		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	B	*		*			*	B		*			*	*		*			*	*		*		
ApproachDel:	13.7						12.7						xxxxxx						xxxxxx					
ApproachLOS:	B						B						*						*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.508
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 12.3
Optimal Cycle: 0 Level Of Service: B

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0		0		0		188		8		21		0	286		24			56	300		0		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0		0		0		188		8		21		0	286		24			56	300		0		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	0		0		0		188		8		21		0	286		24			56	300		0		
Reduct Vol:	0		0		0		0		0		0		0	0		0			0	0		0		
Reduced Vol:	0		0		0		188		8		21		0	286		24			56	300		0		
PCE Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
FinalVolume:	0		0		0		188		8		21		0	286		24			56	300		0		
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Lanes:	0.00	0.00		0.00			0.96	0.04		1.00			0.00	0.92		0.08			0.16	0.84		0.00		
Final Sat.:	0		0		0		505		21		634		0	645		54			110	590		0		
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx			0.37	0.37		0.03			xxxx	0.44		0.44			0.51	0.51		xxxx		
Crit Moves:							****							****						****				
Delay/Veh:	0.0	0.0		0.0			12.7	12.7		8.2			0.0	11.7		11.7			12.8	12.8		0.0		
Delay Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	0.0	0.0		0.0			12.7	12.7		8.2			0.0	11.7		11.7			12.8	12.8		0.0		
LOS by Move:	*	*		*			B	B		A			*	B		B			B	B		*		
ApproachDel:	xxxxxx						12.2						11.7						12.8					
Delay Adj:	xxxxx						1.00						1.00						1.00					
ApprAdjDel:	xxxxxx						12.2						11.7						12.8					
LOS by Appr:	*						B						B						B					
AllWayAvgQ:	0.0	0.0		0.0			0.5	0.5		0.0			0.7	0.7		0.7			0.9	0.9		0.9		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.784
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.5
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	15	35	37	101	40	76	80	396	24	213	266	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	35	37	101	40	76	80	396	24	213	266	90
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	15	35	37	101	40	76	80	396	24	213	266	90
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	35	37	101	40	76	80	396	24	213	266	90
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	15	35	37	101	40	76	80	396	24	213	266	90
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.70	1.00	0.72	0.28	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	127	295	468	315	125	503	464	505	546	471	505	553
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.08	0.32	0.32	0.15	0.17	0.78	0.04	0.45	0.53	0.16
Crit Moves:		****			****			****			****	
Delay/Veh:	11.5	11.5	10.3	13.8	13.8	10.5	11.7	29.7	9.3	15.9	16.8	10.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.5	11.5	10.3	13.8	13.8	10.5	11.7	29.7	9.3	15.9	16.8	10.1
LOS by Move:	B	B	B	B	B	B	B	D	A	C	C	B
ApproachDel:		11.0			12.7			25.8			15.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.0			12.7			25.8			15.4	
LOS by Appr:		B			B			D			C	
AllWayAvgQ:	0.1	0.1	0.1	0.4	0.4	0.2	0.2	2.8	0.0	0.8	1.0	0.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	0.713
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	51.9
Optimal Cycle:	73	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0	0 1	0	1 0	1 0	1	0 0	1! 0	0	1 0	1 0	1
Volume Module:												
Base Vol:	178	132	11	121	71	131	170	231	99	19	260	116
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	132	11	121	71	131	170	231	99	19	260	116
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	178	132	11	121	71	131	170	231	99	19	260	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	178	132	11	121	71	131	170	231	99	19	260	116
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	178	132	11	121	71	131	170	231	99	19	260	116
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.99	0.99	0.95	1.00	0.85	0.96	0.96	0.96	0.95	1.00	0.85
Lanes:	1.00	0.92	0.08	1.00	1.00	1.00	0.34	0.46	0.20	1.00	1.00	1.00
Final Sat.:	1805	1733	144	1805	1900	1615	618	840	360	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.10	0.08	0.08	0.07	0.04	0.08	0.28	0.28	0.28	0.01	0.14	0.07
Crit Moves:	****					****	****				****	
Green/Cycle:	0.09	0.26	0.26	0.08	0.24	0.24	0.27	0.43	0.43	0.06	0.23	0.23
Volume/Cap:	1.04	0.30	0.30	0.86	0.16	0.34	1.04	0.64	0.64	0.17	0.59	0.31
Uniform Del:	45.3	29.9	29.9	45.5	30.0	31.4	36.7	22.2	22.2	44.4	34.3	31.9
IncremntDel:	79.2	0.3	0.3	37.3	0.2	0.5	51.3	1.7	1.7	0.7	2.2	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	124.4	30.2	30.2	82.8	30.2	32.0	88.0	24.0	24.0	45.1	36.6	32.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	124.4	30.2	30.2	82.8	30.2	32.0	88.0	24.0	24.0	45.1	36.6	32.4
LOS by Move:	F	C	C	F	C	C	F	C	C	D	D	C
HCM2kAvgQ:	10	4	4	6	2	4	23	13	13	1	8	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.340
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 30.4
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	101	79	62	27	69	82	57	176	35	34	194	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	101	79	62	27	69	82	57	176	35	34	194	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	101	79	62	27	69	82	57	176	35	34	194	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	79	62	27	69	82	57	176	35	34	194	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	101	79	62	27	69	82	57	176	35	34	194	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.93	0.93	0.95	0.92	0.92	0.95	0.98	0.98	0.95	0.99	0.99
Lanes:	1.00	0.56	0.44	1.00	0.46	0.54	1.00	0.83	0.17	1.00	0.95	0.05
Final Sat.:	1805	994	780	1805	798	948	1805	1545	307	1805	1794	92
Capacity Analysis Module:												
Vol/Sat:	0.06	0.08	0.08	0.01	0.09	0.09	0.03	0.11	0.11	0.02	0.11	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.16	0.32	0.32	0.10	0.25	0.25	0.09	0.31	0.31	0.10	0.32	0.32
Volume/Cap:	0.34	0.25	0.25	0.15	0.34	0.34	0.34	0.36	0.36	0.19	0.34	0.34
Uniform Del:	37.0	25.2	25.2	41.1	30.4	30.4	42.5	26.7	26.7	41.4	26.1	26.1
IncremntDel:	0.7	0.2	0.2	0.4	0.5	0.5	1.2	0.4	0.4	0.5	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	37.6	25.5	25.5	41.4	30.9	30.9	43.7	27.1	27.1	41.9	26.4	26.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.6	25.5	25.5	41.4	30.9	30.9	43.7	27.1	27.1	41.9	26.4	26.4
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	C
HCM2kAvgQ:	3	3	3	1	4	4	2	5	5	1	5	5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 3.2 Worst Case Level Of Service: A[9.4]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	65	40	62	0	0	118	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	65	40	62	0	0	118	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	65	40	62	0	0	118	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	8	0	65	40	62	0	0	118	17
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	269	269	127	135	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	725	641	929	1462	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	710	623	929	1462	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	0.00	0.07	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	899	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.4	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.4			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[9.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	5	2	1		4	4	11		2	68	1		0	119	4	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	2	1		4	4	11		2	68	1		0	119	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	2	1		4	4	11		2	68	1		0	119	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	5	2	1		4	4	11		2	68	1		0	119	4	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	201	196	69		195	194	121		123	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	762	703	1000		769	705	936		1477	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	749	703	1000		765	704	936		1477	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.01	0.00	0.00		0.01	0.01	0.01		0.00	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	760	xxxxx		xxxx	838	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.0	xxxxx		xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	9.8	xxxxx		xxxxx	9.4	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	A	*		*	A	*		*	*	*		*	*	*	
ApproachDel:		9.8				9.4				xxxxxx				xxxxxx		
ApproachLOS:		A				A				*				*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.257
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.3
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	3	22	87		14	15	1		11	63	10		146	38	22	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	3	22	87		14	15	1		11	63	10		146	38	22	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	3	22	87		14	15	1		11	63	10		146	38	22	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	3	22	87		14	15	1		11	63	10		146	38	22	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	3	22	87		14	15	1		11	63	10		146	38	22	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.03	0.19	0.78		0.47	0.50	0.03		0.13	0.75	0.12		0.71	0.18	0.11	
Final Sat.:	22	162	642		334	358	24		104	595	94		569	148	86	
Capacity Analysis Module:																
Vol/Sat:	0.14	0.14	0.14		0.04	0.04	0.04		0.11	0.11	0.11		0.26	0.26	0.26	
Crit Moves:		****				****				****				****		
Delay/Veh:	7.7	7.7	7.7		7.9	7.9	7.9		7.9	7.9	7.9		8.8	8.8	8.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.7	7.7	7.7		7.9	7.9	7.9		7.9	7.9	7.9		8.8	8.8	8.8	
LOS by Move:	A	A	A		A	A	A		A	A	A		A	A	A	
ApproachDel:		7.7				7.9				7.9				8.8		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		7.7				7.9				7.9				8.8		
LOS by Appr:		A				A				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.0	0.0	0.0		0.1	0.1	0.1		0.3	0.3	0.3	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.019
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 6.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	1	0	4	6	8	0	0	14	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	1	0	4	6	8	0	0	14	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1	0	4	6	8	0	0	14	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1	0	4	6	8	0	0	14	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1	0	4	6	8	0	0	14	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.20	0.00	0.80	0.43	0.57	0.00	0.00	0.78	0.22
Final Sat.:	0	900	0	203	0	811	384	512	0	0	738	211
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.00	xxxx	0.00	0.02	0.02	xxxx	xxxx	0.02	0.02
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.1	7.1	0.0	0.0	6.9	6.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.1	7.1	0.0	0.0	6.9	6.9
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.5			7.1			6.9		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.5			7.1			6.9		
LOS by Appr:	*			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.083
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 17.8
Optimal Cycle: 41 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	0	0	0	33	0	31	0	99	18	1	72	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	33	0	31	0	99	18	1	72	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	33	0	31	0	99	18	1	72	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	33	0	31	0	99	18	1	72	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	33	0	31	0	99	18	1	72	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.93	0.93	0.94	0.94	0.94
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.69	0.31	0.03	1.82	0.15
Final Sat.:	0	0	0	1809	0	1615	0	2984	543	45	3251	271
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.03	0.03	0.02	0.02	0.02
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.40	0.40	0.27	0.67	0.67
Volume/Cap:	0.00	0.00	0.00	0.08	0.00	0.09	0.00	0.08	0.08	0.08	0.03	0.03
Uniform Del:	0.0	0.0	0.0	30.9	0.0	31.0	0.0	18.5	18.5	27.4	5.6	5.6
IncremntDel:	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	0.0	31.0	0.0	31.1	0.0	18.6	18.6	27.4	5.6	5.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	31.0	0.0	31.1	0.0	18.6	18.6	27.4	5.6	5.6
LOS by Move:	A	A	A	C	A	C	A	B	B	C	A	A
HCM2kAvgQ:	0	0	0	1	0	1	0	1	1	1	0	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.040
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 24.1
Optimal Cycle: 43 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	26	0	13	0	0	0	58	70	0	0	53	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	0	13	0	0	0	58	70	0	0	53	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	0	13	0	0	0	58	70	0	0	53	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	0	13	0	0	0	58	70	0	0	53	69
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	0	13	0	0	0	58	70	0	0	53	69
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.01	0.04
Crit Moves:	****							****		****		
Green/Cycle:	0.36	0.00	0.36	0.00	0.00	0.00	0.22	0.49	0.00	0.00	0.27	0.27
Volume/Cap:	0.04	0.00	0.02	0.00	0.00	0.00	0.14	0.04	0.00	0.00	0.06	0.16
Uniform Del:	20.7	0.0	20.5	0.0	0.0	0.0	31.3	13.4	0.0	0.0	27.3	28.1
IncremntDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	20.7	0.0	20.5	0.0	0.0	0.0	31.4	13.4	0.0	0.0	27.3	28.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.7	0.0	20.5	0.0	0.0	0.0	31.4	13.4	0.0	0.0	27.3	28.3
LOS by Move:	C	A	C	A	A	A	C	B	A	A	C	C
HCM2kAvgQ:	1	0	0	0	0	0	1	1	0	0	1	2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.127
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.1
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	0 1	0	1 0	0 0	1	0 0	1! 0	0
Volume Module:												
Base Vol:	26	19	0	0	10	96	75	0	11	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	19	0	0	10	96	75	0	11	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	19	0	0	10	96	75	0	11	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	19	0	0	10	96	75	0	11	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	19	0	0	10	96	75	0	11	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.16	0.84	0.00	0.00	0.09	0.91	1.00	0.00	1.00	0.00	1.00	0.00
Final Sat.:	1429	-102	0	0	79	756	658	0	843	0	704	0
Capacity Analysis Module:												
Vol/Sat:	0.02	-0.19	xxxx	xxxx	0.13	0.13	0.11	xxxx	0.01	xxxx	0.00	xxxx
Crit Moves:	****				****		****				****	
Delay/Veh:	8.2	8.3	0.0	0.0	7.8	7.8	8.7	0.0	6.9	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.2	8.3	0.0	0.0	7.8	7.8	8.7	0.0	6.9	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:	8.2			7.8			8.5			xxxxxx		
Delay Adj:	1.00			1.00			1.00			xxxxx		
ApprAdjDel:	8.2			7.8			8.5			xxxxxx		
LOS by Appr:	A			A			A			*		
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:												
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
ApproachDel:	0.0			0.0			0.0			0.0		
Delay Adj:	0.00			0.00			0.00			0.00		
ApprAdjDel:	0.0			0.0			0.0			0.0		
LOS by Appr:												
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:												
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
ApproachDel:	0.0			0.0			0.0			0.0		
Delay Adj:	0.00			0.00			0.00			0.00		
ApprAdjDel:	0.0			0.0			0.0			0.0		
LOS by Appr:												
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1313	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	365	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	824	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	824	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	13.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1172	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	326	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	735	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	735	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	12.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2005
Description Existing Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1230 veh/h
Directional split 67 / 33 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1313 pc/h
Highest directional split proportion (note-2) 880 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.6 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1295 pc/h
Highest directional split proportion (note-2) 868
Base percent time-spent-following, BPTSF 68.0 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 68.0 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	421	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1599	veh-mi
Peak 15-min total travel time, TT15	9.4	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Existing Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	Existing PM
Command:	Default Command
Volume:	Existing PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	C	24.4	0.620	C	24.4	0.620	+ 0.000 D/V
# 2 SR 140 / Baker	C	20.7	0.000	C	20.7	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	13.1	0.000	B	13.1	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	B	13.0	0.545	B	13.0	0.545	+ 0.000 V/C
# 5 Childs / SR 99 NB	C	18.1	0.800	C	18.1	0.800	+ 0.000 V/C
# 6 Childs / Parsons	E	60.4	0.670	E	60.4	0.670	+ 0.000 D/V
# 7 Childs / Coffee	C	22.8	0.180	C	22.8	0.180	+ 0.000 D/V
# 8 Childs / KIbby	A	9.2	0.000	A	9.2	0.000	+ 0.000 D/V
# 9 Childs / Tower	A	9.6	0.000	A	9.6	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	7.1	0.066	A	7.1	0.066	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.017	A	6.9	0.017	+ 0.000 V/C
# 12 MIssion / SR 99 SB	B	17.6	0.060	B	17.6	0.060	+ 0.000 D/V
# 13 Mission / SR 99 NB	B	18.6	0.041	B	18.6	0.041	+ 0.000 D/V
# 14 Mission / Coffee	A	7.9	0.096	A	7.9	0.096	+ 0.000 V/C
# 15 Gerard / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C
# 42 Childs / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.620
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 24.4
Optimal Cycle: 57 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	20		0	20	0		0	0	0		17	17	5		20	0
Lanes:	1	0	0	0 1	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Volume Module:																
Base Vol:	179		0	159	0		0	0	0	473		139	172		310	0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	179		0	159	0		0	0	0	473		139	172		310	0
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	179		0	159	0		0	0	0	473		139	172		310	0
Reduct Vol:	0		0	0	0		0	0	0	0		0	0		0	0
Reduced Vol:	179		0	159	0		0	0	0	473		139	172		310	0
PCE Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
MLF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
FinalVolume:	179		0	159	0		0	0	0	473		139	172		310	0
Saturation Flow Module:																
Sat/Lane:	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900		1900
Adjustment:	0.95	1.00		0.85	1.00	1.00		1.00	1.00	0.97		0.97	0.95	1.00		1.00
Lanes:	1.00	0.00		1.00	0.00	0.00		0.00	0.00	0.77		0.23	1.00	1.00		0.00
Final Sat.:	1805		0	1615	0		0	0	0	1423		418	1805	1900		0
Capacity Analysis Module:																
Vol/Sat:	0.10	0.00		0.10	0.00	0.00		0.00	0.00	0.33		0.33	0.10	0.16		0.00
Crit Moves:	****									****			****			
Green/Cycle:	0.20	0.00		0.20	0.00	0.00		0.00	0.00	0.51		0.51	0.14	0.65		0.00
Volume/Cap:	0.50	0.00		0.49	0.00	0.00		0.00	0.00	0.66		0.66	0.66	0.25		0.00
Uniform Del:	35.5		0.0	35.5	0.0		0.0	0.0	0.0	18.3		18.3	40.4	7.3		0.0
IncremntDel:	1.1		0.0	1.2	0.0		0.0	0.0	0.0	1.7		1.7	6.0	0.1		0.0
InitQueuDel:	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
Delay Adj:	1.00	0.00		1.00	0.00	0.00		0.00	0.00	1.00		1.00	1.00	1.00		0.00
Delay/Veh:	36.6		0.0	36.7	0.0		0.0	0.0	0.0	20.1		20.1	46.4	7.4		0.0
User DelAdj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
AdjDel/Veh:	36.6		0.0	36.7	0.0		0.0	0.0	0.0	20.1		20.1	46.4	7.4		0.0
LOS by Move:	D		A	D	A		A	A	A	C		C	D	A		A
HCM2kAvgQ:	5		0	5	0		0	0	0	14		14	6	4		0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: C[20.7]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	0	0	1	0	0	1	0
Volume Module:																				
Base Vol:	12		0	12		43		0	46		37	533		0		0	397		26	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	12		0	12		43		0	46		37	533		0		0	397		26	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Volume:	12		0	12		43		0	46		37	533		0		0	397		26	
Reduct Vol:	0		0	0		0		0	0		0	0		0		0	0		0	
FinalVolume:	12		0	12		43		0	46		37	533		0		0	397		26	
Critical Gap Module:																				
Critical Gp:	7.1		6.5	6.2		7.1		6.5	6.2		4.1	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
FollowUpTim:	3.5		4.0	3.3		3.5		4.0	3.3		2.2	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
Capacity Module:																				
Cnflict Vol:	1040	1030		533		1023	1017		410		423	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Potent Cap.:	210	235		551		216	239		646		1147	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Move Cap.:	190	228		551		206	232		646		1147	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Volume/Cap:	0.06	0.00		0.02		0.21	0.00		0.07		0.03	xxxx	xxxx	xxxx		xxxx	xxxx			
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		0.1	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		8.2	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
LOS by Move:	*		*	*		*		*	*		A	*		*		*	*			
Movement:	LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT	
Shared Cap.:	xxxx	283		xxxxx		xxxx	318		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	0.3		xxxxx		xxxxx	1.1		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	18.9		xxxxx		xxxxx	20.7		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shared LOS:	*	C		*		*	C		*		*	*		*		*	*		*	
ApproachDel:		18.9					20.7					xxxxxx					xxxxxx			
ApproachLOS:		C					C					*					*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[13.1]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	11	25		0		15	19		16		20	229		7		0	185		11					
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
Initial Bse:	11	25		0		15	19		16		20	229		7		0	185		11					
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
PHF Volume:	11	25		0		15	19		16		20	229		7		0	185		11					
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0					
FinalVolume:	11	25		0		15	19		16		20	229		7		0	185		11					
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2		7.1	6.5		6.2		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx					
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx					
Capacity Module:																								
Cnflict Vol:	481	469		233		470	461		185		196	xxxx		xxxxx		xxxx	xxxx		xxxxx					
Potent Cap.:	499	495		812		507	500		862		1389	xxxx		xxxxx		xxxx	xxxx		xxxxx					
Move Cap.:	470	488		812		482	493		862		1389	xxxx		xxxxx		xxxx	xxxx		xxxxx					
Volume/Cap:	0.02	0.05		0.00		0.03	0.04		0.02		0.01	xxxx		xxxx		xxxx	xxxx		xxxx					
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx	xxxx		xxxxx					
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		7.6	xxxx		xxxxx		xxxxx	xxxx		xxxxx					
LOS by Move:	*	*		*		*	*		*		A	*		*		*	*		*					
Movement:	LT - LTR - RT						LT - LTR - RT				LT - LTR - RT					LT - LTR - RT								
Shared Cap.:	483	xxxx		xxxxx		xxxx	567		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx					
SharedQueue:	0.2	xxxx		xxxxx		xxxxx	0.3		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx					
Shrd ConDel:	13.1	xxxx		xxxxx		xxxxx	12.0		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx					
Shared LOS:	B	*		*		*	B		*		*	*		*		*	*		*					
ApproachDel:	13.1						12.0				xxxxxx					xxxxxx								
ApproachLOS:	B						B				*					*								

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.545
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.0
Optimal Cycle: 0 Level Of Service: B

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0		0		0	0		0		0	0		0		0	0		0	0		0		0
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0	0		0		305	0		23		0	289		20		29	174		0					
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
Initial Bse:	0	0		0		305	0		23		0	289		20		29	174		0					
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
PHF Volume:	0	0		0		305	0		23		0	289		20		29	174		0					
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0					
Reduced Vol:	0	0		0		305	0		23		0	289		20		29	174		0					
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
FinalVolume:	0	0		0		305	0		23		0	289		20		29	174		0					
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
Lanes:	0.00	0.00		0.00		1.00	0.00		1.00		0.00	0.94		0.06		0.14	0.86		0.00					
Final Sat.:	0	0		0		559	0		686		0	630		44		92	549		0					
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx		0.55	xxxx		0.03		xxxx	0.46		0.46		0.32	0.32		xxxx					
Crit Moves:						****								****		****								
Delay/Veh:	0.0	0.0		0.0		15.7	0.0		7.9		0.0	12.2		12.2		10.7	10.7		0.0					
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
AdjDel/Veh:	0.0	0.0		0.0		15.7	0.0		7.9		0.0	12.2		12.2		10.7	10.7		0.0					
LOS by Move:	*	*		*		C	*		A		*	B		B		B	B		*					
ApproachDel:	xxxxxx						15.1					12.2					10.7							
Delay Adj:	xxxxx						1.00					1.00					1.00							
ApprAdjDel:	xxxxxx						15.1					12.2					10.7							
LOS by Appr:	*						C					B					B							
AllWayAvgQ:	0.0	0.0		0.0		1.1	1.1		0.0		0.8	0.8		0.8		0.4	0.4		0.4					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.800
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.1
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	23	31	46	95	23	62	130	437	27	185	106	92
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	31	46	95	23	62	130	437	27	185	106	92
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	31	46	95	23	62	130	437	27	185	106	92
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	31	46	95	23	62	130	437	27	185	106	92
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	31	46	95	23	62	130	437	27	185	106	92
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.43	0.57	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	188	253	496	360	87	515	501	546	597	467	496	549
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.09	0.26	0.26	0.12	0.26	0.80	0.05	0.40	0.21	0.17
Crit Moves:	****			****				****		****		
Delay/Veh:	11.3	11.3	10.0	12.8	12.8	10.0	12.1	29.5	8.8	14.7	11.4	10.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.3	11.3	10.0	12.8	12.8	10.0	12.1	29.5	8.8	14.7	11.4	10.1
LOS by Move:	B	B	B	B	B	B	B	D	A	B	B	B
ApproachDel:	10.7			11.8			24.7			12.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.7			11.8			24.7			12.7		
LOS by Appr:	B			B			C			B		
AllWayAvgQ:	0.1	0.1	0.1	0.3	0.3	0.1	0.3	3.1	0.0	0.6	0.2	0.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.670
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 60.4
Optimal Cycle: 72 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0	0 1	0	1 0	1 0	1	0 0	1! 0	0	1 0	1 0	1
Volume Module:												
Base Vol:	137	133	3	102	94	90	176	320	127	3	156	89
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	133	3	102	94	90	176	320	127	3	156	89
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	137	133	3	102	94	90	176	320	127	3	156	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	133	3	102	94	90	176	320	127	3	156	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	137	133	3	102	94	90	176	320	127	3	156	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	0.85	0.96	0.96	0.96	0.95	1.00	0.85
Lanes:	1.00	0.98	0.02	1.00	1.00	1.00	0.28	0.52	0.20	1.00	1.00	1.00
Final Sat.:	1805	1853	42	1805	1900	1615	514	935	371	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.08	0.07	0.07	0.06	0.05	0.06	0.34	0.34	0.34	0.00	0.08	0.06
Crit Moves:	****					****	****				****	
Green/Cycle:	0.07	0.24	0.24	0.06	0.24	0.24	0.29	0.47	0.47	0.05	0.23	0.23
Volume/Cap:	1.16	0.30	0.30	0.91	0.21	0.23	1.16	0.73	0.73	0.03	0.36	0.24
Uniform Del:	46.7	30.9	30.9	46.6	30.4	30.6	35.3	21.4	21.4	44.7	32.3	31.4
IncremntDel:	132.6	0.4	0.4	56.1	0.2	0.3	91.7	3.2	3.2	0.1	0.5	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	179.4	31.2	31.2	102.6	30.6	30.9	126.9	24.6	24.6	44.9	32.8	31.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	179.4	31.2	31.2	102.6	30.6	30.9	126.9	24.6	24.6	44.9	32.8	31.7
LOS by Move:	F	C	C	F	C	C	F	C	C	D	C	C
HCM2kAvgQ:	9	3	3	6	2	2	33	16	16	0	4	2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.180
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	22.8
Optimal Cycle:	67	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	6	19	19		6	19	19		6	19	19		6	19	19	
Lanes:	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	1	0
Volume Module:																		
Base Vol:	26	27	17		6	21	18		34	148	40		20	144	14			
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Initial Bse:	26	27	17		6	21	18		34	148	40		20	144	14			
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Volume:	26	27	17		6	21	18		34	148	40		20	144	14			
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0			
Reduced Vol:	26	27	17		6	21	18		34	148	40		20	144	14			
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
FinalVolume:	26	27	17		6	21	18		34	148	40		20	144	14			
Saturation Flow Module:																		
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900			
Adjustment:	0.95	0.94	0.94		0.95	0.93	0.93		0.95	0.97	0.97		0.95	0.99	0.99			
Lanes:	1.00	0.61	0.39		1.00	0.54	0.46		1.00	0.79	0.21		1.00	0.91	0.09			
Final Sat.:	1805	1098	692		1805	952	816		1805	1448	391		1805	1709	166			
Capacity Analysis Module:																		
Vol/Sat:	0.01	0.02	0.02		0.00	0.02	0.02		0.02	0.10	0.10		0.01	0.08	0.08			
Crit Moves:	****					****				****			****					
Green/Cycle:	0.07	0.20	0.20		0.06	0.19	0.19		0.14	0.51	0.51		0.06	0.43	0.43			
Volume/Cap:	0.20	0.12	0.12		0.05	0.12	0.12		0.14	0.20	0.20		0.18	0.20	0.20			
Uniform Del:	43.7	32.9	32.9		44.1	33.5	33.5		38.0	13.5	13.5		44.7	17.6	17.6			
IncremntDel:	0.8	0.2	0.2		0.2	0.2	0.2		0.3	0.1	0.1		0.8	0.1	0.1			
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0			
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Delay/Veh:	44.5	33.1	33.1		44.3	33.7	33.7		38.3	13.6	13.6		45.5	17.7	17.7			
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
AdjDel/Veh:	44.5	33.1	33.1		44.3	33.7	33.7		38.3	13.6	13.6		45.5	17.7	17.7			
LOS by Move:	D	C	C		D	C	C		D	B	B		D	B	B			
HCM2kAvgQ:	1	1	1		0	1	1		1	3	3		1	3	3			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: A[9.2]

Street Name:	Kibby								Childs							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	1	0
Volume Module:																		
Base Vol:	0	0	0		14	0	16		25	108	0		0	56	11			
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Initial Bse:	0	0	0		14	0	16		25	108	0		0	56	11			
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Volume:	0	0	0		14	0	16		25	108	0		0	56	11			
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0			
FinalVolume:	0	0	0		14	0	16		25	108	0		0	56	11			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx		220	220	62		67	xxxx	xxxxx		xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx		773	682	1009		1547	xxxx	xxxxx		xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx		764	671	1009		1547	xxxx	xxxxx		xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.00	0.02		0.02	xxxx	xxxx		xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*			
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	877	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	0.1	xxxxx		0.0	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	9.2	xxxxx		7.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*		*	A	*		A	*	*		*	*	*			
ApproachDel:	xxxxxx					9.2			xxxxxx				xxxxxx					
ApproachLOS:		*				A				*				*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: A[9.6]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	3	3	2		1	2	1		1	117	4		0	64	2	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	3	3	2		1	2	1		1	117	4		0	64	2	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	3	3	2		1	2	1		1	117	4		0	64	2	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	3	3	2		1	2	1		1	117	4		0	64	2	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	188	187	119		189	188	65		66	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	777	711	938		776	710	1005		1549	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	775	711	938		772	710	1005		1549	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.00	0.00	0.00		0.00	0.00	0.00		0.00	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.3	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	782	xxxxx		xxxx	783	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.0	xxxxx		xxxxx	0.0	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	9.6	xxxxx		xxxxx	9.6	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	A	*		*	A	*		*	*	*		*	*	*	
ApproachDel:	9.6				9.6				xxxxxx				xxxxxx			
ApproachLOS:	A				A				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.066
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.1
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0	0	0	1!	0 0
Volume Module:																
Base Vol:	1	5	28		2	3	1		0	17	2		28	29	1	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	1	5	28		2	3	1		0	17	2		28	29	1	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	1	5	28		2	3	1		0	17	2		28	29	1	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	1	5	28		2	3	1		0	17	2		28	29	1	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	1	5	28		2	3	1		0	17	2		28	29	1	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.03	0.15	0.82		0.33	0.50	0.17		0.00	0.89	0.11		0.48	0.50	0.02	
Final Sat.:	29	145	813		290	435	145		0	803	94		422	437	15	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.03	0.03		0.01	0.01	0.01		xxxx	0.02	0.02		0.07	0.07	0.07	
Crit Moves:	****					****					****			****		
Delay/Veh:	6.7	6.7	6.7		7.1	7.1	7.1		0.0	7.0	7.0		7.4	7.4	7.4	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	6.7	6.7	6.7		7.1	7.1	7.1		0.0	7.0	7.0		7.4	7.4	7.4	
LOS by Move:	A	A	A		A	A	A		*	A	A		A	A	A	
ApproachDel:	6.7				7.1				7.0				7.4			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	6.7				7.1				7.0				7.4			
LOS by Appr:	A				A				A				A			
AllWayAvgQ:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.1	0.1	0.1	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.017
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	6.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	3	0	2	4	11	0	0	9	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	2	4	11	0	0	9	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	3	0	2	4	11	0	0	9	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	3	0	2	4	11	0	0	9	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	3	0	2	4	11	0	0	9	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.60	0.00	0.40	0.27	0.73	0.00	0.00	0.69	0.31
Final Sat.:	0	902	0	559	0	373	241	663	0	0	665	296
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.01	xxxx	0.01	0.02	0.02	xxxx	xxxx	0.01	0.01
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.0	7.0	0.0	0.0	6.8	6.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.0	7.0	0.0	0.0	6.8	6.8
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.9			7.0			6.8		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.9			7.0			6.8		
LOS by Appr:		*		A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.060
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	17.6
Optimal Cycle:	35	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 0	1 1	0
Volume Module:												
Base Vol:	0	0	0	56	1	22	0	55	14	0	38	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	56	1	22	0	55	14	0	38	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	56	1	22	0	55	14	0	38	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	56	1	22	0	55	14	0	38	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	56	1	22	0	55	14	0	38	7
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.89	0.89	0.85	1.00	0.92	0.92	1.00	0.93	0.93
Lanes:	0.00	0.00	0.00	0.98	0.02	1.00	0.00	1.59	0.41	0.00	1.69	0.31
Final Sat.:	0	0	0	1669	30	1615	0	2791	710	0	2978	549
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.03	0.03	0.01	0.00	0.02	0.02	0.00	0.01	0.01
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.56	0.56	0.56	0.00	0.33	0.33	0.00	0.33	0.33
Volume/Cap:	0.00	0.00	0.00	0.06	0.06	0.02	0.00	0.06	0.06	0.00	0.04	0.04
Uniform Del:	0.0	0.0	0.0	10.0	10.0	9.8	0.0	22.9	22.9	0.0	22.8	22.8
IncremntDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Delay/Veh:	0.0	0.0	0.0	10.0	10.0	9.8	0.0	23.0	23.0	0.0	22.8	22.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.0	10.0	9.8	0.0	23.0	23.0	0.0	22.8	22.8
LOS by Move:	A	A	A	B	B	A	A	C	C	A	C	C
HCM2kAvgQ:	0	0	0	1	1	0	0	1	1	0	0	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.041
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 18.6
Optimal Cycle: 43 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	5	5	5		0	0	0		5	23	0		0	6	6	
Lanes:	0 1	0 0	1		0 0	0 0	0		1 0	2 0	0		0 0	2 0	1	
Volume Module:																
Base Vol:	20	0	15		0	0	0		26	85	0		0	25	29	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	20	0	15		0	0	0		26	85	0		0	25	29	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	20	0	15		0	0	0		26	85	0		0	25	29	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	20	0	15		0	0	0		26	85	0		0	25	29	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	20	0	15		0	0	0		26	85	0		0	25	29	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		1.00	1.00	1.00		0.95	0.95	1.00		1.00	0.95	0.85	
Lanes:	1.00	0.00	1.00		0.00	0.00	0.00		1.00	2.00	0.00		0.00	2.00	1.00	
Final Sat.:	1809	0	1615		0	0	0		1805	3610	0		0	3610	1615	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.00	0.01		0.00	0.00	0.00		0.01	0.02	0.00		0.00	0.01	0.02	
Crit Moves:	****									****			****			
Green/Cycle:	0.27	0.00	0.27		0.00	0.00	0.00		0.26	0.58	0.00		0.00	0.32	0.32	
Volume/Cap:	0.04	0.00	0.03		0.00	0.00	0.00		0.05	0.04	0.00		0.00	0.02	0.06	
Uniform Del:	26.8	0.0	26.8		0.0	0.0	0.0		27.6	9.1	0.0		0.0	23.6	23.9	
IncremntDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	0.00	1.00		0.00	0.00	0.00		1.00	1.00	0.00		0.00	1.00	1.00	
Delay/Veh:	26.9	0.0	26.8		0.0	0.0	0.0		27.6	9.1	0.0		0.0	23.6	23.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	26.9	0.0	26.8		0.0	0.0	0.0		27.6	9.1	0.0		0.0	23.6	23.9	
LOS by Move:	C	A	C		A	A	A		C	A	A		A	C	C	
HCM2kAvgQ:	0	0	0		0	0	0		1	1	0		0	0	1	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.096
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1 0	1! 0	0		0 0	0 1	0		1 0	0 0	1		0 0	1! 0	0	
Volume Module:																
Base Vol:	23	10	0		0	12	31		66	0	34		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	23	10	0		0	12	31		66	0	34		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	23	10	0		0	12	31		66	0	34		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	23	10	0		0	12	31		66	0	34		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	23	10	0		0	12	31		66	0	34		0	0	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.39	0.61	0.00		0.00	0.28	0.72		1.00	0.00	1.00		0.00	1.00	0.00	
Final Sat.:	1574	-254	0		0	226	585		686	0	890		0	738	0	
Capacity Analysis Module:																
Vol/Sat:	0.01-0.04		xxxx		xxxx	0.05	0.05		0.10	xxxx	0.04		xxxx	0.00	xxxx	
Crit Moves:	****						****		****					****		
Delay/Veh:	8.2	8.3	0.0		0.0	7.6	7.6		8.4	0.0	6.8		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	8.2	8.3	0.0		0.0	7.6	7.6		8.4	0.0	6.8		0.0	0.0	0.0	
LOS by Move:	A	A	*		*	A	A		A	*	A		*	*	*	
ApproachDel:	8.2				7.6				7.9				xxxxxx			
Delay Adj:	1.00				1.00				1.00				xxxxx			
ApprAdjDel:	8.2				7.6				7.9				xxxxxx			
LOS by Appr:	A				A				A				*			
AllWayAvgQ:	0.0	0.0	0.0		0.1	0.1	0.1		0.1	0.0	0.0		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:												
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
ApproachDel:	0.0			0.0			0.0			0.0		
Delay Adj:	0.00			0.00			0.00			0.00		
ApprAdjDel:	0.0			0.0			0.0			0.0		
LOS by Appr:												
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.000
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 0.0
Optimal Cycle: 0 Level Of Service:

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:												
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
ApproachDel:	0.0			0.0			0.0			0.0		
Delay Adj:	0.00			0.00			0.00			0.00		
ApprAdjDel:	0.0			0.0			0.0			0.0		
LOS by Appr:												
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1462	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	406	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	917	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	917	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	15.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1649	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	458	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1034	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1034	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2005
Description Existing Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1176 veh/h
Directional split 59 / 41 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1255 pc/h
Highest directional split proportion (note-2) 740 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 45.0 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1238 pc/h
Highest directional split proportion (note-2) 730
Base percent time-spent-following, BPTSF 66.3 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 66.3 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	402	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1529	veh-mi
Peak 15-min total travel time, TT15	8.9	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2010 Background Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background AM
Command:	Default Command
Volume:	Background NP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	C	27.5	0.733	C	27.5	0.733	+ 0.000 D/V
# 2 SR 140 / Baker	E	40.2	0.000	E	40.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	14.3	0.000	B	14.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	C	22.0	0.770	C	22.0	0.770	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	76.9	1.200	F	76.9	1.200	+ 0.000 V/C
# 6 Childs / Parsons	F	128.9	1.102	F	128.9	1.102	+ 0.000 D/V
# 7 Childs / Coffee	D	36.9	0.681	D	36.9	0.681	+ 0.000 D/V
# 8 Childs / KIbby	A	9.9	0.000	A	9.9	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.7	0.420	A	9.7	0.420	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.019	A	6.9	0.019	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	22.8	0.229	C	22.8	0.229	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	29.8	0.123	C	29.8	0.123	+ 0.000 D/V
# 14 Mission / Coffee	B	10.6	0.420	B	10.6	0.420	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	7.4	0.076	A	7.4	0.076	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	7.6	0.145	A	7.6	0.145	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	0.733
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	27.5
Optimal Cycle:	72	Level Of Service:	C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	301		0		152		0		0		0		0		353		194		278		667		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	301		0		152		0		0		0		0		353		194		278		667		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	301		0		152		0		0		0		0		353		194		278		667		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	301		0		152		0		0		0		0		353		194		278		667		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	301		0		152		0		0		0		0		353		194		278		667		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900		1900		1900		1900		1900	
Adjustment:	0.95	1.00		0.85		1.00	1.00		1.00		1.00		1.00		0.95		0.95		0.95		1.00		1.00	
Lanes:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		0.65		0.35		1.00		1.00		0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1167		642		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.17	0.00		0.09		0.00	0.00		0.00		0.00		0.00		0.30		0.30		0.15		0.35		0.00	
Crit Moves:	****														****				****					
Green/Cycle:	0.23	0.00		0.23		0.00	0.00		0.00		0.00		0.00		0.41		0.41		0.21		0.62		0.00	
Volume/Cap:	0.73	0.00		0.41		0.00	0.00		0.00		0.00		0.00		0.73		0.73		0.73		0.56		0.00	
Uniform Del:	35.8		0.0		32.9		0.0		0.0		0.0		0.0		24.7		24.7		36.9		11.0		0.0	
IncremntDel:	6.7		0.0		0.8		0.0		0.0		0.0		0.0		3.8		3.8		7.2		0.6		0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
Delay Adj:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		1.00		1.00		1.00		1.00		0.00	
Delay/Veh:	42.5		0.0		33.7		0.0		0.0		0.0		0.0		28.5		28.5		44.1		11.6		0.0	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	42.5		0.0		33.7		0.0		0.0		0.0		0.0		28.5		28.5		44.1		11.6		0.0	
LOS by Move:	D		A		C		A		A		A		A		C		C		D		B		A	
HCM2kAvgQ:	10		0		4		0		0		0		0		15		15		10		12		0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 9.4 Worst Case Level Of Service: E[40.2]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	2		1		5		35		0		272		105		391		0		0		588		34	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	2		1		5		35		0		272		105		391		0		0		588		34	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	2		1		5		35		0		272		105		391		0		0		588		34	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	2		1		5		35		0		272		105		391		0		0		588		34	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	1342	1223		391		1209	1206		605		622	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Potent Cap.:	131	181		662		161	185		501		969	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Move Cap.:	55	161		662		146	165		501		969	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Volume/Cap:	0.04	0.01		0.01		0.24	0.00		0.54		0.11	xxxx	xxxx	xxxx	xxxx	xxxx								
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	*		*		*		*		*		*		A		*		*		*		*		*	
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx	159	xxxxx			xxxx	392	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx						
SharedQueue:	xxxxx	0.2	xxxxx			xxxxx	6.6	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx	28.8	xxxxx			xxxxx	40.2	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx						
Shared LOS:	*		D		*		*		E		*		*		*		*		*		*		*	
ApproachDel:			28.8						40.2				xxxxxx						xxxxxx					
ApproachLOS:			D						E						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: B[14.3]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:		18	57	84		17	53		38		25	134		24		29	256		17					
Growth Adj:	1.00	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00		1.00					
Initial Bse:		18	57	84		17	53		38		25	134		24		29	256		17					
User Adj:	1.00	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00		1.00					
PHF Adj:	1.00	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00		1.00					
PHF Volume:		18	57	84		17	53		38		25	134		24		29	256		17					
Reduct Vol:		0	0	0		0	0		0		0	0		0		0	0		0					
FinalVolume:		18	57	84		17	53		38		25	134		24		29	256		17					
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2		7.1	6.5		6.2		4.1	xxxx	xxxxx			4.1	xxxx	xxxxx						
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3		2.2	xxxx	xxxxx			2.2	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	564	527		146		581	522		256		273	xxxx	xxxxx			158	xxxx	xxxxx						
Potent Cap.:	439	459		906		428	462		788		1302	xxxx	xxxxx			1434	xxxx	xxxxx						
Move Cap.:	369	441		906		340	444		788		1302	xxxx	xxxxx			1434	xxxx	xxxxx						
Volume/Cap:	0.05	0.13		0.09		0.05	0.12		0.05		0.02	xxxx	xxxx			0.02	xxxx	xxxx						
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		0.3		xxxx	xxxx		xxxxx		0.1	xxxx	xxxxx			0.1	xxxx	xxxxx						
Control Del:	xxxxx	xxxx		9.4		xxxxx	xxxx		xxxxx		7.8	xxxx	xxxxx			7.6	xxxx	xxxxx						
LOS by Move:	*	*		A		*	*		*		A	*		*		A	*		*					
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT								
Shared Cap.:	421	xxxx	xxxxx			xxxx	496		xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx						
SharedQueue:	0.6	xxxx	xxxxx			xxxxx	0.8		xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx						
Shrd ConDel:	15.4	xxxx	xxxxx			xxxxx	14.3		xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx						
Shared LOS:	C	*		*		*	B		*		*	*		*		*	*		*					
ApproachDel:		12.2					14.3				xxxxxx					xxxxxx								
ApproachLOS:		B					B					*					*							

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.770
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.0
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:		0		0		0	293		69		21		0	329		24		68	399		0			
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
Initial Bse:		0		0		0	293		69		21		0	329		24		68	399		0			
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
PHF Volume:		0		0		0	293		69		21		0	329		24		68	399		0			
Reduct Vol:		0		0		0	0		0		0		0	0		0		0	0		0			
Reduced Vol:		0		0		0	293		69		21		0	329		24		68	399		0			
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
FinalVolume:		0		0		0	293		69		21		0	329		24		68	399		0			
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00			
Lanes:	0.00	0.00		0.00		0.81	0.19		1.00		0.00	0.93		0.07		0.15	0.85		0.00					
Final Sat.:		0		0		0	406		96		592		0	548		40		88	518		0			
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx		0.72	0.72		0.04		xxxx	0.60		0.60		0.77	0.77		xxxx					
Crit Moves:						****						****				****								
Delay/Veh:	0.0	0.0		0.0		24.4	24.4		8.8		0.0	16.9		16.9		24.7	24.7		0.0					
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00					
AdjDel/Veh:	0.0	0.0		0.0		24.4	24.4		8.8		0.0	16.9		16.9		24.7	24.7		0.0					
LOS by Move:	*	*		*		C	C		A		*	C		C		C	C		*					
ApproachDel:		xxxxxx					23.6					16.9					24.7							
Delay Adj:		xxxxx					1.00					1.00					1.00							
ApprAdjDel:		xxxxxx					23.6					16.9					24.7							
LOS by Appr:		*					C					C					C							
AllWayAvgQ:	0.0	0.0		0.0		2.1	2.1		0.0		1.3	1.3		1.3		2.7	2.7		2.7					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.200
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	76.9
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	15	35	40	102	40	76	80	544	24	517	377	93
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	35	40	102	40	76	80	544	24	517	377	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	15	35	40	102	40	76	80	544	24	517	377	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	35	40	102	40	76	80	544	24	517	377	93
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	15	35	40	102	40	76	80	544	24	517	377	93
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.70	1.00	0.72	0.28	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	120	280	442	296	116	469	418	453	484	455	485	528
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.09	0.34	0.34	0.16	0.19	1.20	0.05	1.14	0.78	0.18
Crit Moves:		****			****			****		****		
Delay/Veh:	12.7	12.7	11.4	15.6	15.6	11.6	13.1	135	10.3	111.5	31.3	10.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.7	12.7	11.4	15.6	15.6	11.6	13.1	135	10.3	111.5	31.3	10.8
LOS by Move:	B	B	B	C	C	B	B	F	B	F	D	B
ApproachDel:		12.1			14.2			115.4			71.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		12.1			14.2			115.4			71.4	
LOS by Appr:		B			B			F			F	
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.2	0.2	15.7	0.0	12.8	2.9	0.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.102
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	128.9
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0	0 1	0	1 0	1 0	1	0 0	1! 0	0	1 0	1 0	1
Volume Module:												
Base Vol:	228	153	11	161	89	131	170	376	140	19	629	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	228	153	11	161	89	131	170	376	140	19	629	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	228	153	11	161	89	131	170	376	140	19	629	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	228	153	11	161	89	131	170	376	140	19	629	240
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	228	153	11	161	89	131	170	376	140	19	629	240
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.99	0.99	0.95	1.00	0.85	0.96	0.96	0.96	0.95	1.00	0.85
Lanes:	1.00	0.93	0.07	1.00	1.00	1.00	0.25	0.55	0.20	1.00	1.00	1.00
Final Sat.:	1805	1755	126	1805	1900	1615	452	1000	372	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.13	0.09	0.09	0.09	0.05	0.08	0.38	0.38	0.38	0.01	0.33	0.15
Crit Moves:	****					****	****				****	
Green/Cycle:	0.09	0.23	0.23	0.10	0.24	0.24	0.27	0.45	0.45	0.05	0.23	0.23
Volume/Cap:	1.41	0.37	0.37	0.94	0.20	0.34	1.41	0.83	0.83	0.22	1.41	0.63
Uniform Del:	45.5	32.1	32.1	45.0	30.3	31.4	36.7	24.0	24.0	45.8	38.3	34.4
IncremntDel:	218.1	0.5	0.5	50.9	0.2	0.5	197.5	7.1	7.1	1.3	199	3.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	263.6	32.6	32.6	95.8	30.5	32.0	234.2	31.2	31.2	47.1	237	37.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	263.6	32.6	32.6	95.8	30.5	32.0	234.2	31.2	31.2	47.1	237	37.9
LOS by Move:	F	C	C	F	C	C	F	C	C	D	F	D
HCM2kAvgQ:	17	4	4	8	2	4	47	21	21	1	43	8

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 36.9
Optimal Cycle: 69 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	341	153	99	64	105	141	76	225	104	59	310	49
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	341	153	99	64	105	141	76	225	104	59	310	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	341	153	99	64	105	141	76	225	104	59	310	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	341	153	99	64	105	141	76	225	104	59	310	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	341	153	99	64	105	141	76	225	104	59	310	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.91	0.91	0.95	0.95	0.95	0.95	0.98	0.98
Lanes:	1.00	0.61	0.39	1.00	0.43	0.57	1.00	0.68	0.32	1.00	0.86	0.14
Final Sat.:	1805	1086	702	1805	741	995	1805	1238	572	1805	1608	254
Capacity Analysis Module:												
Vol/Sat:	0.19	0.14	0.14	0.04	0.14	0.14	0.04	0.18	0.18	0.03	0.19	0.19
Crit Moves:	****				****		****				****	
Green/Cycle:	0.28	0.37	0.37	0.12	0.21	0.21	0.06	0.26	0.26	0.08	0.28	0.28
Volume/Cap:	0.68	0.38	0.38	0.30	0.68	0.68	0.68	0.69	0.69	0.40	0.68	0.68
Uniform Del:	32.2	23.2	23.2	40.5	36.5	36.5	45.9	33.3	33.3	43.5	31.8	31.8
IncremntDel:	3.8	0.4	0.4	0.8	5.2	5.2	15.8	4.4	4.4	1.7	3.6	3.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	36.0	23.6	23.6	41.3	41.8	41.8	61.8	37.7	37.7	45.2	35.5	35.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.0	23.6	23.6	41.3	41.8	41.8	61.8	37.7	37.7	45.2	35.5	35.5
LOS by Move:	D	C	C	D	D	D	E	D	D	D	D	D
HCM2kAvgQ:	10	6	6	2	8	8	4	10	10	2	11	11

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: A[9.9]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	98	142	104	0	0	143	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	98	142	104	0	0	143	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	98	142	104	0	0	143	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	8	0	98	142	104	0	0	143	17
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	540	540	152	160	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	507	452	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	465	403	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.11	0.10	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	841	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx				9.9		xxxxxx			xxxxxx		
ApproachLOS:	*				A		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.3]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	5	2	1		4	4	12		7	105	1		0	142	4	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	2	1		4	4	12		7	105	1		0	142	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	2	1		4	4	12		7	105	1		0	142	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	5	2	1		4	4	12		7	105	1		0	142	4	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	272	266	106		265	264	144		146	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	685	643	954		692	645	909		1448	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	670	640	954		687	642	909		1448	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.01	0.00	0.00		0.01	0.01	0.01		0.00	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.5	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	688	xxxxx		xxxx	792	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.0	xxxxx		xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	10.3	xxxxx		xxxxx	9.7	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	B	*		*	A	*		*	*	*		*	*	*	
ApproachDel:	10.3				9.7				xxxxxx				xxxxxx			
ApproachLOS:	B				A				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.420
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.7
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	11	61	89		39	19	70		42	68	17		146	59	108	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	11	61	89		39	19	70		42	68	17		146	59	108	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	11	61	89		39	19	70		42	68	17		146	59	108	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	11	61	89		39	19	70		42	68	17		146	59	108	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	11	61	89		39	19	70		42	68	17		146	59	108	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.07	0.38	0.55		0.30	0.15	0.55		0.33	0.54	0.13		0.47	0.19	0.34	
Final Sat.:	48	264	385		207	101	372		225	365	91		348	141	257	
Capacity Analysis Module:																
Vol/Sat:	0.23	0.23	0.23		0.19	0.19	0.19		0.19	0.19	0.19		0.42	0.42	0.42	
Crit Moves:		****			****					****					****	
Delay/Veh:	9.1	9.1	9.1		8.9	8.9	8.9		9.0	9.0	9.0		10.7	10.7	10.7	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	9.1	9.1	9.1		8.9	8.9	8.9		9.0	9.0	9.0		10.7	10.7	10.7	
LOS by Move:	A	A	A		A	A	A		A	A	A		B	B	B	
ApproachDel:		9.1				8.9				9.0				10.7		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		9.1				8.9				9.0				10.7		
LOS by Appr:		A				A				A				B		
AllWayAvgQ:	0.3	0.3	0.3		0.2	0.2	0.2		0.2	0.2	0.2		0.6	0.6	0.6	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.019
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 6.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	1	0	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	0	0	0		1	0	4		6	8	0		0	14	4	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		1	0	4		6	8	0		0	14	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		1	0	4		6	8	0		0	14	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		1	0	4		6	8	0		0	14	4	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		1	0	4		6	8	0		0	14	4	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	1.00	0.00		0.20	0.00	0.80		0.43	0.57	0.00		0.00	0.78	0.22	
Final Sat.:	0	900	0		203	0	811		384	512	0		0	738	211	
Capacity Analysis Module:																
Vol/Sat:	xxxx	0.00	xxxx		0.00	xxxx	0.00		0.02	0.02	xxxx		xxxx	0.02	0.02	
Crit Moves:		****			****					****				****		
Delay/Veh:	0.0	0.0	0.0		6.5	0.0	6.5		7.1	7.1	0.0		0.0	6.9	6.9	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		6.5	0.0	6.5		7.1	7.1	0.0		0.0	6.9	6.9	
LOS by Move:	*	*	*		A	*	A		A	A	*		*	A	A	
ApproachDel:	xxxxxx				6.5				7.1				6.9			
Delay Adj:	xxxxx				1.00				1.00				1.00			
ApprAdjDel:	xxxxxx				6.5				7.1				6.9			
LOS by Appr:	*				A				A				A			
AllWayAvgQ:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.229
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 22.8
Optimal Cycle: 41 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	5	5	5	0	0	19	19	0	6	6	0	0
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	1	1 0	0	1	0	1 0
Volume Module:																
Base Vol:	0	0	0		94	12	31		0	99	18		189	72	6	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		94	12	31		0	99	18		189	72	6	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		94	12	31		0	99	18		189	72	6	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		94	12	31		0	99	18		189	72	6	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		94	12	31		0	99	18		189	72	6	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.90	0.90	0.85		1.00	0.93	0.93		0.91	0.91	0.91	
Lanes:	0.00	0.00	0.00		0.89	0.11	1.00		0.00	1.69	0.31		1.00	0.92	0.08	
Final Sat.:	0	0	0		1511	193	1615		0	2984	543		1738	1605	134	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.06	0.06	0.02		0.00	0.03	0.03		0.11	0.04	0.04	
Crit Moves:					****					****			****			
Green/Cycle:	0.00	0.00	0.00		0.25	0.25	0.25		0.00	0.19	0.19		0.45	0.64	0.64	
Volume/Cap:	0.00	0.00	0.00		0.24	0.24	0.08		0.00	0.17	0.17		0.24	0.07	0.07	
Uniform Del:	0.0	0.0	0.0		29.6	29.6	28.3		0.0	33.9	33.9		17.3	7.0	7.0	
IncremntDel:	0.0	0.0	0.0		0.3	0.3	0.1		0.0	0.1	0.1		0.1	0.0	0.0	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	0.00	0.00	0.00		1.00	1.00	1.00		0.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	0.0	0.0	0.0		29.9	29.9	28.4		0.0	34.1	34.1		17.4	7.0	7.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		29.9	29.9	28.4		0.0	34.1	34.1		17.4	7.0	7.0	
LOS by Move:	A	A	A		C	C	C		A	C	C		B	A	A	
HCM2kAvgQ:	0	0	0		3	3	1		0	2	2		4	1	1	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.123
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	29.8
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	5	5	5		0	0	0		5	23	0		0	6	6	
Lanes:	0	1	0	0 1	0	0	0	0 0	1	0	2	0 0	0	0	2	0 1
Volume Module:																
Base Vol:	26	3	110		0	0	0		58	131	0		0	241	146	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	26	3	110		0	0	0		58	131	0		0	241	146	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	26	3	110		0	0	0		58	131	0		0	241	146	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	26	3	110		0	0	0		58	131	0		0	241	146	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	26	3	110		0	0	0		58	131	0		0	241	146	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.97	0.97	0.85		1.00	1.00	1.00		0.95	0.95	1.00		1.00	0.95	0.85	
Lanes:	0.90	0.10	1.00		0.00	0.00	0.00		1.00	2.00	0.00		0.00	2.00	1.00	
Final Sat.:	1656	191	1615		0	0	0		1805	3610	0		0	3610	1615	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.02	0.07		0.00	0.00	0.00		0.03	0.04	0.00		0.00	0.07	0.09	
Crit Moves:			****							****			****			
Green/Cycle:	0.55	0.55	0.55		0.00	0.00	0.00		0.11	0.30	0.00		0.00	0.19	0.19	
Volume/Cap:	0.03	0.03	0.12		0.00	0.00	0.00		0.31	0.12	0.00		0.00	0.35	0.48	
Uniform Del:	10.1	10.1	10.6		0.0	0.0	0.0		41.4	25.8	0.0		0.0	35.1	36.0	
IncremntDel:	0.0	0.0	0.1		0.0	0.0	0.0		0.9	0.1	0.0		0.0	0.3	1.2	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		0.00	0.00	0.00		1.00	1.00	0.00		0.00	1.00	1.00	
Delay/Veh:	10.1	10.1	10.7		0.0	0.0	0.0		42.3	25.8	0.0		0.0	35.4	37.2	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	10.1	10.1	10.7		0.0	0.0	0.0		42.3	25.8	0.0		0.0	35.4	37.2	
LOS by Move:	B	B	B		A	A	A		D	C	A		A	D	D	
HCM2kAvgQ:	0	0	2		0	0	0		2	2	0		0	4	4	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.420
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	10.6
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0	1!	0 0	0	0	1!	0 0	0	1	0	1 0	0	0	0	1 0
Volume Module:																
Base Vol:	26	19	0		10	10	276		178	54	11		0	85	9	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	26	19	0		10	10	276		178	54	11		0	85	9	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	26	19	0		10	10	276		178	54	11		0	85	9	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	26	19	0		10	10	276		178	54	11		0	85	9	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	26	19	0		10	10	276		178	54	11		0	85	9	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.16	0.84	0.00		0.03	0.03	0.94		1.00	0.91	0.09		0.00	0.90	0.10	
Final Sat.:	1163	-83	0		24	24	657		580	580	58		0	543	58	
Capacity Analysis Module:																
Vol/Sat:	0.02-0.23		xxxx		0.42	0.42	0.42		0.31	0.09	0.19		xxxx	0.16	0.16	
Crit Moves:	****					****			****					****		
Delay/Veh:	9.2	9.3	0.0		11.3	11.3	11.3		11.2	8.7	8.7		0.0	9.6	9.6	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	9.2	9.3	0.0		11.3	11.3	11.3		11.2	8.7	8.7		0.0	9.6	9.6	
LOS by Move:	A	A	*		B	B	B		B	A	A		*	A	A	
ApproachDel:	9.2				11.3				10.5				9.6			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	9.2				11.3				10.5				9.6			
LOS by Appr:	A				B				B				A			
AllWayAvgQ:	0.0	0.0	0.0		0.7	0.7	0.7		0.4	0.1	0.1		0.2	0.2	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.076
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.4
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	1	0	0	0 0
Volume Module:																
Base Vol:	17	48	0		0	59	8		29	0	23		12	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	17	48	0		0	59	8		29	0	23		12	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	17	48	0		0	59	8		29	0	23		12	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	17	48	0		0	59	8		29	0	23		12	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	17	48	0		0	59	8		29	0	23		12	0	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.26	0.74	0.00		0.00	0.88	0.12		0.56	0.00	0.44		1.00	0.00	0.00	
Final Sat.:	223	631	0		0	775	105		483	0	383		791	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.08	xxxx		xxxx	0.08	0.08		0.06	xxxx	0.06		0.02	xxxx	xxxx	
Crit Moves:		****				****			****				****			
Delay/Veh:	7.5	7.5	0.0		0.0	7.3	7.3		7.3	0.0	7.3		7.5	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.5	7.5	0.0		0.0	7.3	7.3		7.3	0.0	7.3		7.5	0.0	0.0	
LOS by Move:	A	A	*		*	A	A		A	*	A		A	*	*	
ApproachDel:		7.5				7.3				7.3				7.5		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		7.5				7.3				7.3				7.5		
LOS by Appr:		A				A				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.1	0.1	0.1		0.1	0.1	0.1		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.145
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.6
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Volume Module:																
Base Vol:	27	0	50		0	0	0		0	101	27		30	39	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	27	0	50		0	0	0		0	101	27		30	39	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	27	0	50		0	0	0		0	101	27		30	39	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	27	0	50		0	0	0		0	101	27		30	39	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	27	0	50		0	0	0		0	101	27		30	39	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.35	0.00	0.65		0.00	0.00	0.00		0.00	0.79	0.21		0.43	0.57	0.00	
Final Sat.:	305	0	565		0	0	0		0	698	186		360	468	0	
Capacity Analysis Module:																
Vol/Sat:	0.09	xxxx	0.09		xxxx	xxxx	xxxx		xxxx	0.14	0.14		0.08	0.08	xxxx	
Crit Moves:	****									****				****		
Delay/Veh:	7.3	0.0	7.3		0.0	0.0	0.0		0.0	7.7	7.7		7.6	7.6	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.3	0.0	7.3		0.0	0.0	0.0		0.0	7.7	7.7		7.6	7.6	0.0	
LOS by Move:	A	*	A		*	*	*		*	A	A		A	A	*	
ApproachDel:		7.3				xxxxxx				7.7				7.6		
Delay Adj:		1.00				xxxxx				1.00				1.00		
ApprAdjDel:		7.3				xxxxxx				7.7				7.6		
LOS by Appr:		A				*				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.0	0.0	0.0		0.2	0.2	0.2		0.1	0.1	0.1	

Note: Queue reported is the number of cars per lane.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1758	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1103	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1103	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1571	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	436	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	985	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	985	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	16.6	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Ave to Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1244 veh/h
Directional split 66 / 34 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1328 pc/h
Highest directional split proportion (note-2) 876 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.4 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1309 pc/h
Highest directional split proportion (note-2) 864
Base percent time-spent-following, BPTSF 68.4 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 68.4 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	426	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1617	veh-mi
Peak 15-min total travel time, TT15	9.6	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Background Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background PM
Command:	Default Command
Volume:	Background NP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	D	47.9	0.971	D	47.9	0.971	+ 0.000 D/V
# 2 SR 140 / Baker	F	73.3	0.000	F	73.3	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	16.3	0.000	C	16.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	153.4	1.555	F	153.4	1.555	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	198.7	1.880	F	198.7	1.880	+ 0.000 V/C
# 6 Childs / Parsons	F	184.2	1.214	F	184.2	1.214	+ 0.000 D/V
# 7 Childs / Coffee	C	33.1	0.655	C	33.1	0.655	+ 0.000 D/V
# 8 Childs / KIbby	B	10.1	0.000	B	10.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.4	0.000	B	10.4	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.4	0.211	A	8.4	0.211	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.017	A	6.9	0.017	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	24.8	0.322	C	24.8	0.322	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	28.5	0.295	C	28.5	0.295	+ 0.000 D/V
# 14 Mission / Coffee	C	18.1	0.741	C	18.1	0.741	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	7.4	0.126	A	7.4	0.126	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	8.0	0.219	A	8.0	0.219	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.971
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 47.9
Optimal Cycle: 154 Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	302		0		159		0		0		0		0		705		319		172		446		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	302		0		159		0		0		0		0		705		319		172		446		0	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	302		0		159		0		0		0		0		705		319		172		446		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	302		0		159		0		0		0		0		705		319		172		446		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
FinalVolume:	302		0		159		0		0		0		0		705		319		172		446		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900	1900		1900		1900	1900	1900		1900		1900	1900	1900		1900		1900
Adjustment:	0.95	1.00		0.85		1.00	1.00	1.00		1.00		1.00	1.00	0.96		0.96		0.95	1.00	1.00		1.00		1.00
Lanes:	1.00	0.00		1.00		0.00	0.00	0.00		0.00		0.00	0.00	0.69		0.31		1.00	1.00	1.00		0.00		0.00
Final Sat.:	1805		0		1615		0		0		0		0		1253		567		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.17	0.00		0.10		0.00	0.00	0.00		0.00		0.00	0.00	0.56		0.56		0.10	0.23			0.00		
Crit Moves:	****													****				****						
Green/Cycle:	0.20	0.00		0.20		0.00	0.00	0.00		0.00		0.00	0.00	0.56		0.56		0.09	0.65			0.00		
Volume/Cap:	0.84	0.00		0.49		0.00	0.00	0.00		0.00		0.00	0.00	1.01		1.01		1.01	0.36			0.00		
Uniform Del:	38.4	0.0		35.5		0.0	0.0	0.0		0.0		0.0	0.0	22.2		22.2		45.3	8.0			0.0		
IncremntDel:	15.6	0.0		1.2		0.0	0.0	0.0		0.0		0.0	0.0	31.3		31.3		72.2	0.2			0.0		
InitQueuDel:	0.0	0.0		0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0		0.0		0.0	0.0			0.0		
Delay Adj:	1.00	0.00		1.00		0.00	0.00	0.00		0.00		0.00	0.00	1.00		1.00		1.00	1.00			0.00		
Delay/Veh:	54.0	0.0		36.7		0.0	0.0	0.0		0.0		0.0	0.0	53.5		53.5		117.5	8.2			0.0		
User DelAdj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00			1.00		
AdjDel/Veh:	54.0	0.0		36.7		0.0	0.0	0.0		0.0		0.0	0.0	53.5		53.5		117.5	8.2			0.0		
LOS by Move:	D	A		D		A	A	A		A		A	A	D		D		F	A			A		
HCM2kAvgQ:	12	0		5		0	0	0		0		0	0	41		41		10	6			0		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 13.9 Worst Case Level Of Service: F[73.3]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	12		0		12		50		0		182		269		533		0		0		397		38	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	12		0		12		50		0		182		269		533		0		0		397		38	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	12		0		12		50		0		182		269		533		0		0		397		38	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	12		0		12		50		0		182		269		533		0		0		397		38	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
Capacity Module:																								
Cnflict Vol:	1578		1506		533		1493		1487		416		435	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Potent Cap.:	90		122		551		103		126		641		1135	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Move Cap.:	52		93		551		82		96		641		1135	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Volume/Cap:	0.23	0.00		0.02		0.61	0.00		0.28		0.24	xxxx		xxxx		xxxx		xxxx	xxxx		xxxx			
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.9	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		9.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
LOS by Move:	*		*		*		*		*		*		A	*		*		*	*		*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		96		xxxxx		xxxx		260		xxxxx		xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx	
SharedQueue:	xxxxx		0.9		xxxxx		xxxxx		7.8		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shrd ConDel:	xxxxx		54.8		xxxxx		xxxxx		73.3		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shared LOS:	*		F		*		*		F		*		*		*		*		*		*		*	
ApproachDel:			54.8						73.3						xxxxxx						xxxxxx			
ApproachLOS:			F						F						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 4.7 Worst Case Level Of Service: C[16.3]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	11	36		54			15	39		18			21	235		7			93	195		11		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	11	36		54			15	39		18			21	235		7			93	195		11		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	11	36		54			15	39		18			21	235		7			93	195		11		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
FinalVolume:	11	36		54			15	39		18			21	235		7			93	195		11		
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2			7.1	6.5		6.2			4.1	xxxx		xxxxx			4.1	xxxx		xxxxx		
FollowUpTim:	3.5	4.0		3.3			3.5	4.0		3.3			2.2	xxxx		xxxxx			2.2	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	696	673		239			707	665		195			206	xxxx		xxxxx			242	xxxx		xxxxx		
Potent Cap.:	359	379		805			353	383		851			1377	xxxx		xxxxx			1336	xxxx		xxxxx		
Move Cap.:	301	348		805			284	351		851			1377	xxxx		xxxxx			1336	xxxx		xxxxx		
Volume/Cap:	0.04	0.10		0.07			0.05	0.11		0.02			0.02	xxxx		xxxx			0.07	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		0.2			xxxx	xxxx		xxxxx			0.0	xxxx		xxxxx			0.2	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		9.8			xxxxx	xxxx		xxxxx			7.7	xxxx		xxxxx			7.9	xxxx		xxxxx		
LOS by Move:	*	*		A			*	*		*			A	*		*			A	*		*		
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	336	xxxx		xxxxx			xxxx	389		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	0.5	xxxx		xxxxx			xxxxx	0.7		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	17.5	xxxx		xxxxx			xxxxx	16.3		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	C	*		*			*	C		*			*	*		*			*	*		*		
ApproachDel:		13.4						16.3						xxxxxx						xxxxxx				
ApproachLOS:		B						C						*						*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 1.555
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 153.4
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0		0			0	0		0			0	0		0			0	0		0		
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0	0		0			638	166		23			0	419		20			37	268		0		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0	0		0			638	166		23			0	419		20			37	268		0		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	0	0		0			638	166		23			0	419		20			37	268		0		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
Reduced Vol:	0	0		0			638	166		23			0	419		20			37	268		0		
PCE Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
FinalVolume:	0	0		0			638	166		23			0	419		20			37	268		0		
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Lanes:	0.00	0.00		0.00			0.79	0.21		1.00			0.00	0.95		0.05			0.12	0.88		0.00		
Final Sat.:	0	0		0			410	107		612			0	540		26			65	473		0		
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx			1.56	1.56		0.04			xxxx	0.78		0.78			0.57	0.57		xxxx		
Crit Moves:								****						****					****					
Delay/Veh:	0.0	0.0		0.0			277.7	278		8.8			0.0	27.7		27.7			17.8	17.8		0.0		
Delay Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	0.0	0.0		0.0			277.7	278		8.8			0.0	27.7		27.7			17.8	17.8		0.0		
LOS by Move:	*	*		*			F	F		A			*	D		D			C	C		*		
ApproachDel:		xxxxxx						270.2						27.7						17.8				
Delay Adj:		xxxxx						1.00						1.00						1.00				
ApprAdjDel:		xxxxxx						270.2						27.7						17.8				
LOS by Appr:		*						F						D						C				
AllWayAvgQ:	0.0	0.0		0.0			38.5	38.5		0.0			2.9	2.9		2.9			1.2	1.2		1.2		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.880
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	198.7
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	1	0	0 1	0	1	0	0 1	1	0	1	0 1	1	0	1	0 1
Volume Module:																
Base Vol:	23	31	56		99	23	62		130	900	27		414	208	94	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	23	31	56		99	23	62		130	900	27		414	208	94	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	23	31	56		99	23	62		130	900	27		414	208	94	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	23	31	56		99	23	62		130	900	27		414	208	94	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	23	31	56		99	23	62		130	900	27		414	208	94	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.43	0.57	1.00		0.81	0.19	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	173	234	454		334	78	471		439	479	510		454	481	528	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.13	0.12		0.30	0.30	0.13		0.30	1.88	0.05		0.91	0.43	0.18	
Crit Moves:		****				****				****			****			
Delay/Veh:	12.5	12.5	11.4		14.7	14.7	11.2		14.0	422	9.9		50.9	15.6	10.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.5	12.5	11.4		14.7	14.7	11.2		14.0	422	9.9		50.9	15.6	10.8	
LOS by Move:	B	B	B		B	B	B		B	F	A		F	C	B	
ApproachDel:		11.9				13.5				360.9				35.4		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		11.9				13.5				360.9				35.4		
LOS by Appr:		B				B				F				E		
AllWayAvgQ:	0.1	0.1	0.1		0.4	0.4	0.1		0.4	54.7	0.1		5.1	0.7	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.214
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	184.2
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1	0	0	1 0	1	0	1	0 1	0	0	1!	0 0	1	0	1	0 1
Volume Module:																
Base Vol:	235	177	3		240	136	90		176	699	225		3	391	169	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	235	177	3		240	136	90		176	699	225		3	391	169	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	235	177	3		240	136	90		176	699	225		3	391	169	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	235	177	3		240	136	90		176	699	225		3	391	169	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	235	177	3		240	136	90		176	699	225		3	391	169	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	0.85		0.96	0.96	0.96		0.95	1.00	0.85	
Lanes:	1.00	0.98	0.02		1.00	1.00	1.00		0.16	0.64	0.20		1.00	1.00	1.00	
Final Sat.:	1805	1863	32		1805	1900	1615		293	1164	375		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.10	0.10		0.13	0.07	0.06		0.60	0.60	0.60		0.00	0.21	0.10	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.06	0.22	0.22		0.08	0.24	0.24		0.30	0.49	0.49		0.04	0.23	0.23	
Volume/Cap:	2.03	0.43	0.43		1.58	0.30	0.23		2.03	1.24	1.24		0.04	0.89	0.45	
Uniform Del:	46.8	33.6	33.6		45.8	31.1	30.6		35.2	25.7	25.7		46.2	37.3	33.1	
IncremntDel:	492.1	0.7	0.7		290.1	0.4	0.3		469.7	116	115.8		0.2	20.4	0.9	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	538.9	34.3	34.3		335.9	31.5	30.9		504.9	142	141.5		46.4	57.7	34.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	538.9	34.3	34.3		335.9	31.5	30.9		504.9	142	141.5		46.4	57.7	34.0	
LOS by Move:	F	C	C		F	C	C		F	F	F		D	E	C	
HCM2kAvgQ:	23	5	5		20	4	2		102	61	61		0	15	5	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.655
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 33.1
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	6	19	19		6	19	19		6	19	19		6	19	19	
Lanes:	1	0 0	1	0	1	0 0	1	0	1	0 0	1	0	1	0 0	1	0
Volume Module:																
Base Vol:	173	96	64		58	103	57		97	283	277		73	232	65	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	173	96	64		58	103	57		97	283	277		73	232	65	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	173	96	64		58	103	57		97	283	277		73	232	65	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	173	96	64		58	103	57		97	283	277		73	232	65	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	173	96	64		58	103	57		97	283	277		73	232	65	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.94	0.94		0.95	0.95	0.95		0.95	0.93	0.93		0.95	0.97	0.97	
Lanes:	1.00	0.60	0.40		1.00	0.64	0.36		1.00	0.51	0.49		1.00	0.78	0.22	
Final Sat.:	1805	1072	714		1805	1158	641		1805	889	870		1805	1435	402	
Capacity Analysis Module:																
Vol/Sat:	0.10	0.09	0.09		0.03	0.09	0.09		0.05	0.32	0.32		0.04	0.16	0.16	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.13	0.25	0.25		0.08	0.19	0.19		0.12	0.45	0.45		0.06	0.38	0.38	
Volume/Cap:	0.71	0.36	0.36		0.41	0.47	0.47		0.44	0.71	0.71		0.67	0.42	0.42	
Uniform Del:	41.5	31.2	31.2		43.9	36.0	36.0		40.8	22.5	22.5		46.0	22.6	22.6	
IncremntDel:	9.7	0.5	0.5		2.0	1.0	1.0		1.4	3.1	3.1		15.5	0.4	0.4	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	51.1	31.7	31.7		45.9	37.0	37.0		42.2	25.7	25.7		61.5	23.0	23.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	51.1	31.7	31.7		45.9	37.0	37.0		42.2	25.7	25.7		61.5	23.0	23.0	
LOS by Move:	D	C	C		D	D	D		D	C	C		E	C	C	
HCM2kAvgQ:	7	4	4		2	5	5		3	15	15		4	7	7	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: B[10.1]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0	0		0 0 1! 0	0		0 1 0 0	0		0 0 0 1	0	
Volume Module:												
Base Vol:	0	0	0	14	0	149	91	165	0	0	122	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	149	91	165	0	0	122	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	14	0	149	91	165	0	0	122	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	149	91	165	0	0	122	11
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	475	475	128	133	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	552	492	928	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	525	459	928	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.16	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	871	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.7	xxxxx	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[10.4]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	3	3	2		1	2	7		4	171	4		0	124	2	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	3	3	2		1	2	7		4	171	4		0	124	2	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	3	3	2		1	2	7		4	171	4		0	124	2	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	3	3	2		1	2	7		4	171	4		0	124	2	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	311	307	173		309	308	125		126	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	646	610	876		648	609	931		1473	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	638	609	876		643	608	931		1473	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	0.00	0.00	0.00		0.00	0.00	0.01		0.00	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*		*	*	*		A	*	*	*	*	*		
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	671	xxxxx		xxxx	809	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxxx		
SharedQueue:	xxxxx	0.0	xxxxx		xxxxx	0.0	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxxx		
Shrd ConDel:	xxxxx	10.4	xxxxx		xxxxx	9.5	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxxx		
Shared LOS:	*	B	*		*	A	*		*	*	*		*	*		
ApproachDel:		10.4				9.5			xxxxxx				xxxxxx			
ApproachLOS:		B				A			*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.211
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.4
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	5	24	29		73	21	64		88	37	37		30	42	56	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	24	29		73	21	64		88	37	37		30	42	56	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	24	29		73	21	64		88	37	37		30	42	56	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	5	24	29		73	21	64		88	37	37		30	42	56	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	5	24	29		73	21	64		88	37	37		30	42	56	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.09	0.41	0.50		0.46	0.13	0.41		0.54	0.23	0.23		0.23	0.33	0.44	
Final Sat.:	65	314	379		355	102	311		417	175	175		185	259	346	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.08	0.08		0.21	0.21	0.21		0.21	0.21	0.21		0.16	0.16	0.16	
Crit Moves:		****					****		****					****		
Delay/Veh:	7.8	7.8	7.8		8.5	8.5	8.5		8.6	8.6	8.6		8.1	8.1	8.1	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.8	7.8	7.8		8.5	8.5	8.5		8.6	8.6	8.6		8.1	8.1	8.1	
LOS by Move:	A	A	A		A	A	A		A	A	A		A	A	A	
ApproachDel:		7.8				8.5				8.6				8.1		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		7.8				8.5				8.6				8.1		
LOS by Appr:		A				A				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.2	0.2	0.2		0.2	0.2	0.2		0.2	0.2	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.017
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	6.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	3	0	2	4	11	0	0	9	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	2	4	11	0	0	9	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	3	0	2	4	11	0	0	9	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	3	0	2	4	11	0	0	9	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	3	0	2	4	11	0	0	9	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.60	0.00	0.40	0.27	0.73	0.00	0.00	0.69	0.31
Final Sat.:	0	902	0	559	0	373	241	663	0	0	665	296
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.01	xxxx	0.01	0.02	0.02	xxxx	xxxx	0.01	0.01
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.0	7.0	0.0	0.0	6.8	6.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.0	7.0	0.0	0.0	6.8	6.8
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.9			7.0			6.8		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.9			7.0			6.8		
LOS by Appr:	*			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.322
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	24.8
Optimal Cycle:	41	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 1	1 0	0
Volume Module:												
Base Vol:	0	0	0	222	9	22	0	55	14	219	38	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	222	9	22	0	55	14	219	38	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	222	9	22	0	55	14	219	38	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	222	9	22	0	55	14	219	38	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	222	9	22	0	55	14	219	38	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.87	0.87	0.85	1.00	0.92	0.92	0.91	0.91	1.00
Lanes:	0.00	0.00	0.00	0.96	0.04	1.00	0.00	1.59	0.41	1.00	1.00	0.00
Final Sat.:	0	0	0	1585	64	1615	0	2791	710	1731	1731	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.14	0.14	0.01	0.00	0.02	0.02	0.13	0.02	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.37	0.37	0.37	0.00	0.19	0.19	0.33	0.52	0.00
Volume/Cap:	0.00	0.00	0.00	0.38	0.38	0.04	0.00	0.10	0.10	0.38	0.04	0.00
Uniform Del:	0.0	0.0	0.0	23.2	23.2	20.3	0.0	33.5	33.5	25.5	11.7	0.0
IncremntDel:	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.1	0.1	0.4	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	23.6	23.6	20.3	0.0	33.5	33.5	25.9	11.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	23.6	23.6	20.3	0.0	33.5	33.5	25.9	11.7	0.0
LOS by Move:	A	A	A	C	C	C	A	C	C	C	B	A
HCM2kAvgQ:	0	0	0	5	5	0	0	1	1	6	1	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.295
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	28.5
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	20	10	292	0	0	0	26	251	0	0	237	164
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	10	292	0	0	0	26	251	0	0	237	164
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	10	292	0	0	0	26	251	0	0	237	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	10	292	0	0	0	26	251	0	0	237	164
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	10	292	0	0	0	26	251	0	0	237	164
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	0.67	0.33	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1255	628	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.18	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.07	0.10
Crit Moves:			****					****		****		
Green/Cycle:	0.61	0.61	0.61	0.00	0.00	0.00	0.08	0.24	0.00	0.00	0.16	0.16
Volume/Cap:	0.03	0.03	0.29	0.00	0.00	0.00	0.18	0.29	0.00	0.00	0.42	0.64
Uniform Del:	7.6	7.6	9.1	0.0	0.0	0.0	43.1	31.4	0.0	0.0	37.9	39.4
IncremntDel:	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.5	5.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	7.6	7.6	9.3	0.0	0.0	0.0	43.8	31.6	0.0	0.0	38.4	44.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.6	7.6	9.3	0.0	0.0	0.0	43.8	31.6	0.0	0.0	38.4	44.9
LOS by Move:	A	A	A	A	A	A	D	C	A	A	D	D
HCM2kAvgQ:	0	0	4	0	0	0	1	3	0	0	4	6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.741
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.1
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	0 1	0
Volume Module:												
Base Vol:	23	10	0	22	12	337	420	88	34	0	41	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	10	0	22	12	337	420	88	34	0	41	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	10	0	22	12	337	420	88	34	0	41	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	10	0	22	12	337	420	88	34	0	41	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	10	0	22	12	337	420	88	34	0	41	21
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.39	0.61	0.00	0.06	0.03	0.91	1.00	0.87	0.13	0.00	0.66	0.34
Final Sat.:	1083	-176	0	37	20	564	567	547	78	0	355	182
Capacity Analysis Module:												
Vol/Sat:	0.02-0.06		xxxx	0.60	0.60	0.60	0.74	0.16	0.43	xxxx	0.12	0.12
Crit Moves:	****			****			****					****
Delay/Veh:	10.3	10.4	0.0	16.1	16.1	16.1	24.0	9.7	9.7	0.0	10.0	10.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.3	10.4	0.0	16.1	16.1	16.1	24.0	9.7	9.7	0.0	10.0	10.0
LOS by Move:	B	B	*	C	C	C	C	A	A	*	B	B
ApproachDel:	10.3			16.1			20.8			10.0		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.3			16.1			20.8			10.0		
LOS by Appr:	B			C			C			B		
AllWayAvgQ:	0.0	0.0	0.0	1.3	1.3	1.3	2.4	0.2	0.2	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.126
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.4
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	1	0	0	0	0	0	1	0	0	0	1!	0	1	0	0	0
Volume Module:																
Base Vol:	34	76	0		0	46	30		16	0	12		4	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	34	76	0		0	46	30		16	0	12		4	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	34	76	0		0	46	30		16	0	12		4	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	34	76	0		0	46	30		16	0	12		4	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	34	76	0		0	46	30		16	0	12		4	0	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.31	0.69	0.00		0.00	0.61	0.39		0.57	0.00	0.43		1.00	0.00	0.00	
Final Sat.:	269	601	0		0	561	366		478	0	358		769	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.13	xxxx		xxxx	0.08	0.08		0.03	xxxx	0.03		0.01	xxxx	xxxx	
Crit Moves:		****				****			****				****			
Delay/Veh:	7.7	7.7	0.0		0.0	7.2	7.2		7.3	0.0	7.3		7.5	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.7	7.7	0.0		0.0	7.2	7.2		7.3	0.0	7.3		7.5	0.0	0.0	
LOS by Move:	A	A	*		*	A	A		A	*	A		A	*	*	
ApproachDel:		7.7				7.2				7.3				7.5		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		7.7				7.2				7.3				7.5		
LOS by Appr:		A				A				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.1	0.1	0.1		0.0	0.0	0.0		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.219
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.0
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Volume Module:																
Base Vol:	36	0	47		0	0	0		0	82	14		60	123	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	36	0	47		0	0	0		0	82	14		60	123	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	36	0	47		0	0	0		0	82	14		60	123	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	36	0	47		0	0	0		0	82	14		60	123	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	36	0	47		0	0	0		0	82	14		60	123	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.43	0.00	0.57		0.00	0.00	0.00		0.00	0.85	0.15		0.33	0.67	0.00	
Final Sat.:	351	0	459		0	0	0		0	720	123		273	561	0	
Capacity Analysis Module:																
Vol/Sat:	0.10	xxxx	0.10		xxxx	xxxx	xxxx		xxxx	0.11	0.11		0.22	0.22	xxxx	
Crit Moves:	****									****			****			
Delay/Veh:	7.7	0.0	7.7		0.0	0.0	0.0		0.0	7.7	7.7		8.4	8.4	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.7	0.0	7.7		0.0	0.0	0.0		0.0	7.7	7.7		8.4	8.4	0.0	
LOS by Move:	A	*	A		*	*	*		*	A	A		A	A	*	
ApproachDel:		7.7			xxxxxx					7.7				8.4		
Delay Adj:		1.00			xxxxx					1.00				1.00		
ApprAdjDel:		7.7			xxxxxx					7.7				8.4		
LOS by Appr:		A			*					A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.0	0.0	0.0		0.1	0.1	0.1		0.3	0.3	0.3	

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2688	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	747	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1686	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1686	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.4	mi/h
Number of lanes, N	2	
Density, D	28.4	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1183 veh/h
Directional split 58 / 42 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1263 pc/h
Highest directional split proportion (note-2) 733 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.9 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1245 pc/h
Highest directional split proportion (note-2) 722
Base percent time-spent-following, BPTSF 66.5 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 66.5 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	405	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1538	veh-mi
Peak 15-min total travel time, TT15	9.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2010 Background with Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background Proj AM
Command:	Default Command
Volume:	Background WP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	C	27.8	0.745	C	27.8	0.745	+ 0.000 D/V
# 2 SR 140 / Baker	E	43.2	0.000	E	43.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	15.2	0.000	C	15.2	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	C	22.3	0.773	C	22.3	0.773	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	78.5	1.211	F	78.5	1.211	+ 0.000 V/C
# 6 Childs / Parsons	F	130.2	1.106	F	130.2	1.106	+ 0.000 D/V
# 7 Childs / Coffee	D	37.1	0.685	D	37.1	0.685	+ 0.000 D/V
# 8 Childs / KIbby	A	9.9	0.000	A	9.9	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.7	0.000	B	10.7	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.8	0.426	A	9.8	0.426	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.038	A	6.9	0.038	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	23.8	0.307	C	23.8	0.307	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	27.9	0.191	C	27.9	0.191	+ 0.000 D/V
# 14 Mission / Coffee	B	12.1	0.478	B	12.1	0.478	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	8.3	0.245	A	8.3	0.245	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	7.6	0.148	A	7.6	0.148	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.745
Loss Time (sec): 15 (Y+R=4.0 sec) | Average Delay (sec/veh): 27.8
Optimal Cycle: 74 | Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	303		0		152		0		0		0		0		367		197		278		679		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	303		0		152		0		0		0		0		367		197		278		679		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	303		0		152		0		0		0		0		367		197		278		679		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	303		0		152		0		0		0		0		367		197		278		679		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	303		0		152		0		0		0		0		367		197		278		679		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900		1900		1900		1900		1900	
Adjustment:	0.95	1.00		0.85		1.00	1.00		1.00		1.00		1.00		0.95		0.95		0.95		1.00		1.00	
Lanes:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		0.65		0.35		1.00		1.00		0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1178		632		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.17	0.00		0.09		0.00	0.00		0.00		0.00		0.00		0.31		0.31		0.15		0.36		0.00	
Crit Moves:	****														****				****					
Green/Cycle:	0.23	0.00		0.23		0.00	0.00		0.00		0.00		0.00		0.42		0.42		0.21		0.62		0.00	
Volume/Cap:	0.75	0.00		0.42		0.00	0.00		0.00		0.00		0.00		0.75		0.75		0.75		0.57		0.00	
Uniform Del:	36.1		0.0		33.1		0.0		0.0		0.0		0.0		24.6		24.6		37.2		11.0		0.0	
IncremntDel:	7.3		0.0		0.8		0.0		0.0		0.0		0.0		4.1		4.1		8.0		0.7		0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
Delay Adj:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		1.00		1.00		1.00		1.00		0.00	
Delay/Veh:	43.4		0.0		33.9		0.0		0.0		0.0		0.0		28.6		28.6		45.2		11.6		0.0	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	43.4		0.0		33.9		0.0		0.0		0.0		0.0		28.6		28.6		45.2		11.6		0.0	
LOS by Move:	D		A		C		A		A		A		A		C		C		D		B		A	
HCM2kAvgQ:	10		0		4		0		0		0		0		16		16		10		12		0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 10.0 | Worst Case Level Of Service: E[43.2]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	2		1		5		35		0		273		106		404		0		0		599		34	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	2		1		5		35		0		273		106		404		0		0		599		34	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	2		1		5		35		0		273		106		404		0		0		599		34	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	2		1		5		35		0		273		106		404		0		0		599		34	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	1369		1249		404		1235		1232		616		633	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Potent Cap.:	125		175		651		155		179		494		960	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Move Cap.:	51		155		651		140		159		494		960	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Volume/Cap:	0.04		0.01		0.01		0.25		0.00		0.55		0.11	xxxx	xxxx	xxxx	xxxx	xxxx						
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
LOS by Move:	*		*		*		*		*		*		A		*		*		*		*		*	
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx		151		xxxxx		xxxx		384		xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx						
SharedQueue:	xxxxx		0.2		xxxxx		xxxxx		7.0		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx		30.2		xxxxx		xxxxx		43.2		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shared LOS:	*		D		*		*		E		*		*		*		*		*		*		*	
ApproachDel:	30.2						43.2						xxxxxx						xxxxxx					
ApproachLOS:	D						E						*						*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: C[15.2]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	1	0 0	1! 0	0	1 0	0 1	0	1 0	1 0	1
Volume Module:												
Base Vol:	18	57	84	23	53	38	25	150	24	29	269	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	57	84	23	53	38	25	150	24	29	269	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	57	84	23	53	38	25	150	24	29	269	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	18	57	84	23	53	38	25	150	24	29	269	20
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	595	559	162	610	551	269	289	xxxx	xxxxx	174	xxxx	xxxxx
Potent Cap.:	419	440	888	410	445	775	1284	xxxx	xxxxx	1415	xxxx	xxxxx
Move Cap.:	350	423	888	323	427	775	1284	xxxx	xxxxx	1415	xxxx	xxxxx
Volume/Cap:	0.05	0.13	0.09	0.07	0.12	0.05	0.02	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	9.5	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	A	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	403	xxxx	xxxxx	xxxx	467	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.7	xxxx	xxxxx	xxxxx	0.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	16.0	xxxx	xxxxx	xxxxx	15.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	C	*	*	*	*	*	*	*
ApproachDel:	12.5			15.2			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.773
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.3
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	0 1	0	0 1	0 0	0
Volume Module:												
Base Vol:	0	0	0	295	69	21	0	332	24	68	400	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	295	69	21	0	332	24	68	400	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	295	69	21	0	332	24	68	400	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	295	69	21	0	332	24	68	400	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	295	69	21	0	332	24	68	400	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.81	0.19	1.00	0.00	0.93	0.07	0.15	0.85	0.00
Final Sat.:	0	0	0	406	95	591	0	547	40	88	517	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.73	0.73	0.04	xxxx	0.61	0.61	0.77	0.77	xxxx
Crit Moves:					****				****		****	
Delay/Veh:	0.0	0.0	0.0	24.8	24.8	8.8	0.0	17.1	17.1	25.0	25.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	24.8	24.8	8.8	0.0	17.1	17.1	25.0	25.0	0.0
LOS by Move:	*	*	*	C	C	A	*	C	C	C	C	*
ApproachDel:	xxxxxx			23.9			17.1			25.0		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			23.9			17.1			25.0		
LOS by Appr:	*			C			C			C		
AllWayAvgQ:	0.0	0.0	0.0	2.1	2.1	0.0	1.3	1.3	1.3	2.7	2.7	2.7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.211
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	78.5
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	1 0	0	1	0	1 0	0	1	1	0 1	0	1	1	0 1	0	1
Volume Module:																
Base Vol:	15	35	40		102	40	76		80	549	24		518	378	93	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	15	35	40		102	40	76		80	549	24		518	378	93	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	15	35	40		102	40	76		80	549	24		518	378	93	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	15	35	40		102	40	76		80	549	24		518	378	93	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	15	35	40		102	40	76		80	549	24		518	378	93	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.30	0.70	1.00		0.72	0.28	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	120	280	442		296	116	469		418	453	484		455	485	528	
Capacity Analysis Module:																
Vol/Sat:	0.12	0.12	0.09		0.34	0.34	0.16		0.19	1.21	0.05		1.14	0.78	0.18	
Crit Moves:		****				****				****			****			
Delay/Veh:	12.7	12.7	11.4		15.6	15.6	11.7		13.1	139	10.3		112.3	31.4	10.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.7	12.7	11.4		15.6	15.6	11.7		13.1	139	10.3		112.3	31.4	10.8	
LOS by Move:	B	B	B		C	C	B		B	F	B		F	D	B	
ApproachDel:		12.1				14.2				119.2				71.9		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		12.1				14.2				119.2				71.9		
LOS by Appr:		B				B				F				F		
AllWayAvgQ:	0.1	0.1	0.1		0.5	0.5	0.2		0.2	16.2	0.0		12.9	2.9	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.106
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	130.2
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1	0 0	1	0	1	0 1	0	1	0	0 1!	0	0	1	0 1	0	1
Volume Module:																
Base Vol:	228	153	11		164	89	131		170	381	140		19	632	242	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	228	153	11		164	89	131		170	381	140		19	632	242	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	228	153	11		164	89	131		170	381	140		19	632	242	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	228	153	11		164	89	131		170	381	140		19	632	242	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	228	153	11		164	89	131		170	381	140		19	632	242	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.99	0.99		0.95	1.00	0.85		0.96	0.96	0.96		0.95	1.00	0.85	
Lanes:	1.00	0.93	0.07		1.00	1.00	1.00		0.25	0.55	0.20		1.00	1.00	1.00	
Final Sat.:	1805	1755	126		1805	1900	1615		449	1007	370		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.09	0.09		0.09	0.05	0.08		0.38	0.38	0.38		0.01	0.33	0.15	
Crit Moves:	****						****		****					****		
Green/Cycle:	0.09	0.23	0.23		0.10	0.24	0.24		0.27	0.45	0.45		0.05	0.23	0.23	
Volume/Cap:	1.42	0.37	0.37		0.94	0.20	0.34		1.42	0.83	0.83		0.22	1.42	0.64	
Uniform Del:	45.5	32.2	32.2		44.9	30.3	31.4		36.7	24.1	24.1		45.8	38.3	34.5	
IncremntDel:	221.0	0.5	0.5		52.2	0.2	0.5		200.4	7.4	7.4		1.3	201	3.6	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	266.5	32.8	32.8		97.1	30.5	32.0		237.0	31.4	31.4		47.1	240	38.1	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	266.5	32.8	32.8		97.1	30.5	32.0		237.0	31.4	31.4		47.1	240	38.1	
LOS by Move:	F	C	C		F	C	C		F	C	C		D	F	D	
HCM2kAvgQ:	17	4	4		8	2	4		48	21	21		1	44	8	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.685
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 37.1
Optimal Cycle: 69 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	344	154	99	64	106	141	76	228	109	59	311	49
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	344	154	99	64	106	141	76	228	109	59	311	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	344	154	99	64	106	141	76	228	109	59	311	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	344	154	99	64	106	141	76	228	109	59	311	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	344	154	99	64	106	141	76	228	109	59	311	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.91	0.91	0.95	0.95	0.95	0.95	0.98	0.98
Lanes:	1.00	0.61	0.39	1.00	0.43	0.57	1.00	0.68	0.32	1.00	0.86	0.14
Final Sat.:	1805	1088	700	1805	745	991	1805	1224	585	1805	1609	253
Capacity Analysis Module:												
Vol/Sat:	0.19	0.14	0.14	0.04	0.14	0.14	0.04	0.19	0.19	0.03	0.19	0.19
Crit Moves:	****				****		****				****	
Green/Cycle:	0.28	0.37	0.37	0.12	0.21	0.21	0.06	0.26	0.26	0.08	0.28	0.28
Volume/Cap:	0.68	0.38	0.38	0.30	0.68	0.68	0.68	0.71	0.71	0.40	0.68	0.68
Uniform Del:	32.2	23.2	23.2	40.4	36.6	36.6	46.0	33.5	33.5	43.5	31.9	31.9
IncremntDel:	3.9	0.4	0.4	0.8	5.4	5.4	16.3	5.1	5.1	1.7	3.7	3.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	36.1	23.5	23.5	41.3	42.0	42.0	62.3	38.6	38.6	45.2	35.7	35.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.1	23.5	23.5	41.3	42.0	42.0	62.3	38.6	38.6	45.2	35.7	35.7
LOS by Move:	D	C	C	D	D	D	E	D	D	D	D	D
HCM2kAvgQ:	10	6	6	2	8	8	4	11	11	2	11	11

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: A[9.9]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	98	142	104	0	0	143	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	98	142	104	0	0	143	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	98	142	104	0	0	143	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	8	0	98	142	104	0	0	143	17
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	540	540	152	160	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	507	452	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	465	403	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.11	0.10	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	841	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx				9.9		xxxxxx			xxxxxx		
ApproachLOS:		*			A			*			*	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: B[10.7]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	5	20	2		4	30	12		7	105	1		1	142	4	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	20	2		4	30	12		7	105	1		1	142	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	20	2		4	30	12		7	105	1		1	142	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	5	20	2		4	30	12		7	105	1		1	142	4	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	287	268	106		277	266	144		146	xxxx	xxxxx		106	xxxx	xxxxx	
Potent Cap.:	670	642	954		680	643	909		1448	xxxx	xxxxx		1498	xxxx	xxxxx	
Move Cap.:	635	638	954		660	640	909		1448	xxxx	xxxxx		1498	xxxx	xxxxx	
Volume/Cap:	0.01	0.03	0.00		0.01	0.05	0.01		0.00	xxxx	xxxx		0.00	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		0.0	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.5	xxxx	xxxxx		7.4	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		A	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	654	xxxxx		xxxx	695	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.1	xxxxx		xxxxx	0.2	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	10.7	xxxxx		xxxxx	10.5	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	B	*		*	B	*		*	*	*		*	*	*	
ApproachDel:	10.7				10.5				xxxxxx				xxxxxx			
ApproachLOS:	B				B				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.426
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.8
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	11	61	89		46	19	70		42	68	17		146	59	111	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	11	61	89		46	19	70		42	68	17		146	59	111	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	11	61	89		46	19	70		42	68	17		146	59	111	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	11	61	89		46	19	70		42	68	17		146	59	111	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	11	61	89		46	19	70		42	68	17		146	59	111	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.07	0.38	0.55		0.34	0.14	0.52		0.33	0.54	0.13		0.46	0.19	0.35	
Final Sat.:	47	262	383		230	95	350		224	362	91		343	139	261	
Capacity Analysis Module:																
Vol/Sat:	0.23	0.23	0.23		0.20	0.20	0.20		0.19	0.19	0.19		0.43	0.43	0.43	
Crit Moves:		****			****					****				****		
Delay/Veh:	9.1	9.1	9.1		9.0	9.0	9.0		9.0	9.0	9.0		10.8	10.8	10.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	9.1	9.1	9.1		9.0	9.0	9.0		9.0	9.0	9.0		10.8	10.8	10.8	
LOS by Move:	A	A	A		A	A	A		A	A	A		B	B	B	
ApproachDel:	9.1				9.0				9.0				10.8			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	9.1				9.0				9.0				10.8			
LOS by Appr:	A				A				A				B			
AllWayAvgQ:	0.3	0.3	0.3		0.2	0.2	0.2		0.2	0.2	0.2		0.7	0.7	0.7	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.038
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 6.9
Optimal Cycle: 0 | Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	1	0	31	25	8	0	0	14	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	1	0	31	25	8	0	0	14	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1	0	31	25	8	0	0	14	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1	0	31	25	8	0	0	14	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1	0	31	25	8	0	0	14	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.03	0.00	0.97	0.76	0.24	0.00	0.00	0.78	0.22
Final Sat.:	0	881	0	32	0	1003	656	210	0	0	720	206
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.03	xxxx	0.03	0.04	0.04	xxxx	xxxx	0.02	0.02
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.3	7.3	0.0	0.0	6.9	6.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.3	7.3	0.0	0.0	6.9	6.9
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.5			7.3			6.9		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.5			7.3			6.9		
LOS by Appr:	*			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.307
Loss Time (sec): 11 (Y+R=4.0 sec) | Average Delay (sec/veh): 23.8
Optimal Cycle: 41 | Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	0	0	0	153	12	31	0	134	18	230	102	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	153	12	31	0	134	18	230	102	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	153	12	31	0	134	18	230	102	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	153	12	31	0	134	18	230	102	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	153	12	31	0	134	18	230	102	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.93	0.93	0.92	0.92	0.92
Lanes:	0.00	0.00	0.00	0.93	0.07	1.00	0.00	1.76	0.24	1.00	0.94	0.06
Final Sat.:	0	0	0	1556	122	1615	0	3125	420	1740	1644	97
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.10	0.10	0.02	0.00	0.04	0.04	0.13	0.06	0.06
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.19	0.19	0.40	0.59	0.59
Volume/Cap:	0.00	0.00	0.00	0.33	0.33	0.06	0.00	0.23	0.23	0.33	0.10	0.10
Uniform Del:	0.0	0.0	0.0	27.3	27.3	25.1	0.0	34.3	34.3	20.6	8.9	8.9
IncremntDel:	0.0	0.0	0.0	0.4	0.4	0.1	0.0	0.2	0.2	0.2	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	0.0	27.7	27.7	25.1	0.0	34.4	34.4	20.8	8.9	8.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	27.7	27.7	25.1	0.0	34.4	34.4	20.8	8.9	8.9
LOS by Move:	A	A	A	C	C	C	A	C	C	C	A	A
HCM2kAvgQ:	0	0	0	4	4	1	0	2	2	5	1	1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.191
Loss Time (sec): 15 (Y+R=4.0 sec) | Average Delay (sec/veh): 27.9
Optimal Cycle: 43 | Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	26	3	162	0	0	0	58	225	0	0	313	191
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	3	162	0	0	0	58	225	0	0	313	191
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	3	162	0	0	0	58	225	0	0	313	191
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	3	162	0	0	0	58	225	0	0	313	191
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	3	162	0	0	0	58	225	0	0	313	191
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.98	0.98	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	0.90	0.10	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1669	193	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.10	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.09	0.12
Crit Moves:			****					****		****		
Green/Cycle:	0.52	0.52	0.52	0.00	0.00	0.00	0.10	0.33	0.00	0.00	0.23	0.23
Volume/Cap:	0.03	0.03	0.19	0.00	0.00	0.00	0.33	0.19	0.00	0.00	0.38	0.52
Uniform Del:	11.5	11.5	12.6	0.0	0.0	0.0	42.1	24.2	0.0	0.0	32.5	33.7
IncremntDel:	0.0	0.0	0.1	0.0	0.0	0.0	1.1	0.1	0.0	0.0	0.3	1.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	11.5	11.5	12.7	0.0	0.0	0.0	43.3	24.3	0.0	0.0	32.8	35.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.5	11.5	12.7	0.0	0.0	0.0	43.3	24.3	0.0	0.0	32.8	35.0
LOS by Move:	B	B	B	A	A	A	D	C	A	A	C	C
HCM2kAvgQ:	0	0	3	0	0	0	2	3	0	0	4	6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.478
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 12.1
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	0 1	0
Volume Module:												
Base Vol:	26	19	0	10	10	276	178	200	11	0	201	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	19	0	10	10	276	178	200	11	0	201	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	19	0	10	10	276	178	200	11	0	201	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	19	0	10	10	276	178	200	11	0	201	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	19	0	10	10	276	178	200	11	0	201	9
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.16	0.84	0.00	0.03	0.03	0.94	0.91	1.03	0.06	0.00	0.96	0.04
Final Sat.:	1007	-72	0	21	21	578	515	622	34	0	551	25
Capacity Analysis Module:												
Vol/Sat:	0.03-0.26		xxxx	0.48	0.48	0.48	0.35	0.32	0.32	xxxx	0.36	0.36
Crit Moves:	****				****		****				****	
Delay/Veh:	10.1	10.1	0.0	13.1	13.1	13.1	12.0	11.0	11.0	0.0	12.2	12.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.1	10.1	0.0	13.1	13.1	13.1	12.0	11.0	11.0	0.0	12.2	12.2
LOS by Move:	B	B	*	B	B	B	B	B	B	*	B	B
ApproachDel:	10.1			13.1			11.5			12.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.1			13.1			11.5			12.2		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.0	0.0	0.0	0.8	0.8	0.8	0.5	0.4	0.4	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.245
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	8.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	17	48	146	3	59	8	29	7	23	128	3	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	48	146	3	59	8	29	7	23	128	3	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	48	146	3	59	8	29	7	23	128	3	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	48	146	3	59	8	29	7	23	128	3	1
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	48	146	3	59	8	29	7	23	128	3	1
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.23	0.69	0.04	0.85	0.11	0.49	0.12	0.39	0.97	0.02	0.01
Final Sat.:	69	196	597	33	644	87	369	89	293	701	16	5
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.09	0.09	0.09	0.08	0.08	0.08	0.18	0.18	0.18
Crit Moves:		****			****			****			****	
Delay/Veh:	8.3	8.3	8.3	7.9	7.9	7.9	7.9	7.9	7.9	8.7	8.7	8.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.3	8.3	8.3	7.9	7.9	7.9	7.9	7.9	7.9	8.7	8.7	8.7
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		8.3			7.9			7.9			8.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.3			7.9			7.9			8.7	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.148
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.6
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	0 0	0	0 0	0 1	0	0 1	0 0	0
Volume Module:												
Base Vol:	28	0	50	0	0	0	0	101	30	30	39	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	28	0	50	0	0	0	0	101	30	30	39	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	28	0	50	0	0	0	0	101	30	30	39	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	0	50	0	0	0	0	101	30	30	39	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	28	0	50	0	0	0	0	101	30	30	39	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.36	0.00	0.64	0.00	0.00	0.00	0.00	0.77	0.23	0.43	0.57	0.00
Final Sat.:	311	0	555	0	0	0	0	683	203	359	467	0
Capacity Analysis Module:												
Vol/Sat:	0.09	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	0.15	0.15	0.08	0.08	xxxx
Crit Moves:	****								****	****		
Delay/Veh:	7.4	0.0	7.4	0.0	0.0	0.0	0.0	7.7	7.7	7.6	7.6	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.4	0.0	7.4	0.0	0.0	0.0	0.0	7.7	7.7	7.6	7.6	0.0
LOS by Move:	A	*	A	*	*	*	*	A	A	A	A	*
ApproachDel:		7.4			xxxxxx			7.7			7.6	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		7.4			xxxxxx			7.7			7.6	
LOS by Appr:		A			*			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1758	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1103	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1103	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1632	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	453	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1024	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1024	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	17.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

2010 Background with Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background Proj PM
Command:	Default Command
Volume:	Background WP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	D	49.9	0.987	D	49.9	0.987	+ 0.000 D/V
# 2 SR 140 / Baker	F	81.2	0.000	F	81.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	17.4	0.000	C	17.4	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	154.9	1.565	F	154.9	1.565	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	201.3	1.897	F	201.3	1.897	+ 0.000 V/C
# 6 Childs / Parsons	F	184.7	1.230	F	184.7	1.230	+ 0.000 D/V
# 7 Childs / Coffee	C	34.2	0.674	C	34.2	0.674	+ 0.000 D/V
# 8 Childs / KIbby	B	10.1	0.000	B	10.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.7	0.000	B	11.7	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.5	0.214	A	8.5	0.214	+ 0.000 V/C
# 11 Gerard / Tower	A	7.4	0.109	A	7.4	0.109	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	25.4	0.406	C	25.4	0.406	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	34.6	0.335	C	34.6	0.335	+ 0.000 D/V
# 14 Mission / Coffee	C	21.7	0.803	C	21.7	0.803	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	9.5	0.377	A	9.5	0.377	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	8.1	0.221	A	8.1	0.221	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.987
Loss Time (sec): 15 (Y+R=4.0 sec) | Average Delay (sec/veh): 49.9
Optimal Cycle: 168 | Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	317		0		159		0		0		0		0		714		320		172		462		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	317		0		159		0		0		0		0		714		320		172		462		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	317		0		159		0		0		0		0		714		320		172		462		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	317		0		159		0		0		0		0		714		320		172		462		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	317		0		159		0		0		0		0		714		320		172		462		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900		1900		1900		1900		1900	
Adjustment:	0.95	1.00		0.85		1.00	1.00		1.00		1.00		1.00		0.96		0.96		0.95		1.00		1.00	
Lanes:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		0.69		0.31		1.00		1.00		0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1257		563		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.18	0.00		0.10		0.00	0.00		0.00		0.00		0.00		0.57		0.57		0.10		0.24		0.00	
Crit Moves:	****														****				****					
Green/Cycle:	0.20	0.00		0.20		0.00	0.00		0.00		0.00		0.00		0.56		0.56		0.09		0.65		0.00	
Volume/Cap:	0.88	0.00		0.49		0.00	0.00		0.00		0.00		0.00		1.02		1.02		1.02		0.37		0.00	
Uniform Del:	38.8		0.0		35.5		0.0		0.0		0.0		0.0		22.2		22.2		45.3		8.1		0.0	
IncremntDel:	20.9		0.0		1.2		0.0		0.0		0.0		0.0		33.6		33.6		74.8		0.2		0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
Delay Adj:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		1.00		1.00		1.00		1.00		0.00	
Delay/Veh:	59.7		0.0		36.7		0.0		0.0		0.0		0.0		55.7		55.7		120.1		8.3		0.0	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	59.7		0.0		36.7		0.0		0.0		0.0		0.0		55.7		55.7		120.1		8.3		0.0	
LOS by Move:	E		A		D		A		A		A		A		E		E		F		A		A	
HCM2kAvgQ:	13		0		5		0		0		0		0		41		41		10		7		0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 15.3 Worst Case Level Of Service: F[81.2]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	12		0		12		50		0		188		270		541		0		0		407		38	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	12		0		12		50		0		188		270		541		0		0		407		38	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	12		0		12		50		0		188		270		541		0		0		407		38	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	12		0		12		50		0		188		270		541		0		0		407		38	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	1601		1526		541		1513		1507		426		445	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Potent Cap.:	86		119		545		99		122		633		1126	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Move Cap.:	49		90		545		79		93		633		1126	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Volume/Cap:	0.24		0.00		0.02		0.63		0.00		0.30		0.24	xxxx	xxxx	xxxx	xxxx	xxxx						
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
LOS by Move:	*		*		*		*		*		*		A		*		*		*		*		*	
Movement:	LT -		LTR -		RT		LT -		LTR -		RT		LT -		LTR -		RT		LT -		LTR -		RT	
Shared Cap.:	xxxx		91		xxxxx		xxxx		256		xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx						
SharedQueue:	xxxxx		1.0		xxxxx		xxxxx		8.4		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx		58.4		xxxxx		xxxxx		81.2		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shared LOS:	*		F		*		*		F		*		*		*		*		*		*		*	
ApproachDel:			58.4						81.2						xxxxxx						xxxxxx			
ApproachLOS:			F						F						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 4.5 Worst Case Level Of Service: C[17.4]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	11		36		54		18		39		18		21		244		7		93		218		37	
Growth Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	11		36		54		18		39		18		21		244		7		93		218		37	
User Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	11		36		54		18		39		18		21		244		7		93		218		37	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	11		36		54		18		39		18		21		244		7		93		218		37	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1		xxxx		xxxxx		4.1		xxxx		xxxxx	
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2		xxxx		xxxxx		2.2		xxxx		xxxxx	
Capacity Module:																								
Cnflict Vol:	741		731		248		739		697		218		255		xxxx		xxxxx		251		xxxx		xxxxx	
Potent Cap.:	335		351		796		336		367		827		1322		xxxx		xxxxx		1326		xxxx		xxxxx	
Move Cap.:	280		322		796		268		336		827		1322		xxxx		xxxxx		1326		xxxx		xxxxx	
Volume/Cap:	0.04		0.11		0.07		0.07		0.12		0.02		0.02		xxxx		xxxx		0.07		xxxx		xxxx	
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		0.2		xxxx		xxxx		xxxxx		0.0		xxxx		xxxxx		0.2		xxxx		xxxxx	
Control Del:	xxxxx		xxxx		9.9		xxxxx		xxxx		xxxxx		7.8		xxxx		xxxxx		7.9		xxxx		xxxxx	
LOS by Move:	*		*		A		*		*		*		A		*		*		A		*		*	
Movement:	LT -		LTR -		RT		LT -		LTR -		RT		LT -		LTR -		RT		LT -		LTR -		RT	
Shared Cap.:	311		xxxx		xxxxx		xxxx		366		xxxxx		xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx	
SharedQueue:	0.5		xxxx		xxxxx		xxxxx		0.8		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shrd ConDel:	18.6		xxxx		xxxxx		xxxxx		17.4		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shared LOS:	C		*		*		*		C		*		*		*		*		*		*		*	
ApproachDel:			13.9						17.4						xxxxxx						xxxxxx			
ApproachLOS:			B						C						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 1.565
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 154.9
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0		0		0		639		166		23		0		420		20		37		281		0	
Growth Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	0		0		0		639		166		23		0		420		20		37		281		0	
User Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	0		0		0		639		166		23		0		420		20		37		281		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	0		0		0		639		166		23		0		420		20		37		281		0	
PCE Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	0		0		0		639		166		23		0		420		20		37		281		0	
Saturation Flow Module:																								
Adjustment:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Lanes:	0.00		0.00		0.00		0.79		0.21		1.00		0.00		0.95		0.05		0.12		0.88		0.00	
Final Sat.:	0		0		0		408		106		608		0		538		26		63		475		0	
Capacity Analysis Module:																								
Vol/Sat:	xxxx		xxxx		xxxx		1.57		1.57		0.04		xxxx		0.78		0.78		0.59		0.59		xxxx	
Crit Moves:									****						****						****			
Delay/Veh:	0.0		0.0		0.0		282.2		282		8.9		0.0		28.2		28.2		18.6		18.6		0.0	
Delay Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	0.0		0.0		0.0		282.2		282		8.9		0.0		28.2		28.2		18.6		18.6		0.0	
LOS by Move:	*		*		*		F		F		A		*		D		D		C		C		*	
ApproachDel:	xxxxxx						274.6						28.2						18.6					
Delay Adj:	xxxxx						1.00						1.00						1.00					
ApprAdjDel:	xxxxxx						274.6						28.2						18.6					
LOS by Appr:	*						F						D						C					
AllWayAvgQ:	0.0		0.0		0.0		38.9		38.9		0.0		2.9		2.9		2.9		1.3		1.3		1.3	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.897
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	201.3
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 1	0 0	1		0 1	0 0	1		1 0	1 0	1		1 0	1 0	1	
Volume Module:																
Base Vol:	23	31	56		99	23	62		130	902	27		424	221	94	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	23	31	56		99	23	62		130	902	27		424	221	94	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	23	31	56		99	23	62		130	902	27		424	221	94	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	23	31	56		99	23	62		130	902	27		424	221	94	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	23	31	56		99	23	62		130	902	27		424	221	94	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.43	0.57	1.00		0.81	0.19	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	173	233	453		334	78	470		436	476	508		453	481	528	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.13	0.12		0.30	0.30	0.13		0.30	1.90	0.05		0.94	0.46	0.18	
Crit Moves:		****				****				****			****			
Delay/Veh:	12.6	12.6	11.4		14.7	14.7	11.3		14.1	429	9.9		55.2	16.2	10.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.6	12.6	11.4		14.7	14.7	11.3		14.1	429	9.9		55.2	16.2	10.8	
LOS by Move:	B	B	B		B	B	B		B	F	A		F	C	B	
ApproachDel:		12.0				13.6				367.5				37.9		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		12.0				13.6				367.5				37.9		
LOS by Appr:		B				B				F				E		
AllWayAvgQ:	0.1	0.1	0.1		0.4	0.4	0.1		0.4	55.3	0.1		5.6	0.8	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.230
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	184.7
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1 0	0 1	0		1 0	1 0	1		0 0	1! 0	0		1 0	1 0	1	
Volume Module:																
Base Vol:	235	177	3		241	136	90		176	701	225		3	414	184	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	235	177	3		241	136	90		176	701	225		3	414	184	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	235	177	3		241	136	90		176	701	225		3	414	184	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	235	177	3		241	136	90		176	701	225		3	414	184	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	235	177	3		241	136	90		176	701	225		3	414	184	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	0.85		0.96	0.96	0.96		0.95	1.00	0.85	
Lanes:	1.00	0.98	0.02		1.00	1.00	1.00		0.16	0.64	0.20		1.00	1.00	1.00	
Final Sat.:	1805	1863	32		1805	1900	1615		293	1165	374		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.10	0.10		0.13	0.07	0.06		0.60	0.60	0.60		0.00	0.22	0.11	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.06	0.22	0.22		0.08	0.24	0.24		0.30	0.49	0.49		0.04	0.23	0.23	
Volume/Cap:	2.03	0.43	0.43		1.59	0.30	0.23		2.03	1.24	1.24		0.04	0.95	0.50	
Uniform Del:	46.8	33.6	33.6		45.8	31.1	30.6		35.2	25.7	25.7		46.2	37.9	33.5	
IncremntDel:	493.5	0.7	0.7		293.7	0.4	0.3		471.1	117	116.7		0.2	30.0	1.0	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	540.3	34.3	34.3		339.5	31.5	30.9		506.3	142	142.4		46.4	67.9	34.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	540.3	34.3	34.3		339.5	31.5	30.9		506.3	142	142.4		46.4	67.9	34.5	
LOS by Move:	F	C	C		F	C	C		F	F	F		D	E	C	
HCM2kAvgQ:	23	5	5		20	4	2		103	62	62		0	17	5	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.674
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 34.2
Optimal Cycle: 68 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0 0 1 0			1 0 0 1 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	198	102	64	58	104	57	97	284	279	73	245	65
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	198	102	64	58	104	57	97	284	279	73	245	65
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	198	102	64	58	104	57	97	284	279	73	245	65
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	198	102	64	58	104	57	97	284	279	73	245	65
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	198	102	64	58	104	57	97	284	279	73	245	65
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.93	0.93	0.95	0.97	0.97
Lanes:	1.00	0.61	0.39	1.00	0.65	0.35	1.00	0.50	0.50	1.00	0.79	0.21
Final Sat.:	1805	1100	690	1805	1162	637	1805	888	872	1805	1455	386
Capacity Analysis Module:												
Vol/Sat:	0.11	0.09	0.09	0.03	0.09	0.09	0.05	0.32	0.32	0.04	0.17	0.17
Crit Moves:	****				****			****		****		
Green/Cycle:	0.15	0.26	0.26	0.08	0.19	0.19	0.12	0.43	0.43	0.06	0.37	0.37
Volume/Cap:	0.74	0.36	0.36	0.40	0.47	0.47	0.46	0.74	0.74	0.67	0.45	0.45
Uniform Del:	40.8	30.4	30.4	43.6	36.0	36.0	41.1	23.7	23.7	46.0	23.6	23.6
IncremntDel:	10.5	0.5	0.5	1.8	1.0	1.0	1.5	3.9	3.9	15.5	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	51.3	30.9	30.9	45.4	37.1	37.1	42.6	27.6	27.6	61.5	24.0	24.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	51.3	30.9	30.9	45.4	37.1	37.1	42.6	27.6	27.6	61.5	24.0	24.0
LOS by Move:	D	C	C	D	D	D	D	C	C	E	C	C
HCM2kAvgQ:	8	4	4	2	5	5	3	16	16	4	7	7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: B[10.1]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	14	0	149	91	165	0	0	122	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	149	91	165	0	0	122	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	14	0	149	91	165	0	0	122	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	149	91	165	0	0	122	11
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	475	475	128	133	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	552	492	928	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	525	459	928	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.16	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	871	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.7	xxxxx	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: B[11.7]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	1! 0	0		0 0	1! 0	0		0 0	1! 0	0		0 0	1! 0	0	
Volume Module:																
Base Vol:	3	77	7		1	16	7		4	171	4		1	124	2	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	3	77	7		1	16	7		4	171	4		1	124	2	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	3	77	7		1	16	7		4	171	4		1	124	2	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	3	77	7		1	16	7		4	171	4		1	124	2	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	320	309	173		350	310	125		126	xxxx	xxxxx		175	xxxx	xxxxx	
Potent Cap.:	637	609	876		608	608	931		1473	xxxx	xxxxx		1414	xxxx	xxxxx	
Move Cap.:	618	607	876		543	606	931		1473	xxxx	xxxxx		1414	xxxx	xxxxx	
Volume/Cap:	0.00	0.13	0.01		0.00	0.03	0.01		0.00	xxxx	xxxx		0.00	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		0.0	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.5	xxxx	xxxxx		7.5	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		A	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	622	xxxxx		xxxx	671	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.5	xxxxx		xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	11.7	xxxxx		xxxxx	10.6	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	B	*		*	B	*		*	*	*		*	*	*	
ApproachDel:		11.7				10.6				xxxxxx				xxxxxx		
ApproachLOS:		B				B				*				*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.214
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.5
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 0	1! 0	0		0 0	1! 0	0		0 0	1! 0	0		0 0	1! 0	0	
Volume Module:																
Base Vol:	5	24	29		76	21	64		88	37	37		30	42	87	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	5	24	29		76	21	64		88	37	37		30	42	87	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	5	24	29		76	21	64		88	37	37		30	42	87	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	5	24	29		76	21	64		88	37	37		30	42	87	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	5	24	29		76	21	64		88	37	37		30	42	87	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.09	0.41	0.50		0.47	0.13	0.40		0.54	0.23	0.23		0.19	0.26	0.55	
Final Sat.:	64	307	370		355	98	299		412	173	173		151	212	438	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.08	0.08		0.21	0.21	0.21		0.21	0.21	0.21		0.20	0.20	0.20	
Crit Moves:		****			****				****					****		
Delay/Veh:	7.9	7.9	7.9		8.7	8.7	8.7		8.7	8.7	8.7		8.3	8.3	8.3	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	7.9	7.9	7.9		8.7	8.7	8.7		8.7	8.7	8.7		8.3	8.3	8.3	
LOS by Move:	A	A	A		A	A	A		A	A	A		A	A	A	
ApproachDel:		7.9				8.7				8.7				8.3		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		7.9				8.7				8.7				8.3		
LOS by Appr:		A				A				A				A		
AllWayAvgQ:	0.1	0.1	0.1		0.2	0.2	0.2		0.2	0.2	0.2		0.2	0.2	0.2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.109
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 7.4
Optimal Cycle: 0 | Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	1	0	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	0	0	0	3	0	17	84	11	0	0	9	4				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	0	0	0	3	0	17	84	11	0	0	9	4				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	0	0	0	3	0	17	84	11	0	0	9	4				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	0	0	0	3	0	17	84	11	0	0	9	4				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	0	0	0	3	0	17	84	11	0	0	9	4				
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	0.00	1.00	0.00	0.15	0.00	0.85	0.88	0.12	0.00	0.00	0.69	0.31				
Final Sat.:	0	847	0	144	0	817	768	101	0	0	643	286				
Capacity Analysis Module:																
Vol/Sat:	xxxx	0.00	xxxx	0.02	xxxx	0.02	0.11	0.11	xxxx	xxxx	0.01	0.01				
Crit Moves:		****		****			****				****					
Delay/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.6	7.6	0.0	0.0	6.9	6.9				
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.6	7.6	0.0	0.0	6.9	6.9				
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A				
ApproachDel:	xxxxxx			6.7			7.6				6.9					
Delay Adj:	xxxxx			1.00			1.00				1.00					
ApprAdjDel:	xxxxxx			6.7			7.6				6.9					
LOS by Appr:	*			A			A				A					
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.406
Loss Time (sec): 11 (Y+R=4.0 sec) | Average Delay (sec/veh): 25.4
Optimal Cycle: 41 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	5	5	5	0	0	19	19	6	6	0		
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	1	1 0	0	1	1	0 0
Volume Module:																
Base Vol:	0	0	0	256	9	22	0	77	14	302	64	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	0	0	0	256	9	22	0	77	14	302	64	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	0	0	0	256	9	22	0	77	14	302	64	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	0	0	0	256	9	22	0	77	14	302	64	0				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	0	0	0	256	9	22	0	77	14	302	64	0				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	1.00	1.00	1.00	0.87	0.87	0.85	1.00	0.93	0.93	0.91	0.91	1.00				
Lanes:	0.00	0.00	0.00	0.97	0.03	1.00	0.00	1.69	0.31	1.00	1.00	0.00				
Final Sat.:	0	0	0	1590	56	1615	0	2984	543	1733	1733	0				
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00	0.16	0.16	0.01	0.00	0.03	0.03	0.17	0.04	0.00				
Crit Moves:				****				****		****						
Green/Cycle:	0.00	0.00	0.00	0.34	0.34	0.34	0.00	0.19	0.19	0.36	0.55	0.00				
Volume/Cap:	0.00	0.00	0.00	0.48	0.48	0.04	0.00	0.14	0.14	0.48	0.07	0.00				
Uniform Del:	0.0	0.0	0.0	26.3	26.3	22.3	0.0	33.7	33.7	24.5	10.3	0.0				
IncremntDel:	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.1	0.1	0.5	0.0	0.0				
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00				
Delay/Veh:	0.0	0.0	0.0	26.9	26.9	22.4	0.0	33.8	33.8	25.0	10.3	0.0				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	0.0	0.0	0.0	26.9	26.9	22.4	0.0	33.8	33.8	25.0	10.3	0.0				
LOS by Move:	A	A	A	C	C	C	A	C	C	C	B	A				
HCM2kAvgQ:	0	0	0	7	7	0	0	1	1	8	1	0				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.335
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	34.6
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	20	10	323	0	0	0	26	306	0	0	345	287
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	10	323	0	0	0	26	306	0	0	345	287
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	10	323	0	0	0	26	306	0	0	345	287
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	10	323	0	0	0	26	306	0	0	345	287
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	10	323	0	0	0	26	306	0	0	345	287
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	0.67	0.33	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1255	628	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.20	0.00	0.00	0.00	0.01	0.08	0.00	0.00	0.10	0.18
Crit Moves:			****					****		****		
Green/Cycle:	0.60	0.60	0.60	0.00	0.00	0.00	0.06	0.25	0.00	0.00	0.20	0.20
Volume/Cap:	0.03	0.03	0.34	0.00	0.00	0.00	0.26	0.34	0.00	0.00	0.48	0.90
Uniform Del:	8.3	8.3	10.2	0.0	0.0	0.0	45.3	30.5	0.0	0.0	35.6	39.2
IncremntDel:	0.0	0.0	0.2	0.0	0.0	0.0	1.4	0.2	0.0	0.0	0.5	26.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	8.3	8.3	10.4	0.0	0.0	0.0	46.6	30.7	0.0	0.0	36.1	65.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.3	8.3	10.4	0.0	0.0	0.0	46.6	30.7	0.0	0.0	36.1	65.9
LOS by Move:	A	A	B	A	A	A	D	C	A	A	D	E
HCM2kAvgQ:	0	0	5	0	0	0	1	4	0	0	5	12

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.803
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	21.7
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	0 1	0
Volume Module:												
Base Vol:	23	10	0	22	12	337	420	174	34	0	272	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	10	0	22	12	337	420	174	34	0	272	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	10	0	22	12	337	420	174	34	0	272	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	10	0	22	12	337	420	174	34	0	272	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	10	0	22	12	337	420	174	34	0	272	21
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.39	0.61	0.00	0.06	0.03	0.91	1.00	0.89	0.11	0.00	0.93	0.07
Final Sat.:	925	-150	0	33	18	500	523	509	62	0	484	37
Capacity Analysis Module:												
Vol/Sat:	0.02-0.07		xxxx	0.67	0.67	0.67	0.80	0.34	0.55	xxxx	0.56	0.56
Crit Moves:	****			****			****				****	
Delay/Veh:	11.4	11.5	0.0	20.6	20.6	20.6	31.0	12.4	12.4	0.0	17.4	17.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.4	11.5	0.0	20.6	20.6	20.6	31.0	12.4	12.4	0.0	17.4	17.4
LOS by Move:	B	B	*	C	C	C	D	B	B	*	C	C
ApproachDel:	11.4			20.6			24.9			17.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.4			20.6			24.9			17.4		
LOS by Appr:	B			C			C			C		
AllWayAvgQ:	0.0	0.0	0.0	1.7	1.7	1.7	3.1	0.6	0.6	1.1	1.1	1.1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.377
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 9.5
Optimal Cycle: 0 | Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	34	76	86	1	46	30	16	3	12	235	31	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	34	76	86	1	46	30	16	3	12	235	31	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	34	76	86	1	46	30	16	3	12	235	31	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	76	86	1	46	30	16	3	12	235	31	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	34	76	86	1	46	30	16	3	12	235	31	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.17	0.39	0.44	0.01	0.60	0.39	0.51	0.10	0.39	0.84	0.11	0.05
Final Sat.:	132	294	333	9	434	283	366	69	275	623	82	34
Capacity Analysis Module:												
Vol/Sat:	0.26	0.26	0.26	0.11	0.11	0.11	0.04	0.04	0.04	0.38	0.38	0.38
Crit Moves:		****			****		****			****		
Delay/Veh:	9.0	9.0	9.0	8.1	8.1	8.1	7.9	7.9	7.9	10.4	10.4	10.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.0	9.0	9.0	8.1	8.1	8.1	7.9	7.9	7.9	10.4	10.4	10.4
LOS by Move:	A	A	A	A	A	A	A	A	A	B	B	B
ApproachDel:		9.0			8.1			7.9			10.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.0			8.1			7.9			10.4	
LOS by Appr:		A			A			A			B	
AllWayAvgQ:	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.221
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 8.1
Optimal Cycle: 0 | Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	0 0	0	0 0	0 1	0	0 1	0 0	0
Volume Module:												
Base Vol:	49	0	47	0	0	0	0	82	15	60	123	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	0	47	0	0	0	0	82	15	60	123	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	49	0	47	0	0	0	0	82	15	60	123	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	49	0	47	0	0	0	0	82	15	60	123	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	49	0	47	0	0	0	0	82	15	60	123	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.51	0.00	0.49	0.00	0.00	0.00	0.00	0.85	0.15	0.33	0.67	0.00
Final Sat.:	407	0	391	0	0	0	0	706	129	271	555	0
Capacity Analysis Module:												
Vol/Sat:	0.12	xxxx	0.12	xxxx	xxxx	xxxx	xxxx	0.12	0.12	0.22	0.22	xxxx
Crit Moves:	****								****	****		
Delay/Veh:	7.8	0.0	7.8	0.0	0.0	0.0	0.0	7.7	7.7	8.4	8.4	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.8	0.0	7.8	0.0	0.0	0.0	0.0	7.7	7.7	8.4	8.4	0.0
LOS by Move:	A	*	A	*	*	*	*	A	A	A	A	*
ApproachDel:		7.8			xxxxxx			7.7			8.4	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		7.8			xxxxxx			7.7			8.4	
LOS by Appr:		A			*			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2723	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	756	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1708	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1708	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.4	mi/h
Number of lanes, N	2	
Density, D	28.7	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1215 veh/h
Directional split 59 / 41 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1297 pc/h
Highest directional split proportion (note-2) 765 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.7 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1279 pc/h
Highest directional split proportion (note-2) 755
Base percent time-spent-following, BPTSF 67.5 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 67.5 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	416	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1579	veh-mi
Peak 15-min total travel time, TT15	9.3	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative No Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative AM
Command:	Default Command
Volume:	Cum NP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	F	89.8	1.051	F	89.8	1.051	+ 0.000 D/V
# 2 SR 140 / Baker	F	97.3	0.000	F	97.3	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	489.1	0.000	F	489.1	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	340.2	2.352	F	340.2	2.352	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	258.8	2.335	F	258.8	2.335	+ 0.000 V/C
# 6 Childs / Parsons	F	243.8	1.473	F	243.8	1.473	+ 0.000 D/V
# 7 Childs / Coffee	C	28.6	0.482	C	28.6	0.482	+ 0.000 D/V
# 8 Childs / KIbby	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.1	0.000	B	11.1	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.5	0.360	A	9.5	0.360	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.051	A	7.1	0.051	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	28.8	0.686	C	28.8	0.686	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	28.3	0.739	C	28.3	0.739	+ 0.000 D/V
# 14 Mission / Coffee	F	153.8	1.473	F	153.8	1.473	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	63.2	1.083	F	63.2	1.083	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	30.2	0.919	D	30.2	0.919	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 1.051
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 89.8
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	159		0		155		0		0		0		0		1002		177		296		800		0	
Growth Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
Initial Bse:	159		0		155		0		0		0		0		1002		177		296		800		0	
User Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
PHF Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
PHF Volume:	159		0		155		0		0		0		0		1002		177		296		800		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	159		0		155		0		0		0		0		1002		177		296		800		0	
PCE Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
MLF Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
FinalVolume:	159		0		155		0		0		0		0		1002		177		296		800		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900			1900		1900	1900			1900		1900	1900			1900		1900	1900			1900	
Adjustment:	0.95	1.00			0.85		1.00	1.00			1.00		1.00	0.98			0.98		0.95	1.00			1.00	
Lanes:	1.00	0.00			1.00		0.00	0.00			0.00		0.00	0.85			0.15		1.00	1.00			0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1582		280		1805	1900			0	
Capacity Analysis Module:																								
Vol/Sat:	0.09	0.00			0.10		0.00	0.00			0.00		0.00	0.63			0.63		0.16	0.42			0.00	
Crit Moves:					****									****					****					
Green/Cycle:	0.20	0.00			0.20		0.00	0.00			0.00		0.00	0.52			0.52		0.13	0.65			0.00	
Volume/Cap:	0.44	0.00			0.48		0.00	0.00			0.00		0.00	1.23			1.23		1.23	0.65			0.00	
Uniform Del:	35.1		0.0		35.4		0.0		0.0		0.0		0.0	24.2			24.2		43.3	10.6			0.0	
IncremntDel:	0.9		0.0		1.1		0.0		0.0		0.0		0.0	111			111.2		132.9	1.2			0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0	0.0			0.0		0.0	0.0			0.0	
Delay Adj:	1.00	0.00			1.00		0.00	0.00			0.00		0.00	1.00			1.00		1.00	1.00			0.00	
Delay/Veh:	36.0		0.0		36.5		0.0		0.0		0.0		0.0	135			135.4		176.2	11.8			0.0	
User DelAdj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
AdjDel/Veh:	36.0		0.0		36.5		0.0		0.0		0.0		0.0	135			135.4		176.2	11.8			0.0	
LOS by Move:	D		A		D		A		A		A		A	F			F		F	B			A	
HCM2kAvgQ:	5		0		5		0		0		0		0	65			65		19	15			0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: F[97.3]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	3		1		6		27		0		73		48		903		0		0		900		38	
Growth Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
Initial Bse:	3		1		6		27		0		73		48		903		0		0		900		38	
User Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
PHF Adj:	1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00		1.00	1.00			1.00	
PHF Volume:	3		1		6		27		0		73		48		903		0		0		900		38	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	3		1		6		27		0		73		48		903		0		0		900		38	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	1955		1937		903		1922		1918		919		938	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Potent Cap.:	49		66		339		51		68		332		739	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Move Cap.:	36		62		339		47		64		332		739	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Volume/Cap:	0.08		0.02		0.02		0.57		0.00		0.22		0.06	xxxx	xxxx	xxxx	xxxx	xxxx						
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		10.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
LOS by Move:	*		*		*		*		*		*		B		*		*		*		*		*	
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx		85		xxxxx		xxxx		127		xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx						
SharedQueue:	xxxxx		0.4		xxxxx		xxxxx		4.7		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx		52.6		xxxxx		xxxxx		97.3		xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shared LOS:	*		F		*		*		F		*		*		*		*		*		*		*	
ApproachDel:	52.6						97.3						xxxxxx						xxxxxx					
ApproachLOS:	F						F						*						*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 39.1 Worst Case Level Of Service: F[489.1]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	1	0 0	1! 0	0	1 0	0 1	0	1 0	1 0	1
Volume Module:												
Base Vol:	22	48	0	20	55	45	47	840	47	8	773	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	48	0	20	55	45	47	840	47	8	773	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	48	0	20	55	45	47	840	47	8	773	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	48	0	20	55	45	47	840	47	8	773	24
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1809	1771	864	1771	1770	773	797	xxxx	xxxxx	887	xxxx	xxxxx
Potent Cap.:	62	84	357	66	84	402	834	xxxx	xxxxx	772	xxxx	xxxxx
Move Cap.:	23	79	357	32	79	402	834	xxxx	xxxxx	772	xxxx	xxxxx
Volume/Cap:	0.97	0.61	0.00	0.62	0.70	0.11	0.06	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.6	xxxx	xxxxx	9.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	44	xxxx	xxxxx	xxxx	84	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	7.0	xxxx	xxxxx	xxxxx	9.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	489.1	xxxx	xxxxx	xxxxx	338	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F	*	*	*	F	*	*	*	*	*	*	*
ApproachDel:	489.1			338.2			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 2.352
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 340.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	0 1	0	0 1	0 0	0
Volume Module:												
Base Vol:	0	0	0	795	304	186	0	558	103	58	578	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	795	304	186	0	558	103	58	578	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	795	304	186	0	558	103	58	578	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	795	304	186	0	558	103	58	578	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	795	304	186	0	558	103	58	578	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.72	0.28	1.00	0.00	0.84	0.16	0.09	0.91	0.00
Final Sat.:	0	0	0	338	129	541	0	449	83	48	476	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	2.35	2.35	0.34	xxxx	1.24	1.24	1.21	1.21	xxxx
Crit Moves:				****					****		****	
Delay/Veh:	0.0	0.0	0.0	631.0	631	12.8	0.0	146	145.7	135.6	136	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	631.0	631	12.8	0.0	146	145.7	135.6	136	0.0
LOS by Move:	*	*	*	F	F	B	*	F	F	F	F	*
ApproachDel:	xxxxxx			541.5			145.7			135.6		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			541.5			145.7			135.6		
LOS by Appr:	*			F			F			F		
AllWayAvgQ:	0.0	0.0	0.0	80.5	80.5	0.5	20.1	20.1	20.1	18.3	18.3	18.3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	2.335
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	258.8
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	29	57	47	96	46	98	178	974	201	476	479	154
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	29	57	47	96	46	98	178	974	201	476	479	154
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	29	57	47	96	46	98	178	974	201	476	479	154
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	57	47	96	46	98	178	974	201	476	479	154
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	29	57	47	96	46	98	178	974	201	476	479	154
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.34	0.66	1.00	0.68	0.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	124	244	403	256	122	424	391	417	449	409	434	467
Capacity Analysis Module:												
Vol/Sat:	0.23	0.23	0.12	0.38	0.38	0.23	0.46	2.33	0.45	1.16	1.10	0.33
Crit Moves:	****				****			****		****		
Delay/Veh:	15.0	15.0	12.5	17.5	17.5	13.5	19.1	627	16.8	125.1	102	13.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.0	15.0	12.5	17.5	17.5	13.5	19.1	627	16.8	125.1	102	13.9
LOS by Move:	C	C	B	C	C	B	C	F	C	F	F	B
ApproachDel:	14.1			15.9			456.2			99.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	14.1			15.9			456.2			99.9		
LOS by Appr:	B			C			F			F		
AllWayAvgQ:	0.3	0.3	0.1	0.6	0.6	0.3	0.8	71.3	0.8	12.9	11.0	0.5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.473
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	243.8
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0	0 1	0	1 0	1 0	1	0 0	1! 0	0	1 0	1 0	1
Volume Module:												
Base Vol:	242	152	13	136	80	157	245	634	246	23	710	117
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	242	152	13	136	80	157	245	634	246	23	710	117
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	242	152	13	136	80	157	245	634	246	23	710	117
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	242	152	13	136	80	157	245	634	246	23	710	117
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	242	152	13	136	80	157	245	634	246	23	710	117
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.99	0.99	0.95	1.00	0.85	0.96	0.96	0.96	0.95	1.00	0.85
Lanes:	1.00	0.92	0.08	1.00	1.00	1.00	0.22	0.56	0.22	1.00	1.00	1.00
Final Sat.:	1805	1729	148	1805	1900	1615	397	1027	399	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.13	0.09	0.09	0.08	0.04	0.10	0.62	0.62	0.62	0.01	0.37	0.07
Crit Moves:	****					****	****				****	
Green/Cycle:	0.06	0.23	0.23	0.08	0.24	0.24	0.30	0.49	0.49	0.04	0.23	0.23
Volume/Cap:	2.09	0.39	0.39	0.97	0.18	0.41	2.09	1.27	1.27	0.32	1.62	0.31
Uniform Del:	46.8	32.8	32.8	46.0	30.1	32.0	35.2	25.7	25.7	46.7	38.5	32.0
IncremntDel:	517.3	0.6	0.6	66.9	0.2	0.7	495.4	131	130.7	2.5	291	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	564.1	33.4	33.4	112.9	30.3	32.7	530.6	156	156.4	49.2	330	32.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	564.1	33.4	33.4	112.9	30.3	32.7	530.6	156	156.4	49.2	330	32.4
LOS by Move:	F	C	C	F	C	C	F	F	F	D	F	C
HCM2kAvgQ:	24	5	5	8	2	4	106	65	65	1	56	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.482
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 28.6
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	6	19	19		6	19	19		6	19	19		6	19	19	
Lanes:	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	1	0
Volume Module:																		
Base Vol:	118	53	35		30	78	92		31	232	152		40	228	12			
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Initial Bse:	118	53	35		30	78	92		31	232	152		40	228	12			
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Volume:	118	53	35		30	78	92		31	232	152		40	228	12			
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0			
Reduced Vol:	118	53	35		30	78	92		31	232	152		40	228	12			
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
FinalVolume:	118	53	35		30	78	92		31	232	152		40	228	12			
Saturation Flow Module:																		
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900			
Adjustment:	0.95	0.94	0.94		0.95	0.92	0.92		0.95	0.94	0.94		0.95	0.99	0.99			
Lanes:	1.00	0.60	0.40		1.00	0.46	0.54		1.00	0.60	0.40		1.00	0.95	0.05			
Final Sat.:	1805	1076	710		1805	801	945		1805	1080	708		1805	1792	94			
Capacity Analysis Module:																		
Vol/Sat:	0.07	0.05	0.05		0.02	0.10	0.10		0.02	0.21	0.21		0.02	0.13	0.13			
Crit Moves:	****					****				****			****					
Green/Cycle:	0.13	0.25	0.25		0.08	0.20	0.20		0.12	0.44	0.44		0.06	0.38	0.38			
Volume/Cap:	0.49	0.20	0.20		0.21	0.49	0.49		0.14	0.49	0.49		0.37	0.34	0.34			
Uniform Del:	40.2	29.4	29.4		43.1	35.6	35.6		39.4	20.1	20.1		45.2	22.1	22.1			
IncremntDel:	1.6	0.2	0.2		0.7	1.1	1.1		0.3	0.5	0.5		2.1	0.3	0.3			
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0			
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Delay/Veh:	41.8	29.6	29.6		43.8	36.7	36.7		39.7	20.6	20.6		47.3	22.4	22.4			
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
AdjDel/Veh:	41.8	29.6	29.6		43.8	36.7	36.7		39.7	20.6	20.6		47.3	22.4	22.4			
LOS by Move:	D	C	C		D	D	D		D	C	C		D	C	C			
HCM2kAvgQ:	4	2	2		1	5	5		1	9	9		2	5	5			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: B[10.3]

Street Name:	Kibby									Childs								
Approach:	North Bound				South Bound					East Bound				West Bound				
Movement:	L	- T	-	R	L	- T	-	R		L	- T	-	R	L	- T	-	R	
Control:	Stop Sign				Stop Sign					Uncontrolled				Uncontrolled				
Rights:	Include				Include					Include				Include				
Lanes:	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	1	0
Volume Module:																		
Base Vol:	0	0	0		14	0	82			23	119	0		0	217	14		
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00		
Initial Bse:	0	0	0		14	0	82			23	119	0		0	217	14		
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00		
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00		
PHF Volume:	0	0	0		14	0	82			23	119	0		0	217	14		
Reduct Vol:	0	0	0		0	0	0			0	0	0		0	0	0		
FinalVolume:	0	0	0		14	0	82			23	119	0		0	217	14		
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.5	6.2			4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3			2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx		389	389	224			231	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx		619	549	820			1349	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx		610	540	820			1349	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.00	0.10			0.02	xxxx	xxxx		xxxx	xxxx	xxxx		
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx			0.1	xxxx	xxxxx		xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			7.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*		*	*	*			A	*	*		*	*	*		
Movement:	LT	- LTR	- RT		LT	- LTR	- RT			LT	- LTR	- RT		LT	- LTR	- RT		
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	781	xxxxx			xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	0.4	xxxxx			0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	10.3	xxxxx			7.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*		*	B	*			A	*	*		*	*	*		
ApproachDel:	xxxxxx				10.3					xxxxxx				xxxxxx				
ApproachLOS:	*				B					*				*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: B[11.1]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	0	1	0	
Volume Module:																								
Base Vol:	6		5		1		5		5		19		2		130		1		0		206		2	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	6		5		1		5		5		19		2		130		1		0		206		2	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	6		5		1		5		5		19		2		130		1		0		206		2	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	6		5		1		5		5		19		2		130		1		0		206		2	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
Capacity Module:																								
Cnflict Vol:	354		343		131		345		342		207		208	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Potent Cap.:	605		583		924		614		583		839		1375	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Move Cap.:	587		582		924		608		583		839		1375	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Volume/Cap:	0.01		0.01		0.00		0.01		0.01		0.02		0.00	xxxx		xxxx		xxxx	xxxx		xxxx			
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx	xxxx		xxxxx			
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		7.6	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
LOS by Move:	*		*		*		*		*		*		A	*		*		*	*		*			
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx		603		xxxxx		xxxx		735		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx			
SharedQueue:	xxxxx		0.1		xxxxx		xxxxx		0.1		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
Shrd ConDel:	xxxxx		11.1		xxxxx		xxxxx		10.1		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx			
Shared LOS:	*		B		*		*		B		*		*	*		*		*	*		*			
ApproachDel:			11.1						10.1					xxxxxx						xxxxxx				
ApproachLOS:			B						B					*						*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.360
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.5
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:	3		24		93		124		19		1		11		133		13		129		56		82	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	3		24		93		124		19		1		11		133		13		129		56		82	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	3		24		93		124		19		1		11		133		13		129		56		82	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	3		24		93		124		19		1		11		133		13		129		56		82	
PCE Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
FinalVolume:	3		24		93		124		19		1		11		133		13		129		56		82	
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Lanes:	0.02	0.20		0.78		0.86	0.13		0.01		0.07	0.85		0.08		0.48	0.21		0.31					
Final Sat.:	18		143		553		556		85		4		49		597		58		358		156		228	
Capacity Analysis Module:																								
Vol/Sat:	0.17	0.17		0.17		0.22	0.22		0.22		0.22	0.22		0.22		0.36	0.36		0.36					
Crit Moves:		****					****						****						****					
Delay/Veh:	8.5		8.5		8.5		9.6		9.6		9.6		9.1		9.1		9.1		10.1		10.1		10.1	
Delay Adj:	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	8.5		8.5		8.5		9.6		9.6		9.6		9.1		9.1		9.1		10.1		10.1		10.1	
LOS by Move:	A		A		A		A		A		A		A		A		A		B		B		B	
ApproachDel:			8.5						9.6						9.1						10.1			
Delay Adj:			1.00						1.00						1.00						1.00			
ApprAdjDel:			8.5						9.6						9.1						10.1			
LOS by Appr:			A						A						A						B			
AllWayAvgQ:	0.2		0.2		0.2		0.2		0.2		0.2		0.3		0.3		0.3		0.5		0.5		0.5	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.051
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.1
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 0	1! 0	0		0 0	1! 0	0		0 1	0 0	0		0 0	0 1	0	
Volume Module:																
Base Vol:	0	0	0		2	0	6		10	36	0		0	35	5	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		2	0	6		10	36	0		0	35	5	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		2	0	6		10	36	0		0	35	5	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		2	0	6		10	36	0		0	35	5	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		2	0	6		10	36	0		0	35	5	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	1.00	0.00		0.25	0.00	0.75		0.22	0.78	0.00		0.00	0.87	0.13	
Final Sat.:	0	865	0		240	0	720		195	703	0		0	809	116	
Capacity Analysis Module:																
Vol/Sat:	xxxx	0.00	xxxx		0.01	xxxx	0.01		0.05	0.05	xxxx		xxxx	0.04	0.04	
Crit Moves:		****			****					****				****		
Delay/Veh:	0.0	0.0	0.0		6.7	0.0	6.7		7.2	7.2	0.0		0.0	7.1	7.1	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		6.7	0.0	6.7		7.2	7.2	0.0		0.0	7.1	7.1	
LOS by Move:	*	*	*		A	*	A		A	A	*		*	A	A	
ApproachDel:	xxxxxx				6.7				7.2				7.1			
Delay Adj:	xxxxx				1.00				1.00				1.00			
ApprAdjDel:	xxxxxx				6.7				7.2				7.1			
LOS by Appr:	*				A				A				A			
AllWayAvgQ:	0.0	0.0	0.0		0.0	0.0	0.0		0.1	0.1	0.1		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.686
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 28.8
Optimal Cycle: 55 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		5	5	5		0	19	19		6	6	0	
Lanes:	0 0	0 0	0		0 1	0 0	1		0 0	1 1	0		0 1	1 0	0	
Volume Module:																
Base Vol:	0	0	0		474	0	178		0	354	191		293	377	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		474	0	178		0	354	191		293	377	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		474	0	178		0	354	191		293	377	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		474	0	178		0	354	191		293	377	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		474	0	178		0	354	191		293	377	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.95	1.00	0.85		1.00	0.90	0.90		0.93	0.93	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		0.00	1.30	0.70		0.87	1.13	0.00	
Final Sat.:	0	0	0		1809	0	1615		0	2223	1199		1546	1989	0	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.26	0.00	0.11		0.00	0.16	0.16		0.19	0.19	0.00	
Crit Moves:					****					****			****			
Green/Cycle:	0.00	0.00	0.00		0.38	0.00	0.38		0.00	0.23	0.23		0.28	0.51	0.00	
Volume/Cap:	0.00	0.00	0.00		0.69	0.00	0.29		0.00	0.69	0.69		0.69	0.37	0.00	
Uniform Del:	0.0	0.0	0.0		25.9	0.0	21.5		0.0	35.1	35.1		32.3	14.9	0.0	
IncremntDel:	0.0	0.0	0.0		2.9	0.0	0.3		0.0	2.5	2.5		2.1	0.1	0.0	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	0.00	0.00	0.00		1.00	0.00	1.00		0.00	1.00	1.00		1.00	1.00	0.00	
Delay/Veh:	0.0	0.0	0.0		28.8	0.0	21.7		0.0	37.6	37.6		34.4	15.1	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		28.8	0.0	21.7		0.0	37.6	37.6		34.4	15.1	0.0	
LOS by Move:	A	A	A		C	A	C		A	D	D		C	B	A	
HCM2kAvgQ:	0	0	0		13	0	4		0	9	9		11	7	0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.739
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 28.3
Optimal Cycle: 73 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	214	0	536	0	0	0	134	694	0	0	456	359
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	214	0	536	0	0	0	134	694	0	0	456	359
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	214	0	536	0	0	0	134	694	0	0	456	359
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	214	0	536	0	0	0	134	694	0	0	456	359
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	214	0	536	0	0	0	134	694	0	0	456	359
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.12	0.00	0.33	0.00	0.00	0.00	0.07	0.19	0.00	0.00	0.13	0.22
Crit Moves:			****				****					****
Green/Cycle:	0.45	0.00	0.45	0.00	0.00	0.00	0.10	0.40	0.00	0.00	0.30	0.30
Volume/Cap:	0.26	0.00	0.74	0.00	0.00	0.00	0.74	0.48	0.00	0.00	0.42	0.74
Uniform Del:	17.2	0.0	22.7	0.0	0.0	0.0	43.7	22.2	0.0	0.0	28.0	31.4
IncremntDel:	0.2	0.0	4.1	0.0	0.0	0.0	14.9	0.3	0.0	0.0	0.3	6.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	17.4	0.0	26.8	0.0	0.0	0.0	58.6	22.5	0.0	0.0	28.3	37.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.4	0.0	26.8	0.0	0.0	0.0	58.6	22.5	0.0	0.0	28.3	37.4
LOS by Move:	B	A	C	A	A	A	E	C	A	A	C	D
HCM2kAvgQ:	4	0	15	0	0	0	6	8	0	0	6	11

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 1.473
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 153.8
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	1! 0	0
Volume Module:												
Base Vol:	60	70	70	10	20	237	125	1014	90	118	518	71
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	60	70	70	10	20	237	125	1014	90	118	518	71
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	60	70	70	10	20	237	125	1014	90	118	518	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	70	70	10	20	237	125	1014	90	118	518	71
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	70	70	10	20	237	125	1014	90	118	518	71
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.30	0.70	0.04	0.07	0.89	0.20	1.65	0.15	0.17	0.73	0.10
Final Sat.:	800	-287	287	17	34	401	98	810	73	80	352	48
Capacity Analysis Module:												
Vol/Sat:	0.08-0.24		0.24	0.59	0.59	0.59	1.27	1.25	1.24	1.47	1.47	1.47
Crit Moves:			****	****			****			****		
Delay/Veh:	14.9	15.6	15.6	21.6	21.6	21.6	160.3	153	145.7	244.6	245	244.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.9	15.6	15.6	21.6	21.6	21.6	160.3	153	145.7	244.6	245	244.6
LOS by Move:	B	C	C	C	C	C	F	F	F	F	F	F
ApproachDel:	14.9			21.6			153.0			244.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	14.9			21.6			153.0			244.6		
LOS by Appr:	B			C			F			F		
AllWayAvgQ:	0.5	0.5	0.5	1.3	1.3	1.3	20.2	18.8	18.8	31.2	31.2	31.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	1.083
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	63.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:		Include						Include						Include						Include				
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:		26	468		82		28	360		166			142	54		72			145	31		2		
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:		26	468		82		28	360		166			142	54		72			145	31		2	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:		26	468		82		28	360		166			142	54		72			145	31		2	
Reduct Vol:		0	0		0		0	0		0			0	0		0			0	0		0	
Reduced Vol:		26	468		82		28	360		166			142	54		72			145	31		2	
PCE Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
FinalVolume:		26	468		82		28	360		166			142	54		72			145	31		2	
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Lanes:	0.05	0.81		0.14		0.05	0.65		0.30			0.53	0.20		0.27			0.82	0.17		0.01		
Final Sat.:		24	432		76		27	350		162			244	93		123			343	73		5	
Capacity Analysis Module:																								
Vol/Sat:	1.08	1.08		1.08		1.03	1.03		1.03			0.58	0.58		0.58			0.42	0.42		0.42			
Crit Moves:				****			****						****						****					
Delay/Veh:	88.9	88.9		88.9		71.8	71.8		71.8			20.7	20.7		20.7			17.0	17.0		17.0			
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			
AdjDel/Veh:	88.9	88.9		88.9		71.8	71.8		71.8			20.7	20.7		20.7			17.0	17.0		17.0			
LOS by Move:		F		F		F		F		F			C		C			C		C		C		
ApproachDel:			88.9					71.8						20.7						17.0				
Delay Adj:			1.00					1.00						1.00						1.00				
ApprAdjDel:			88.9					71.8						20.7						17.0				
LOS by Appr:			F					F						C						C				
AllWayAvgQ:	11.7	11.7		11.7		9.3	9.3		9.3			1.3	1.3		1.3			0.7	0.7		0.7			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.919
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	30.2
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:		Include						Include						Include						Include				
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:		57	494		57		33	425		70			73	13		53			27	48		14	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:		57	494		57		33	425		70			73	13		53			27	48		14	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:		57	494		57		33	425		70			73	13		53			27	48		14	
Reduct Vol:		0	0		0		0	0		0			0	0		0			0	0		0	
Reduced Vol:		57	494		57		33	425		70			73	13		53			27	48		14	
PCE Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
FinalVolume:		57	494		57		33	425		70			73	13		53			27	48		14	
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Lanes:	0.09	0.82		0.09		0.06	0.81		0.13			0.53	0.09		0.38			0.30	0.54		0.16		
Final Sat.:		62	538		62		40	521		86			261	47		190			144	255		75	
Capacity Analysis Module:																								
Vol/Sat:	0.92	0.92		0.92		0.82	0.82		0.82			0.28	0.28		0.28			0.19	0.19		0.19			
Crit Moves:		****					****						****						****					
Delay/Veh:	39.8	39.8		39.8		27.0	27.0		27.0			12.1	12.1		12.1			11.5	11.5		11.5			
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			
AdjDel/Veh:	39.8	39.8		39.8		27.0	27.0		27.0			12.1	12.1		12.1			11.5	11.5		11.5			
LOS by Move:		E		E		D		D		D			B		B			B		B		B		
ApproachDel:			39.8					27.0						12.1						11.5				
Delay Adj:			1.00					1.00						1.00						1.00				
ApprAdjDel:			39.8					27.0						12.1						11.5				
LOS by Appr:			E					D						B						B				
AllWayAvgQ:	5.8	5.8		5.8		3.3	3.3		3.3			0.3	0.3		0.3			0.2	0.2		0.2			

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2531	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	703	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1058	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1058	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2712	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	753	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1134	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1134	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1871 veh/h
Directional split 70 / 30 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1997 pc/h
Highest directional split proportion (note-2) 1398 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 39.3 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1969 pc/h
Highest directional split proportion (note-2) 1378
Base percent time-spent-following, BPTSF 82.3 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 82.3 %

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.62	
Peak 15-min vehicle-miles of travel, VMT15	640	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2432	veh-mi
Peak 15-min total travel time, TT15	16.3	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative No Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative PM
Command:	Default Command
Volume:	Cum NP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	D	37.7	0.872	D	37.7	0.872	+ 0.000 D/V
# 2 SR 140 / Baker	F	86.1	0.000	F	86.1	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	67.3	0.000	F	67.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	258.3	2.109	F	258.3	2.109	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	233.2	1.986	F	233.2	1.986	+ 0.000 V/C
# 6 Childs / Parsons	F	221.1	1.414	F	221.1	1.414	+ 0.000 D/V
# 7 Childs / Coffee	C	32.2	0.484	C	32.2	0.484	+ 0.000 D/V
# 8 Childs / KIbby	B	12.1	0.000	B	12.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	12.8	0.000	B	12.8	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.8	0.444	A	9.8	0.444	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.042	A	7.1	0.042	+ 0.000 V/C
# 12 MIssion / SR 99 SB	E	61.3	0.990	E	61.3	0.990	+ 0.000 D/V
# 13 Mission / SR 99 NB	D	39.6	0.983	D	39.6	0.983	+ 0.000 D/V
# 14 Mission / Coffee	F	452.2	2.873	F	452.2	2.873	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	57.1	1.123	F	57.1	1.123	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	32.4	0.949	D	32.4	0.949	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.872
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 37.7
Optimal Cycle: 104 Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	189		0		164		0		0		0		0		791		198		184		735		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	189		0		164		0		0		0		0		791		198		184		735		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	189		0		164		0		0		0		0		791		198		184		735		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	189		0		164		0		0		0		0		791		198		184		735		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	189		0		164		0		0		0		0		791		198		184		735		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900		1900		1900		1900		1900	
Adjustment:	0.95	1.00		0.85		1.00	1.00		1.00		1.00		1.00		0.97		0.97		0.95		1.00		1.00	
Lanes:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		0.80		0.20		1.00		1.00		0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1479		370		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.10	0.00		0.10		0.00	0.00		0.00		0.00		0.00		0.53		0.53		0.10		0.39		0.00	
Crit Moves:	****														****				****					
Green/Cycle:	0.20	0.00		0.20		0.00	0.00		0.00		0.00		0.00		0.55		0.55		0.10		0.65		0.00	
Volume/Cap:	0.52	0.00		0.51		0.00	0.00		0.00		0.00		0.00		0.98		0.98		0.98		0.60		0.00	
Uniform Del:	35.7		0.0		35.6		0.0		0.0		0.0		0.0		22.2		22.2		44.7		10.0		0.0	
IncremntDel:	1.4		0.0		1.3		0.0		0.0		0.0		0.0		23.4		23.4		59.6		0.8		0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
Delay Adj:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		1.00		1.00		1.00		1.00		0.00	
Delay/Veh:	37.1		0.0		36.9		0.0		0.0		0.0		0.0		45.6		45.6		104.3		10.8		0.0	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	37.1		0.0		36.9		0.0		0.0		0.0		0.0		45.6		45.6		104.3		10.8		0.0	
LOS by Move:	D		A		D		A		A		A		A		D		D		F		B		A	
HCM2kAvgQ:	6		0		5		0		0		0		0		37		37		10		13		0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: F[86.1]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	14		0		14		48		0		52		52		745		0		0		738		48	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	14		0		14		48		0		52		52		745		0		0		738		48	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	14		0		14		48		0		52		52		745		0		0		738		48	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	14		0		14		48		0		52		52		745		0		0		738		48	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Capacity Module:																								
Cnflict Vol:	1637		1635		745		1618		1611		762		786		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Potent Cap.:	81		102		417		84		105		408		842		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Move Cap.:	68		96		417		77		99		408		842		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Volume/Cap:	0.21		0.00		0.03		0.62		0.00		0.13		0.06		xxxx		xxxx		xxxx		xxxx		xxxx	
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.2		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		9.6		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
LOS by Move:	*		*		*		*		*		*		A		*		*		*		*		*	
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx		117		xxxxx		xxxx		134		xxxxx		xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx	
SharedQueue:	xxxxx		0.9		xxxxx		xxxxx		4.4		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shrd ConDel:	xxxxx		45.4		xxxxx		xxxxx		86.1		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shared LOS:	*		E		*		*		F		*		*		*		*		*		*		*	
ApproachDel:			45.4						86.1						xxxxxx						xxxxxx			
ApproachLOS:			E						F						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: F[67.3]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0 1	0	0	1	0 0	1!	0	0	1 0	0	1	0	1 0	1	0	1
Volume Module:																
Base Vol:	18	41	0		3	4	3		39	704	49		0	662	14	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	18	41	0		3	4	3		39	704	49		0	662	14	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	18	41	0		3	4	3		39	704	49		0	662	14	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	18	41	0		3	4	3		39	704	49		0	662	14	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	1479	1483	729		1489	1493	662		676	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	105	126	426		103	124	465		925	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	98	121	426		74	119	465		925	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	0.18	0.34	0.00		0.04	0.03	0.01		0.04	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*		*	*	*		A	*	*	*	*	*		
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	113	xxxx	xxxxx		xxxx	124	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	2.4	xxxx	xxxxx		xxxxx	0.3	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	67.3	xxxx	xxxxx		xxxxx	36.6	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	F	*	*		*	E	*		*	*	*		*	*	*	
ApproachDel:		67.3				36.6			xxxxxx				xxxxxx			
ApproachLOS:		F				E			*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 2.109
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 258.3
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 0	0	0	0	0 1	0	0	1	0 0	0	1	0	0 1	0	0	0
Volume Module:																
Base Vol:	0	0	0		653	361	303		0	537	68		31	408	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		653	361	303		0	537	68		31	408	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		653	361	303		0	537	68		31	408	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		653	361	303		0	537	68		31	408	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		653	361	303		0	537	68		31	408	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	0.00	0.00		0.64	0.36	1.00		0.00	0.89	0.11		0.07	0.93	0.00	
Final Sat.:	0	0	0		310	171	555		0	484	61		37	488	0	
Capacity Analysis Module:																
Vol/Sat:	xxxx	xxxx	xxxx		2.11	2.11	0.55		xxxx	1.11	1.11		0.84	0.84	xxxx	
Crit Moves:					****					****				****		
Delay/Veh:	0.0	0.0	0.0		523.2	523	16.7		0.0	96.7	96.7		35.9	35.9	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		523.2	523	16.7		0.0	96.7	96.7		35.9	35.9	0.0	
LOS by Move:	*	*	*		F	F	C		*	F	F		E	E	*	
ApproachDel:	xxxxxx				406.7					96.7				35.9		
Delay Adj:	xxxxx				1.00					1.00				1.00		
ApprAdjDel:	xxxxxx				406.7					96.7				35.9		
LOS by Appr:	*				F					F				E		
AllWayAvgQ:	0.0	0.0	0.0		68.5	68.5	1.2		13.2	13.2	13.2		3.8	3.8	3.8	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 1.986
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 233.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 1	0	0	1	0 1	0	0	1	1 0	1	0	1	1 0	1	0	1
Volume Module:																
Base Vol:	50	37	48		119	29	93		188	852	141		670	296	177	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	37	48		119	29	93		188	852	141		670	296	177	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	50	37	48		119	29	93		188	852	141		670	296	177	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	50	37	48		119	29	93		188	852	141		670	296	177	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	50	37	48		119	29	93		188	852	141		670	296	177	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.57	0.43	1.00		0.80	0.20	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	213	157	410		307	75	432		400	429	459		415	437	475	
Capacity Analysis Module:																
Vol/Sat:	0.24	0.24	0.12		0.39	0.39	0.22		0.47	1.99	0.31		1.62	0.68	0.37	
Crit Moves:	****					****				****			****			
Delay/Veh:	14.9	14.9	12.2		17.4	17.4	12.9		19.1	471	13.7		308.9	26.1	14.4	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	14.9	14.9	12.2		17.4	17.4	12.9		19.1	471	13.7		308.9	26.1	14.4	
LOS by Move:	B	B	B		C	C	B		C	F	B		F	D	B	
ApproachDel:	13.9				15.7				344.4				190.1			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	13.9				15.7				344.4				190.1			
LOS by Appr:	B				C				F				F			
AllWayAvgQ:	0.3	0.3	0.1		0.6	0.6	0.3		0.8	54.8	0.4		34.3	1.8	0.6	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 1.414
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 221.1
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1 0	0	1	0	1 0	1	0	1	0 0	1!	0	0	1 0	1	0	1
Volume Module:																
Base Vol:	299	141	4		106	152	150		191	534	288		4	676	90	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	299	141	4		106	152	150		191	534	288		4	676	90	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	299	141	4		106	152	150		191	534	288		4	676	90	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	299	141	4		106	152	150		191	534	288		4	676	90	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	299	141	4		106	152	150		191	534	288		4	676	90	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	0.85		0.95	0.95	0.95		0.95	1.00	0.85	
Lanes:	1.00	0.97	0.03		1.00	1.00	1.00		0.19	0.53	0.28		1.00	1.00	1.00	
Final Sat.:	1805	1840	52		1805	1900	1615		342	955	515		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.17	0.08	0.08		0.06	0.08	0.09		0.56	0.56	0.56		0.00	0.36	0.06	
Crit Moves:	****						****		****					****		
Green/Cycle:	0.08	0.25	0.25		0.07	0.24	0.24		0.28	0.47	0.47		0.04	0.23	0.23	
Volume/Cap:	2.01	0.30	0.30		0.86	0.33	0.39		2.01	1.20	1.20		0.06	1.55	0.24	
Uniform Del:	45.9	30.1	30.1		46.2	31.4	31.8		36.1	26.6	26.6		46.2	38.5	31.4	
IncremntDel:	479.1	0.4	0.4		43.1	0.4	0.6		463.1	99.5	99.5		0.3	257	0.3	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	524.9	30.5	30.5		89.3	31.8	32.5		499.2	126	126.1		46.5	296	31.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	524.9	30.5	30.5		89.3	31.8	32.5		499.2	126	126.1		46.5	296	31.7	
LOS by Move:	F	C	C		F	C	C		F	F	F		D	F	C	
HCM2kAvgQ:	29	4	4		6	4	4		94	54	54		0	51	2	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.484
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 32.2
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	289	35	41	7	23	20	39	173	183	26	189	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	289	35	41	7	23	20	39	173	183	26	189	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	289	35	41	7	23	20	39	173	183	26	189	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	289	35	41	7	23	20	39	173	183	26	189	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	289	35	41	7	23	20	39	173	183	26	189	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.92	0.92	0.95	0.93	0.93	0.95	0.92	0.92	0.95	0.99	0.99
Lanes:	1.00	0.46	0.54	1.00	0.53	0.47	1.00	0.49	0.51	1.00	0.91	0.09
Final Sat.:	1805	804	942	1805	945	822	1805	852	901	1805	1712	163
Capacity Analysis Module:												
Vol/Sat:	0.16	0.04	0.04	0.00	0.02	0.02	0.02	0.20	0.20	0.01	0.11	0.11
Crit Moves:	****				****			****		****		
Green/Cycle:	0.26	0.34	0.34	0.11	0.19	0.19	0.09	0.32	0.32	0.06	0.29	0.29
Volume/Cap:	0.63	0.13	0.13	0.04	0.13	0.13	0.23	0.63	0.63	0.24	0.38	0.38
Uniform Del:	33.0	22.9	22.9	40.0	33.6	33.6	42.1	28.6	28.6	44.8	28.2	28.2
IncremntDel:	2.7	0.1	0.1	0.1	0.2	0.2	0.7	2.2	2.2	1.2	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	35.7	23.0	23.0	40.1	33.8	33.8	42.8	30.9	30.9	46.0	28.6	28.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.7	23.0	23.0	40.1	33.8	33.8	42.8	30.9	30.9	46.0	28.6	28.6
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	C
HCM2kAvgQ:	9	2	2	0	1	1	1	10	10	1	5	5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: B[12.1]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0	1 0
Volume Module:												
Base Vol:	0	0	0	38	0	38	36	317	0	0	203	33
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	38	0	38	36	317	0	0	203	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	38	0	38	36	317	0	0	203	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	38	0	38	36	317	0	0	203	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	609	609	220	236	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	462	413	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	452	401	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	0.00	0.05	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	584	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	12.1	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			12.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[12.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	4	4	3		2	6	2		1	349	2		0	227	2	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	4	4	3		2	6	2		1	349	2		0	227	2	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	4	4	3		2	6	2		1	349	2		0	227	2	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	4	4	3		2	6	2		1	349	2		0	227	2	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	584	581	350		584	581	228		229	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	426	428	698		426	428	816		1351	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	420	428	698		421	428	816		1351	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.01	0.01	0.00		0.00	0.01	0.00		0.00	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		*	*	*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	475	xxxxx		xxxx	471	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.1	xxxxx		xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	12.8	xxxxx		xxxxx	12.8	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	B	*		*	B	*		*	*	*		*	*	*	
ApproachDel:	12.8				12.8				xxxxxx				xxxxxx			
ApproachLOS:	B				B				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.444
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.8
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	0	1 0	0	0	1!	0 0
Volume Module:																
Base Vol:	1	7	41		147	16	5		0	117	31		47	53	266	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	1	7	41		147	16	5		0	117	31		47	53	266	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	1	7	41		147	16	5		0	117	31		47	53	266	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	1	7	41		147	16	5		0	117	31		47	53	266	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	1	7	41		147	16	5		0	117	31		47	53	266	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.02	0.14	0.84		0.87	0.10	0.03		0.00	0.79	0.21		0.13	0.14	0.73	
Final Sat.:	14	96	565		562	61	19		0	572	152		106	119	599	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.07	0.07		0.26	0.26	0.26		xxxx	0.20	0.20		0.44	0.44	0.44	
Crit Moves:		****				****					****			****		
Delay/Veh:	8.1	8.1	8.1		9.9	9.9	9.9		0.0	8.9	8.9		10.4	10.4	10.4	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	8.1	8.1	8.1		9.9	9.9	9.9		0.0	8.9	8.9		10.4	10.4	10.4	
LOS by Move:	A	A	A		A	A	A		*	A	A		B	B	B	
ApproachDel:	8.1				9.9				8.9				10.4			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	8.1				9.9				8.9				10.4			
LOS by Appr:	A				A				A				B			
AllWayAvgQ:	0.1	0.1	0.1		0.3	0.3	0.3		0.2	0.2	0.2		0.7	0.7	0.7	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.042
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.1
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	5	0	3	5	33	0	0	32	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	3	5	33	0	0	32	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	5	0	3	5	33	0	0	32	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	5	0	3	5	33	0	0	32	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	5	0	3	5	33	0	0	32	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.62	0.00	0.38	0.13	0.87	0.00	0.00	0.84	0.16
Final Sat.:	0	871	0	559	0	336	119	784	0	0	783	147
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.01	xxxx	0.01	0.04	0.04	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.0	0.0	7.0	7.1	7.1	0.0	0.0	7.0	7.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.0	0.0	7.0	7.1	7.1	0.0	0.0	7.0	7.0
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			7.0			7.1			7.0		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			7.0			7.1			7.0		
LOS by Appr:		*		A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.990
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 61.3
Optimal Cycle: 179 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 1	1 0	0
Volume Module:												
Base Vol:	0	0	0	546	3	120	0	251	206	725	316	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	546	3	120	0	251	206	725	316	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	546	3	120	0	251	206	725	316	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	546	3	120	0	251	206	725	316	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	546	3	120	0	251	206	725	316	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.89	0.89	0.92	0.92	1.00
Lanes:	0.00	0.00	0.00	0.99	0.01	1.00	0.00	1.10	0.90	1.00	1.00	0.00
Final Sat.:	0	0	0	1659	9	1615	0	1848	1517	1744	1744	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.33	0.33	0.07	0.00	0.14	0.14	0.42	0.18	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.31	0.31	0.31	0.00	0.19	0.19	0.39	0.58	0.00
Volume/Cap:	0.00	0.00	0.00	1.06	1.06	0.24	0.00	0.71	0.71	1.06	0.31	0.00
Uniform Del:	0.0	0.0	0.0	34.5	34.5	25.8	0.0	38.0	38.0	30.5	10.7	0.0
IncremntDel:	0.0	0.0	0.0	57.8	57.8	0.3	0.0	3.8	3.8	47.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	92.3	92.3	26.0	0.0	41.8	41.8	77.9	10.8	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	92.3	92.3	26.0	0.0	41.8	41.8	77.9	10.8	0.0
LOS by Move:	A	A	A	F	F	C	A	D	D	E	B	A
HCM2kAvgQ:	0	0	0	26	26	3	0	8	8	34	5	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.983
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 39.6
Optimal Cycle: 164 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	192	0	596	0	0	0	64	733	0	0	849	696
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	192	0	596	0	0	0	64	733	0	0	849	696
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	192	0	596	0	0	0	64	733	0	0	849	696
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	0	596	0	0	0	64	733	0	0	849	696
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	192	0	596	0	0	0	64	733	0	0	849	696
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.00	0.37	0.00	0.00	0.00	0.04	0.20	0.00	0.00	0.24	0.43
Crit Moves:			****				****					****
Green/Cycle:	0.37	0.00	0.37	0.00	0.00	0.00	0.05	0.48	0.00	0.00	0.43	0.43
Volume/Cap:	0.29	0.00	1.00	0.00	0.00	0.00	0.71	0.42	0.00	0.00	0.55	1.00
Uniform Del:	22.3	0.0	31.5	0.0	0.0	0.0	46.8	16.9	0.0	0.0	21.2	28.5
IncremntDel:	0.2	0.0	36.9	0.0	0.0	0.0	22.9	0.2	0.0	0.0	0.4	34.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	22.5	0.0	68.4	0.0	0.0	0.0	69.7	17.1	0.0	0.0	21.6	62.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.5	0.0	68.4	0.0	0.0	0.0	69.7	17.1	0.0	0.0	21.6	62.6
LOS by Move:	C	A	E	A	A	A	E	B	A	A	C	E
HCM2kAvgQ:	4	0	25	0	0	0	3	8	0	0	10	29

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 2.873
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 452.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	1! 0	0
Volume Module:												
Base Vol:	44	61	70	9	18	397	70	1168	75	99	1086	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	61	70	9	18	397	70	1168	75	99	1086	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	61	70	9	18	397	70	1168	75	99	1086	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	61	70	9	18	397	70	1168	75	99	1086	79
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	61	70	9	18	397	70	1168	75	99	1086	79
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.20	0.80	0.02	0.04	0.94	0.11	1.78	0.11	0.08	0.86	0.06
Final Sat.:	760	-313	313	10	19	430	48	800	52	34	378	27
Capacity Analysis Module:												
Vol/Sat:	0.06	-0.19	0.22	0.92	0.92	0.92	1.47	1.46	1.45	2.87	2.87	2.87
Crit Moves:			****		****		****				****	
Delay/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	245.8	240	235.0	866.6	867	866.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	245.8	240	235.0	866.6	867	866.6
LOS by Move:	C	C	C	F	F	F	F	F	F	F	F	F
ApproachDel:	15.5			52.7			240.4			866.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	15.5			52.7			240.4			866.6		
LOS by Appr:	C			F			F			F		
AllWayAvgQ:	0.5	0.5	0.5	5.3	5.3	5.3	29.1	28.3	28.3	105	105	104.5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	1.123
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	57.1
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	44	370	229	23	302	139	164	22	38	169	31	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	370	229	23	302	139	164	22	38	169	31	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	370	229	23	302	139	164	22	38	169	31	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	370	229	23	302	139	164	22	38	169	31	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	370	229	23	302	139	164	22	38	169	31	2
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.57	0.36	0.05	0.65	0.30	0.73	0.10	0.17	0.84	0.15	0.01
Final Sat.:	39	330	204	27	355	163	326	44	76	363	67	4
Capacity Analysis Module:												
Vol/Sat:	1.12	1.12	1.12	0.85	0.85	0.85	0.50	0.50	0.50	0.47	0.47	0.47
Crit Moves:	****				****		****			****		
Delay/Veh:	99.6	99.6	99.6	34.8	34.8	34.8	17.3	17.3	17.3	16.8	16.8	16.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	99.6	99.6	99.6	34.8	34.8	34.8	17.3	17.3	17.3	16.8	16.8	16.8
LOS by Move:	F	F	F	D	D	D	C	C	C	C	C	C
ApproachDel:	99.6			34.8			17.3			16.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	99.6			34.8			17.3			16.8		
LOS by Appr:	F			D			C			C		
AllWayAvgQ:	14.4	14.4	14.4	3.8	3.8	3.8	0.8	0.8	0.8	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.949
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	32.4
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	48	556	10	27	390	77	94	45	45	19	44	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	556	10	27	390	77	94	45	45	19	44	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	48	556	10	27	390	77	94	45	45	19	44	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	48	556	10	27	390	77	94	45	45	19	44	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	48	556	10	27	390	77	94	45	45	19	44	12
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.90	0.02	0.05	0.79	0.16	0.52	0.24	0.24	0.25	0.59	0.16
Final Sat.:	51	586	11	34	495	98	255	122	122	116	269	73
Capacity Analysis Module:												
Vol/Sat:	0.95	0.95	0.95	0.79	0.79	0.79	0.37	0.37	0.37	0.16	0.16	0.16
Crit Moves:	****				****			****			****	
Delay/Veh:	46.5	46.5	46.5	25.1	25.1	25.1	13.3	13.3	13.3	11.4	11.4	11.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.5	46.5	46.5	25.1	25.1	25.1	13.3	13.3	13.3	11.4	11.4	11.4
LOS by Move:	E	E	E	D	D	D	B	B	B	B	B	B
ApproachDel:	46.5			25.1			13.3			11.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	46.5			25.1			13.3			11.4		
LOS by Appr:	E			D			B			B		
AllWayAvgQ:	6.8	6.8	6.8	2.9	2.9	2.9	0.5	0.5	0.5	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	3164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	879	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1323	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1323	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	4173	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1159	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1745	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1745	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	60.7	mi/h
Number of lanes, N	3	
Density, D	28.7	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1729 veh/h
Directional split 56 / 44 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1845 pc/h
Highest directional split proportion (note-2) 1033 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 40.4 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1820 pc/h
Highest directional split proportion (note-2) 1019
Base percent time-spent-following, BPTSF 79.8 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 79.8 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.58	
Peak 15-min vehicle-miles of travel, VMT15	591	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2248	veh-mi
Peak 15-min total travel time, TT15	14.6	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative with Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative Proj AM
Command:	Default Command
Volume:	Cum WP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	F	93.1	1.062	F	93.1	1.062	+ 0.000 D/V
# 2 SR 140 / Baker	F	106.7	0.000	F	106.7	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	501.4	0.000	F	501.4	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	341.7	2.357	F	341.7	2.357	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	261.5	2.347	F	261.5	2.347	+ 0.000 V/C
# 6 Childs / Parsons	F	245.4	1.477	F	245.4	1.477	+ 0.000 D/V
# 7 Childs / Coffee	C	28.6	0.487	C	28.6	0.487	+ 0.000 D/V
# 8 Childs / KIbby	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.2	0.000	B	11.2	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.5	0.363	A	9.5	0.363	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.061	A	7.1	0.061	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	30.8	0.757	C	30.8	0.757	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	30.6	0.810	C	30.6	0.810	+ 0.000 D/V
# 14 Mission / Coffee	F	221.5	1.716	F	221.5	1.716	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	148.5	1.504	F	148.5	1.504	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	34.1	0.947	D	34.1	0.947	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 1.062
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 93.1
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	20		0		20		0		0		0		0		17		17		5		20		0	
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	0	1	0		1	0	1	0	0	
Volume Module:																								
Base Vol:	160		0		155		0		0		0		0		1018		178		296		813		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	160		0		155		0		0		0		0		1018		178		296		813		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	160		0		155		0		0		0		0		1018		178		296		813		0	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:	160		0		155		0		0		0		0		1018		178		296		813		0	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
FinalVolume:	160		0		155		0		0		0		0		1018		178		296		813		0	
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900		1900		1900		1900		1900	
Adjustment:	0.95	1.00		0.85		1.00	1.00		1.00		1.00		1.00		0.98		0.98		0.95		1.00		1.00	
Lanes:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		0.85		0.15		1.00		1.00		0.00	
Final Sat.:	1805		0		1615		0		0		0		0		1585		277		1805		1900		0	
Capacity Analysis Module:																								
Vol/Sat:	0.09	0.00		0.10		0.00	0.00		0.00		0.00		0.00		0.64		0.64		0.16		0.43		0.00	
Crit Moves:				****											****				****					
Green/Cycle:	0.20	0.00		0.20		0.00	0.00		0.00		0.00		0.00		0.52		0.52		0.13		0.65		0.00	
Volume/Cap:	0.44	0.00		0.48		0.00	0.00		0.00		0.00		0.00		1.24		1.24		1.24		0.66		0.00	
Uniform Del:	35.1		0.0		35.4		0.0		0.0		0.0		0.0		24.1		24.1		43.4		10.7		0.0	
IncremntDel:	0.9		0.0		1.1		0.0		0.0		0.0		0.0		117		117.1		138.6		1.3		0.0	
InitQueuDel:	0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	
Delay Adj:	1.00	0.00		1.00		0.00	0.00		0.00		0.00		0.00		1.00		1.00		1.00		1.00		0.00	
Delay/Veh:	36.0		0.0		36.5		0.0		0.0		0.0		0.0		141		141.2		182.0		12.0		0.0	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
AdjDel/Veh:	36.0		0.0		36.5		0.0		0.0		0.0		0.0		141		141.2		182.0		12.0		0.0	
LOS by Move:	D		A		D		A		A		A		A		F		F		F		B		A	
HCM2kAvgQ:	5		0		5		0		0		0		0		67		67		19		16		0	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: F[106.7]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	1	0	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	3		1		6		27		0		73		48		919		0		0		913		38	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	3		1		6		27		0		73		48		919		0		0		913		38	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:	3		1		6		27		0		73		48		919		0		0		913		38	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	3		1		6		27		0		73		48		919		0		0		913		38	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Capacity Module:																								
Cnflict Vol:	1984		1966		919		1951		1947		932		951		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Potent Cap.:	46		64		332		49		65		326		730		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Move Cap.:	34		59		332		45		61		326		730		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Volume/Cap:	0.09		0.02		0.02		0.60		0.00		0.22		0.07		xxxx		xxxx		xxxx		xxxx		xxxx	
Level Of Service Module:																								
2Way95thQ:	xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx		0.2		xxxx		xxxxx		xxxx		xxxx		xxxxx	
Control Del:	xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx		10.3		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
LOS by Move:	*		*		*		*		*		*		B		*		*		*		*		*	
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		82		xxxxx		xxxx		122		xxxxx		xxxx		xxxx		xxxxx		xxxx		xxxx		xxxxx	
SharedQueue:	xxxxx		0.4		xxxxx		xxxxx		4.9		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shrd ConDel:	xxxxx		55.2		xxxxx		xxxxx		107		xxxxx		xxxxx		xxxx		xxxxx		xxxxx		xxxx		xxxxx	
Shared LOS:	*		F		*		*		F		*		*		*		*		*		*		*	
ApproachDel:			55.2						106.7						xxxxxx						xxxxxx			
ApproachLOS:			F						F						*						*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 46.2 Worst Case Level Of Service: F[501.4]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	22	48		0			26	55		45			47	843		47			8	774		27		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	22	48		0			26	55		45			47	843		47			8	774		27		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	22	48		0			26	55		45			47	843		47			8	774		27		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
FinalVolume:	22	48		0			26	55		45			47	843		47			8	774		27		
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2			7.1	6.5		6.2			4.1	xxxx		xxxxx			4.1	xxxx		xxxxx		
FollowUpTim:	3.5	4.0		3.3			3.5	4.0		3.3			2.2	xxxx		xxxxx			2.2	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	1814	1778		867			1775	1774		774			801	xxxx		xxxxx			890	xxxx		xxxxx		
Potent Cap.:	61	83		355			65	84		402			831	xxxx		xxxxx			770	xxxx		xxxxx		
Move Cap.:	22	78		355			32	78		402			831	xxxx		xxxxx			770	xxxx		xxxxx		
Volume/Cap:	0.98	0.62		0.00			0.82	0.70		0.11			0.06	xxxx		xxxx			0.01	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			0.2	xxxx		xxxxx			0.0	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			9.6	xxxx		xxxxx			9.7	xxxx		xxxxx		
LOS by Move:	*	*		*			*	*		*			A	*		*			A	*		*		
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	44	xxxx		xxxxx			xxxx	77		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	7.0	xxxx		xxxxx			xxxxx	10.6		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	501.4	xxxx		xxxxx			xxxxx	430		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	F	*		*			*	F		*			*	*		*			*	*		*		
ApproachDel:	501.4						429.9						xxxxxx						xxxxxx					
ApproachLOS:	F						F						*						*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 2.357
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 341.7
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0		0			0	0		0			0	0		0			0	0		0		
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0	0		0			797	304		186			0	561		103			58	579		0		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0	0		0			797	304		186			0	561		103			58	579		0		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	0	0		0			797	304		186			0	561		103			58	579		0		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
Reduced Vol:	0	0		0			797	304		186			0	561		103			58	579		0		
PCE Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
FinalVolume:	0	0		0			797	304		186			0	561		103			58	579		0		
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Lanes:	0.00	0.00		0.00			0.72	0.28		1.00			0.00	0.84		0.16			0.09	0.91		0.00		
Final Sat.:	0	0		0			338	129		541			0	450		83			48	476		0		
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx			2.36	2.36		0.34			xxxx	1.25		1.25			1.22	1.22		xxxx		
Crit Moves:								****						****						****				
Delay/Veh:	0.0	0.0		0.0			632.9	633		12.8			0.0	148		147.9			136.4	136		0.0		
Delay Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	0.0	0.0		0.0			632.9	633		12.8			0.0	148		147.9			136.4	136		0.0		
LOS by Move:	*	*		*			F	F		B			*	F		F			F	F		*		
ApproachDel:	xxxxxx						543.3						147.9						136.4					
Delay Adj:	xxxxx						1.00						1.00						1.00					
ApprAdjDel:	xxxxxx						543.3						147.9						136.4					
LOS by Appr:	*						F						F						F					
AllWayAvgQ:	0.0	0.0		0.0			80.8	80.8		0.5			20.5	20.5		20.5			18.4	18.4		18.4		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 2.347
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 261.5
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	1	0	0 1	0	1	0	0 1	1	0	1	0 1	1	0	1	0 1
Volume Module:																
Base Vol:	29	57	47		96	46	98		178	979	201		477	480	154	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	29	57	47		96	46	98		178	979	201		477	480	154	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	29	57	47		96	46	98		178	979	201		477	480	154	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	29	57	47		96	46	98		178	979	201		477	480	154	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	29	57	47		96	46	98		178	979	201		477	480	154	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.34	0.66	1.00		0.68	0.32	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	124	244	403		256	122	424		391	417	449		409	434	467	
Capacity Analysis Module:																
Vol/Sat:	0.23	0.23	0.12		0.38	0.38	0.23		0.46	2.35	0.45		1.16	1.11	0.33	
Crit Moves:	****					****				****			****			
Delay/Veh:	15.0	15.0	12.5		17.5	17.5	13.5		19.1	632	16.8		126.0	103	13.9	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	15.0	15.0	12.5		17.5	17.5	13.5		19.1	632	16.8		126.0	103	13.9	
LOS by Move:	C	C	B		C	C	B		C	F	C		F	F	B	
ApproachDel:	14.1				15.9				460.7				100.6			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	14.1				15.9				460.7				100.6			
LOS by Appr:	B				C				F				F			
AllWayAvgQ:	0.3	0.3	0.1		0.6	0.6	0.3		0.8	71.9	0.8		13.0	11.1	0.5	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 1.477
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 245.4
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1	0	0	1 0	1	0	1	0 1	0	0	1!	0 0	1	0	1	0 1
Volume Module:																
Base Vol:	242	152	13		137	80	157		245	639	246		23	713	118	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	242	152	13		137	80	157		245	639	246		23	713	118	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	242	152	13		137	80	157		245	639	246		23	713	118	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	242	152	13		137	80	157		245	639	246		23	713	118	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	242	152	13		137	80	157		245	639	246		23	713	118	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.99	0.99		0.95	1.00	0.85		0.96	0.96	0.96		0.95	1.00	0.85	
Lanes:	1.00	0.92	0.08		1.00	1.00	1.00		0.22	0.56	0.22		1.00	1.00	1.00	
Final Sat.:	1805	1729	148		1805	1900	1615		396	1032	397		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.13	0.09	0.09		0.08	0.04	0.10		0.62	0.62	0.62		0.01	0.38	0.07	
Crit Moves:	****						****		****					****		
Green/Cycle:	0.06	0.23	0.23		0.08	0.24	0.24		0.30	0.49	0.49		0.04	0.23	0.23	
Volume/Cap:	2.09	0.39	0.39		0.97	0.18	0.41		2.09	1.27	1.27		0.32	1.63	0.32	
Uniform Del:	46.8	32.8	32.8		46.0	30.1	32.0		35.2	25.7	25.7		46.7	38.5	32.0	
IncremntDel:	519.9	0.6	0.6		67.4	0.2	0.7		498.0	132	132.3		2.5	294	0.5	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	566.7	33.4	33.4		113.4	30.3	32.7		533.2	158	158.0		49.2	333	32.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	566.7	33.4	33.4		113.4	30.3	32.7		533.2	158	158.0		49.2	333	32.5	
LOS by Move:	F	C	C		F	C	C		F	F	F		D	F	C	
HCM2kAvgQ:	24	5	5		8	2	4		107	66	66		1	57	3	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.487
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 28.6
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	120	53	35	30	78	92	31	235	155	40	229	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	120	53	35	30	78	92	31	235	155	40	229	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	120	53	35	30	78	92	31	235	155	40	229	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	120	53	35	30	78	92	31	235	155	40	229	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	120	53	35	30	78	92	31	235	155	40	229	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.92	0.92	0.95	0.94	0.94	0.95	0.99	0.99
Lanes:	1.00	0.60	0.40	1.00	0.46	0.54	1.00	0.60	0.40	1.00	0.95	0.05
Final Sat.:	1805	1076	710	1805	801	945	1805	1076	710	1805	1793	94
Capacity Analysis Module:												
Vol/Sat:	0.07	0.05	0.05	0.02	0.10	0.10	0.02	0.22	0.22	0.02	0.13	0.13
Crit Moves:	****				****			****		****		
Green/Cycle:	0.13	0.25	0.25	0.08	0.20	0.20	0.12	0.44	0.44	0.06	0.38	0.38
Volume/Cap:	0.50	0.20	0.20	0.21	0.50	0.50	0.14	0.50	0.50	0.37	0.34	0.34
Uniform Del:	40.2	29.5	29.5	43.1	35.8	35.8	39.4	20.1	20.1	45.2	22.0	22.0
IncremntDel:	1.6	0.2	0.2	0.7	1.1	1.1	0.3	0.5	0.5	2.1	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	41.8	29.7	29.7	43.8	36.9	36.9	39.7	20.6	20.6	47.3	22.3	22.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.8	29.7	29.7	43.8	36.9	36.9	39.7	20.6	20.6	47.3	22.3	22.3
LOS by Move:	D	C	C	D	D	D	D	C	C	D	C	C
HCM2kAvgQ:	4	2	2	1	5	5	1	9	9	2	5	5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: B[10.3]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	14	0	82	23	119	0	0	217	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	82	23	119	0	0	217	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	14	0	82	23	119	0	0	217	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	82	23	119	0	0	217	14
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	389	389	224	231	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	619	549	820	1349	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	610	540	820	1349	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.10	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	781	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.3			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: B[11.2]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:	6	12		2			5	19		19			2	130		1			1	206		2		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	6	12		2			5	19		19			2	130		1			1	206		2		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	6	12		2			5	19		19			2	130		1			1	206		2		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
FinalVolume:	6	12		2			5	19		19			2	130		1			1	206		2		
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2			7.1	6.5		6.2			4.1	xxxx		xxxxx			4.1	xxxx		xxxxx		
FollowUpTim:	3.5	4.0		3.3			3.5	4.0		3.3			2.2	xxxx		xxxxx			2.2	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	363	345		131			351	344		207			208	xxxx		xxxxx			131	xxxx		xxxxx		
Potent Cap.:	597	582		924			608	582		839			1375	xxxx		xxxxx			1467	xxxx		xxxxx		
Move Cap.:	568	580		924			596	581		839			1375	xxxx		xxxxx			1467	xxxx		xxxxx		
Volume/Cap:	0.01	0.02		0.00			0.01	0.03		0.02			0.00	xxxx		xxxx			0.00	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			0.0	xxxx		xxxxx			0.0	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			7.6	xxxx		xxxxx			7.5	xxxx		xxxxx		
LOS by Move:	*	*		*			*	*		*			A	*		*			A	*		*		
Movement:	LT -	LTR -		RT			LT -	LTR -		RT			LT -	LTR -		RT			LT -	LTR -		RT		
Shared Cap.:	xxxx	599		xxxxx			xxxx	674		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	xxxxx	0.1		xxxxx			xxxxx	0.2		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	xxxxx	11.2		xxxxx			xxxxx	10.7		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	*	B		*			*	B		*			*	*		*			*	*		*		
ApproachDel:		11.2						10.7						xxxxxx						xxxxxx				
ApproachLOS:		B						B						*						*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.363
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.5
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0		0			0	0		0			0	0		0			0	0		0		
Lanes:	0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:	3	24		93			127	19		1			11	133		13			129	56		84		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	3	24		93			127	19		1			11	133		13			129	56		84		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	3	24		93			127	19		1			11	133		13			129	56		84		
Reduct Vol:	0	0		0			0	0		0			0	0		0			0	0		0		
Reduced Vol:	3	24		93			127	19		1			11	133		13			129	56		84		
PCE Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
FinalVolume:	3	24		93			127	19		1			11	133		13			129	56		84		
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Lanes:	0.02	0.20		0.78			0.86	0.13		0.01			0.07	0.85		0.08			0.48	0.21		0.31		
Final Sat.:	18	142		552			557	83		4			49	595		58			355	154		231		
Capacity Analysis Module:																								
Vol/Sat:	0.17	0.17		0.17			0.23	0.23		0.23			0.22	0.22		0.22			0.36	0.36		0.36		
Crit Moves:		****					****						****						****					
Delay/Veh:	8.5	8.5		8.5			9.6	9.6		9.6			9.1	9.1		9.1			10.1	10.1		10.1		
Delay Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	8.5	8.5		8.5			9.6	9.6		9.6			9.1	9.1		9.1			10.1	10.1		10.1		
LOS by Move:	A	A		A			A	A		A			A	A		A			B	B		B		
ApproachDel:		8.5						9.6						9.1						10.1				
Delay Adj:		1.00						1.00						1.00						1.00				
ApprAdjDel:		8.5						9.6						9.1						10.1				
LOS by Appr:		A						A						A						B				
AllWayAvgQ:	0.2	0.2		0.2			0.3	0.3		0.3			0.3	0.3		0.3			0.5	0.5		0.5		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.061
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.1
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	2	0	21	18	36	0	0	35	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	2	0	21	18	36	0	0	35	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	2	0	21	18	36	0	0	35	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	2	0	21	18	36	0	0	35	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	2	0	21	18	36	0	0	35	5
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.09	0.00	0.91	0.33	0.67	0.00	0.00	0.87	0.13
Final Sat.:	0	856	0	86	0	902	295	589	0	0	798	114
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.02	xxxx	0.02	0.06	0.06	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****			****				****	
Delay/Veh:	0.0	0.0	0.0	6.6	0.0	6.6	7.3	7.3	0.0	0.0	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.6	0.0	6.6	7.3	7.3	0.0	0.0	7.1	7.1
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.6			7.3			7.1		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.6			7.3			7.1		
LOS by Appr:		*		A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.757
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 30.8
Optimal Cycle: 66 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0	0 0	0 1	0	0 1	0 0	1	1 0	0 1	1	0 0
Volume Module:												
Base Vol:	0	0	0	533	0	178	0	389	191	334	407	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	533	0	178	0	389	191	334	407	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	533	0	178	0	389	191	334	407	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	533	0	178	0	389	191	334	407	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	533	0	178	0	389	191	334	407	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.90	0.90	0.93	0.93	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.34	0.66	0.90	1.10	0.00
Final Sat.:	0	0	0	1809	0	1615	0	2303	1131	1591	1939	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.29	0.00	0.11	0.00	0.17	0.17	0.21	0.21	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.39	0.00	0.39	0.00	0.22	0.22	0.28	0.50	0.00
Volume/Cap:	0.00	0.00	0.00	0.76	0.00	0.28	0.00	0.76	0.76	0.76	0.42	0.00
Uniform Del:	0.0	0.0	0.0	26.4	0.0	21.0	0.0	36.3	36.3	33.0	15.8	0.0
IncremntDel:	0.0	0.0	0.0	4.7	0.0	0.2	0.0	4.4	4.4	3.4	0.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	31.2	0.0	21.2	0.0	40.7	40.7	36.5	15.9	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	31.2	0.0	21.2	0.0	40.7	40.7	36.5	15.9	0.0
LOS by Move:	A	A	A	C	A	C	A	D	D	D	B	A
HCM2kAvgQ:	0	0	0	16	0	4	0	10	10	13	8	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.810
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	30.6
Optimal Cycle:	87	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	214	0	588	0	0	0	134	788	0	0	528	404
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	214	0	588	0	0	0	134	788	0	0	528	404
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	214	0	588	0	0	0	134	788	0	0	528	404
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	214	0	588	0	0	0	134	788	0	0	528	404
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	214	0	588	0	0	0	134	788	0	0	528	404
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.12	0.00	0.36	0.00	0.00	0.00	0.07	0.22	0.00	0.00	0.15	0.25
Crit Moves:			****				****					****
Green/Cycle:	0.45	0.00	0.45	0.00	0.00	0.00	0.09	0.40	0.00	0.00	0.31	0.31
Volume/Cap:	0.26	0.00	0.81	0.00	0.00	0.00	0.81	0.55	0.00	0.00	0.47	0.81
Uniform Del:	17.2	0.0	23.8	0.0	0.0	0.0	44.6	23.0	0.0	0.0	28.0	31.9
IncremntDel:	0.2	0.0	6.8	0.0	0.0	0.0	25.0	0.4	0.0	0.0	0.3	9.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	17.4	0.0	30.6	0.0	0.0	0.0	69.5	23.4	0.0	0.0	28.3	41.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.4	0.0	30.6	0.0	0.0	0.0	69.5	23.4	0.0	0.0	28.3	41.5
LOS by Move:	B	A	C	A	A	A	E	C	A	A	C	D
HCM2kAvgQ:	4	0	18	0	0	0	6	10	0	0	7	14

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	1.716
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	221.5
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	1! 0	0
Volume Module:												
Base Vol:	60	70	70	10	20	237	125	1160	90	118	634	71
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	60	70	70	10	20	237	125	1160	90	118	634	71
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	60	70	70	10	20	237	125	1160	90	118	634	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	70	70	10	20	237	125	1160	90	118	634	71
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	70	70	10	20	237	125	1160	90	118	634	71
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.30	0.70	0.04	0.07	0.89	0.18	1.69	0.13	0.14	0.77	0.09
Final Sat.:	800	-287	287	17	34	401	88	828	65	69	370	41
Capacity Analysis Module:												
Vol/Sat:	0.08	-0.24	0.24	0.59	0.59	0.59	1.42	1.40	1.38	1.72	1.72	1.72
Crit Moves:			****			****	****			****		
Delay/Veh:	14.9	15.6	15.6	21.6	21.6	21.6	221.4	213	206.1	349.6	350	349.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.9	15.6	15.6	21.6	21.6	21.6	221.4	213	206.1	349.6	350	349.6
LOS by Move:	B	C	C	C	C	C	F	F	F	F	F	F
ApproachDel:	14.9			21.6			213.7			349.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	14.9			21.6			213.7			349.6		
LOS by Appr:	B			C			F			F		
AllWayAvgQ:	0.5	0.5	0.5	1.3	1.3	1.3	28.4	27.0	27.0	45.2	45.2	45.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 1.504
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 148.5
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	26	468	228	47	360	166	142	57	72	261	33	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	468	228	47	360	166	142	57	72	261	33	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	468	228	47	360	166	142	57	72	261	33	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	468	228	47	360	166	142	57	72	261	33	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	468	228	47	360	166	142	57	72	261	33	16
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.04	0.65	0.31	0.08	0.63	0.29	0.52	0.21	0.27	0.84	0.11	0.05
Final Sat.:	17	311	152	39	301	139	219	88	111	355	45	22
Capacity Analysis Module:												
Vol/Sat:	1.50	1.50	1.50	1.20	1.20	1.20	0.65	0.65	0.65	0.74	0.74	0.74
Crit Moves:			****		****		****				****	
Delay/Veh:	257.9	258	257.9	132.7	133	132.7	25.1	25.1	25.1	30.7	30.7	30.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	257.9	258	257.9	132.7	133	132.7	25.1	25.1	25.1	30.7	30.7	30.7
LOS by Move:	F	F	F	F	F	F	D	D	D	D	D	D
ApproachDel:	257.9			132.7			25.1			30.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	257.9			132.7			25.1			30.7		
LOS by Appr:	F			F			D			D		
AllWayAvgQ:	33.0	33.0	33.0	16.2	16.2	16.2	1.6	1.6	1.6	2.3	2.3	2.3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 0.947
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 34.1
Optimal Cycle: 0 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	58	507	57	33	441	70	73	13	56	27	48	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	507	57	33	441	70	73	13	56	27	48	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	507	57	33	441	70	73	13	56	27	48	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	507	57	33	441	70	73	13	56	27	48	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	58	507	57	33	441	70	73	13	56	27	48	14
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.09	0.82	0.09	0.06	0.81	0.13	0.52	0.09	0.39	0.30	0.54	0.16
Final Sat.:	61	535	60	39	520	83	256	46	197	143	255	74
Capacity Analysis Module:												
Vol/Sat:	0.95	0.95	0.95	0.85	0.85	0.85	0.28	0.28	0.28	0.19	0.19	0.19
Crit Moves:		****		****			****				****	
Delay/Veh:	45.6	45.6	45.6	30.4	30.4	30.4	12.3	12.3	12.3	11.6	11.6	11.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.6	45.6	45.6	30.4	30.4	30.4	12.3	12.3	12.3	11.6	11.6	11.6
LOS by Move:	E	E	E	D	D	D	B	B	B	B	B	B
ApproachDel:		45.6			30.4			12.3			11.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		45.6			30.4			12.3			11.6	
LOS by Appr:		E			D			B			B	
AllWayAvgQ:	6.8	6.8	6.8	3.9	3.9	3.9	0.3	0.3	0.3	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2531	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	703	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1058	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1058	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2773	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	770	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1160	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1160	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	19.0	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative with Project Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1899 veh/h
Directional split 70 / 30 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 2027 pc/h
Highest directional split proportion (note-2) 1419 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 39.0 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1999 pc/h
Highest directional split proportion (note-2) 1399
Base percent time-spent-following, BPTSF 82.7 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 82.7 %

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.63	
Peak 15-min vehicle-miles of travel, VMT15	650	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2469	veh-mi
Peak 15-min total travel time, TT15	16.7	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative with Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative Proj PM
Command:	Default Command
Volume:	Cum WP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	D	38.7	0.883	D	38.7	0.883	+ 0.000 D/V
# 2 SR 140 / Baker	F	96.9	0.000	F	96.9	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	73.6	0.000	F	73.6	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	260.2	2.119	F	260.2	2.119	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	237.2	1.997	F	237.2	1.997	+ 0.000 V/C
# 6 Childs / Parsons	F	227.8	1.430	F	227.8	1.430	+ 0.000 D/V
# 7 Childs / Coffee	C	32.7	0.497	C	32.7	0.497	+ 0.000 D/V
# 8 Childs / KIbby	B	12.1	0.000	B	12.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	15.0	0.000	B	15.0	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	10.0	0.463	A	10.0	0.463	+ 0.000 V/C
# 11 Gerard / Tower	A	7.5	0.124	A	7.5	0.124	+ 0.000 V/C
# 12 MIssion / SR 99 SB	F	83.4	1.074	F	83.4	1.074	+ 0.000 D/V
# 13 Mission / SR 99 NB	E	55.1	1.095	E	55.1	1.095	+ 0.000 D/V
# 14 Mission / Coffee	F	591.8	3.400	F	591.8	3.400	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	166.1	1.602	F	166.1	1.602	+ 0.000 V/C
# 42 Childs / Campus Parkway	E	40.8	1.015	E	40.8	1.015	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.883
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 38.7
Optimal Cycle: 108 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	20		0	20	0		0	0	0		17	17	5		20	0
Lanes:	1	0	0	0 1	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Volume Module:																
Base Vol:	195		0	164	0		0	0	0		800	199	184		760	0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	195		0	164	0		0	0	0		800	199	184		760	0
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	195		0	164	0		0	0	0		800	199	184		760	0
Reduct Vol:	0		0	0	0		0	0	0		0	0	0		0	0
Reduced Vol:	195		0	164	0		0	0	0		800	199	184		760	0
PCE Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
MLF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
FinalVolume:	195		0	164	0		0	0	0		800	199	184		760	0
Saturation Flow Module:																
Sat/Lane:	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900		1900
Adjustment:	0.95	1.00		0.85	1.00	1.00		1.00	1.00	0.97		0.97	0.95	1.00		1.00
Lanes:	1.00	0.00		1.00	0.00	0.00		0.00	0.00	0.80		0.20	1.00	1.00		0.00
Final Sat.:	1805		0	1615	0		0	0	0		1480	368	1805		1900	0
Capacity Analysis Module:																
Vol/Sat:	0.11	0.00		0.10	0.00	0.00		0.00	0.00	0.54		0.54	0.10	0.40		0.00
Crit Moves:	****									****			****			
Green/Cycle:	0.20	0.00		0.20	0.00	0.00		0.00	0.00	0.55		0.55	0.10	0.65		0.00
Volume/Cap:	0.54	0.00		0.51	0.00	0.00		0.00	0.00	0.99		0.99	0.99	0.62		0.00
Uniform Del:	35.9		0.0	35.6	0.0		0.0	0.0	0.0		22.3	22.3	44.8		10.2	0.0
IncremntDel:	1.7		0.0	1.3	0.0		0.0	0.0	0.0		25.3	25.3	62.3		0.9	0.0
InitQueuDel:	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Delay Adj:	1.00	0.00		1.00	0.00	0.00		0.00	0.00	1.00		1.00	1.00	1.00		0.00
Delay/Veh:	37.5		0.0	36.9	0.0		0.0	0.0	0.0		47.7	47.7	107.1		11.1	0.0
User DelAdj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
AdjDel/Veh:	37.5		0.0	36.9	0.0		0.0	0.0	0.0		47.7	47.7	107.1		11.1	0.0
LOS by Move:	D		A	D	A		A	A	A		D	D	F		B	A
HCM2kAvgQ:	6		0	5	0		0	0	0		38	38	10		14	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 6.6 Worst Case Level Of Service: F[96.9]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	0	0	1	0	0	1	0
Volume Module:																				
Base Vol:	14		0	14		48		0	52		52	754		0		0	763		48	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	14		0	14		48		0	52		52	754		0		0	763		48	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Volume:	14		0	14		48		0	52		52	754		0		0	763		48	
Reduct Vol:	0		0	0		0		0	0		0	0		0		0	0		0	
FinalVolume:	14		0	14		48		0	52		52	754		0		0	763		48	
Critical Gap Module:																				
Critical Gp:	7.1		6.5	6.2		7.1		6.5	6.2		4.1	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
FollowUpTim:	3.5		4.0	3.3		3.5		4.0	3.3		2.2	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
Capacity Module:																				
Cnflict Vol:	1671		1669	754		1652		1645	787		811	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Potent Cap.:	77		97	412		79		101	395		824	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Move Cap.:	64		91	412		73		94	395		824	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Volume/Cap:	0.22		0.00	0.03		0.66		0.00	0.13		0.06	xxxx	xxxx	xxxx		xxxx	xxxx			
Level Of Service Module:																				
2Way95thQ:	xxxx		xxxx	xxxxx		xxxx		xxxx	xxxxx		0.2	xxxx	xxxxx	xxxx		xxxx	xxxxx			
Control Del:	xxxxx		xxxx	xxxxx		xxxxx		xxxx	xxxxx		9.7	xxxx	xxxxx	xxxxx		xxxx	xxxxx			
LOS by Move:	*		*	*		*		*	*		A	*	*	*		*	*			
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx		110	xxxxx		xxxx		127	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxxx			
SharedQueue:	xxxxx		0.9	xxxxx		xxxxx		4.7	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxxx			
Shrd ConDel:	xxxxx		48.4	xxxxx		xxxxx		96.9	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxxx			
Shared LOS:	*		E	*		*		F	*		*	*	*			*	*			
ApproachDel:			48.4					96.9				xxxxxx					xxxxxx			
ApproachLOS:			E					F				*					*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 SR 140 / Kibby

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: F[73.6]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	1!	0	0		1	0	0	1	0		1	0	1	0	1	
Volume Module:																								
Base Vol:	18	41		0		6	4		3				39	705		49			0	675		40		
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	18	41		0		6	4		3				39	705		49			0	675		40		
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	18	41		0		6	4		3				39	705		49			0	675		40		
Reduct Vol:	0	0		0		0	0		0				0	0		0			0	0		0		
FinalVolume:	18	41		0		6	4		3				39	705		49			0	675		40		
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2		7.1	6.5		6.2				4.1	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3				2.2	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	1506	1523		730		1503	1507		675				715	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Potent Cap.:	100	119		426		101	122		457				895	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Move Cap.:	94	114		426		71	117		457				895	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Volume/Cap:	0.19	0.36		0.00		0.09	0.03		0.01				0.04	xxxx		xxxx			xxxx	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx				0.1	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx				9.2	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
LOS by Move:	*	*		*		*	*		*				A	*		*			*	*		*		
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	107	xxxx		xxxxx		xxxx	103		xxxxx				xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	2.6	xxxx		xxxxx		xxxxx	0.4		xxxxx				xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	73.6	xxxx		xxxxx		xxxxx	44.8		xxxxx				xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	F	*		*		*	E		*				*	*		*			*	*		*		
ApproachDel:	73.6						44.8						xxxxxx						xxxxxx					
ApproachLOS:	F						E						*						*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Childs / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 2.119
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 260.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	0	0	0		0	1	0	0	1		0	0	0	1	0		0	1	0	0	0	
Volume Module:																								
Base Vol:	0		0		0		654	361		303			0	538		68			31	421		0		
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0		0		0		654	361		303			0	538		68			31	421		0		
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
PHF Volume:	0		0		0		654	361		303			0	538		68			31	421		0		
Reduct Vol:	0		0		0		0	0		0			0	0		0			0	0		0		
Reduced Vol:	0		0		0		654	361		303			0	538		68			31	421		0		
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
FinalVolume:	0		0		0		654	361		303			0	538		68			31	421		0		
Saturation Flow Module:																								
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
Lanes:	0.00	0.00		0.00		0.64	0.36		1.00				0.00	0.89		0.11			0.07	0.93		0.00		
Final Sat.:	0		0		0		309	170		553			0	482		61			36	489		0		
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx		xxxx		2.12	2.12		0.55				xxxx	1.12		1.12			0.86	0.86		xxxx		
Crit Moves:							****							****						****				
Delay/Veh:	0.0	0.0		0.0		527.5	527		16.8				0.0	99.1		99.1			39.0	39.0		0.0		
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00				1.00	1.00		1.00			1.00	1.00		1.00		
AdjDel/Veh:	0.0	0.0		0.0		527.5	527		16.8				0.0	99.1		99.1			39.0	39.0		0.0		
LOS by Move:	*	*		*		F	F		C				*	F		F			E	E		*		
ApproachDel:	xxxxxx					410.1							99.1						39.0					
Delay Adj:	xxxxx					1.00							1.00						1.00					
ApprAdjDel:	xxxxxx					410.1							99.1						39.0					
LOS by Appr:	*					F							F						E					
AllWayAvgQ:	0.0	0.0		0.0		68.8	68.8		1.2				13.5	13.5		13.5			4.2	4.2		4.2		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 1.997
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 237.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 1	0	0	1	0 1	0	0	1	1 0	1	0	1	1 0	1	0	1
Volume Module:																
Base Vol:	50	37	48		119	29	93		188	854	141		680	309	177	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	37	48		119	29	93		188	854	141		680	309	177	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	50	37	48		119	29	93		188	854	141		680	309	177	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	50	37	48		119	29	93		188	854	141		680	309	177	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	50	37	48		119	29	93		188	854	141		680	309	177	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.57	0.43	1.00		0.80	0.20	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	212	157	409		307	75	431		399	428	458		414	437	474	
Capacity Analysis Module:																
Vol/Sat:	0.24	0.24	0.12		0.39	0.39	0.22		0.47	2.00	0.31		1.64	0.71	0.37	
Crit Moves:		****				****				****			****			
Delay/Veh:	14.9	14.9	12.2		17.5	17.5	13.0		19.2	476	13.7		319.8	28.0	14.5	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	14.9	14.9	12.2		17.5	17.5	13.0		19.2	476	13.7		319.8	28.0	14.5	
LOS by Move:	B	B	B		C	C	B		C	F	B		F	D	B	
ApproachDel:		13.9				15.7				348.3				196.1		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		13.9				15.7				348.3				196.1		
LOS by Appr:		B				C				F				F		
AllWayAvgQ:	0.3	0.3	0.1		0.6	0.6	0.3		0.8	55.2	0.4		35.5	2.1	0.6	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 1.430
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 227.8
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	4	22	22		4	24	24		4	20	20		4	23	23	
Lanes:	1 0	0	1	0	1 0	1	0	1	0 0	1!	0	0	1 0	1	0	1
Volume Module:																
Base Vol:	299	141	4		107	152	150		191	536	288		4	699	96	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	299	141	4		107	152	150		191	536	288		4	699	96	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	299	141	4		107	152	150		191	536	288		4	699	96	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	299	141	4		107	152	150		191	536	288		4	699	96	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	299	141	4		107	152	150		191	536	288		4	699	96	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	0.85		0.95	0.95	0.95		0.95	1.00	0.85	
Lanes:	1.00	0.97	0.03		1.00	1.00	1.00		0.19	0.53	0.28		1.00	1.00	1.00	
Final Sat.:	1805	1840	52		1805	1900	1615		341	957	514		1805	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.17	0.08	0.08		0.06	0.08	0.09		0.56	0.56	0.56		0.00	0.37	0.06	
Crit Moves:	****						****		****					****		
Green/Cycle:	0.08	0.25	0.25		0.07	0.24	0.24		0.28	0.47	0.47		0.04	0.23	0.23	
Volume/Cap:	2.02	0.30	0.30		0.87	0.33	0.39		2.02	1.20	1.20		0.06	1.60	0.26	
Uniform Del:	45.9	30.2	30.2		46.1	31.4	31.8		36.1	26.6	26.6		46.2	38.5	31.5	
IncremntDel:	480.4	0.4	0.4		43.4	0.4	0.6		464.5	100	100.4		0.3	280	0.4	
InitQueuDel:	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Delay/Veh:	526.3	30.5	30.5		89.5	31.8	32.5		500.6	127	127.0		46.5	319	31.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	526.3	30.5	30.5		89.5	31.8	32.5		500.6	127	127.0		46.5	319	31.9	
LOS by Move:	F	C	C		F	C	C		F	F	F		D	F	C	
HCM2kAvgQ:	29	4	4		6	4	4		94	54	54		0	55	3	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.497
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 32.7
Optimal Cycle: 67 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	305	35	41	7	23	20	39	174	185	26	202	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	305	35	41	7	23	20	39	174	185	26	202	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	305	35	41	7	23	20	39	174	185	26	202	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	305	35	41	7	23	20	39	174	185	26	202	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	305	35	41	7	23	20	39	174	185	26	202	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.92	0.92	0.95	0.93	0.93	0.95	0.92	0.92	0.95	0.99	0.99
Lanes:	1.00	0.46	0.54	1.00	0.53	0.47	1.00	0.48	0.52	1.00	0.92	0.08
Final Sat.:	1805	804	942	1805	945	822	1805	850	904	1805	1724	154
Capacity Analysis Module:												
Vol/Sat:	0.17	0.04	0.04	0.00	0.02	0.02	0.02	0.20	0.20	0.01	0.12	0.12
Crit Moves:	****				****			****		****		
Green/Cycle:	0.26	0.34	0.34	0.11	0.19	0.19	0.09	0.32	0.32	0.06	0.29	0.29
Volume/Cap:	0.64	0.13	0.13	0.04	0.13	0.13	0.24	0.64	0.64	0.24	0.41	0.41
Uniform Del:	32.7	22.5	22.5	39.9	33.6	33.6	42.3	29.3	29.3	44.8	28.8	28.8
IncremntDel:	3.0	0.1	0.1	0.1	0.2	0.2	0.8	2.6	2.6	1.2	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	35.8	22.6	22.6	40.0	33.8	33.8	43.0	31.9	31.9	46.0	29.3	29.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.8	22.6	22.6	40.0	33.8	33.8	43.0	31.9	31.9	46.0	29.3	29.3
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	C
HCM2kAvgQ:	9	2	2	0	1	1	1	10	10	1	6	6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: B[12.1]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0	1 0
Volume Module:												
Base Vol:	0	0	0	38	0	38	36	317	0	0	203	33
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	38	0	38	36	317	0	0	203	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	38	0	38	36	317	0	0	203	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	38	0	38	36	317	0	0	203	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	609	609	220	236	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	462	413	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	452	401	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	0.00	0.05	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	584	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	12.1	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			12.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Childs / Tower

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: B[15.0]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	4	69	8	2	12	2	1	349	2	1	227	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	69	8	2	12	2	1	349	2	1	227	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	69	8	2	12	2	1	349	2	1	227	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	4	69	8	2	12	2	1	349	2	1	227	2
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	589	583	350	621	583	228	229	xxxx	xxxxx	351	xxxx	xxxxx
Potent Cap.:	423	427	698	403	427	816	1351	xxxx	xxxxx	1219	xxxx	xxxxx
Move Cap.:	412	426	698	348	426	816	1351	xxxx	xxxxx	1219	xxxx	xxxxx
Volume/Cap:	0.01	0.16	0.01	0.01	0.03	0.00	0.00	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	442	xxxxx	xxxx	440	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.0	xxxxx	xxxxx	13.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		15.0			13.5			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #10 Gerard / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.463
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 10.0
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	1	7	41	149	16	5	0	117	31	47	53	282
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	7	41	149	16	5	0	117	31	47	53	282
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	7	41	149	16	5	0	117	31	47	53	282
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	7	41	149	16	5	0	117	31	47	53	282
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	7	41	149	16	5	0	117	31	47	53	282
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.02	0.14	0.84	0.88	0.09	0.03	0.00	0.79	0.21	0.12	0.14	0.74
Final Sat.:	14	95	559	558	60	19	0	569	151	101	114	609
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.07	0.27	0.27	0.27	xxxx	0.21	0.21	0.46	0.46	0.46
Crit Moves:		****		****				****			****	
Delay/Veh:	8.1	8.1	8.1	10.0	10.0	10.0	0.0	8.9	8.9	10.6	10.6	10.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.1	8.1	8.1	10.0	10.0	10.0	0.0	8.9	8.9	10.6	10.6	10.6
LOS by Move:	A	A	A	A	A	A	*	A	A	B	B	B
ApproachDel:		8.1			10.0			8.9			10.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.1			10.0			8.9			10.6	
LOS by Appr:		A			A			A			B	
AllWayAvgQ:	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.8	0.8	0.8

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec): 100 Critical Vol./Cap.(X): 0.124
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 7.5
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	5	0	10	75	33	0	0	32	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	10	75	33	0	0	32	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	5	0	10	75	33	0	0	32	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	5	0	10	75	33	0	0	32	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	5	0	10	75	33	0	0	32	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.33	0.00	0.67	0.69	0.31	0.00	0.00	0.84	0.16
Final Sat.:	0	826	0	300	0	599	606	267	0	0	765	143
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.02	xxxx	0.02	0.12	0.12	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****			****				****	
Delay/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.7	7.7	0.0	0.0	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.7	7.7	0.0	0.0	7.1	7.1
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			6.9			7.7			7.1		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			6.9			7.7			7.1		
LOS by Appr:	*			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec): 100 Critical Vol./Cap.(X): 1.074
Loss Time (sec): 11 (Y+R=4.0 sec) Average Delay (sec/veh): 83.4
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	0 1	1 0	0
Volume Module:												
Base Vol:	0	0	0	580	3	120	0	273	206	808	342	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	580	3	120	0	273	206	808	342	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	580	3	120	0	273	206	808	342	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	580	3	120	0	273	206	808	342	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	580	3	120	0	273	206	808	342	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.89	0.89	0.92	0.92	1.00
Lanes:	0.00	0.00	0.00	0.99	0.01	1.00	0.00	1.14	0.86	1.00	1.00	0.00
Final Sat.:	0	0	0	1656	9	1615	0	1926	1453	1744	1744	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.35	0.35	0.07	0.00	0.14	0.14	0.46	0.20	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.19	0.19	0.40	0.59	0.00
Volume/Cap:	0.00	0.00	0.00	1.16	1.16	0.25	0.00	0.75	0.75	1.16	0.33	0.00
Uniform Del:	0.0	0.0	0.0	34.9	34.9	26.4	0.0	38.2	38.2	30.1	10.5	0.0
IncremntDel:	0.0	0.0	0.0	93.2	93.2	0.3	0.0	4.8	4.8	84.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	128.1	128	26.6	0.0	43.0	43.0	114.4	10.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	128.1	128	26.6	0.0	43.0	43.0	114.4	10.6	0.0
LOS by Move:	A	A	A	F	F	C	A	D	D	F	B	A
HCM2kAvgQ:	0	0	0	31	31	3	0	9	9	44	6	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.095
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	55.1
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	2 0	0	0 0	2 0	1
Volume Module:												
Base Vol:	192	0	627	0	0	0	64	788	0	0	957	819
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	192	0	627	0	0	0	64	788	0	0	957	819
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	192	0	627	0	0	0	64	788	0	0	957	819
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	0	627	0	0	0	64	788	0	0	957	819
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	192	0	627	0	0	0	64	788	0	0	957	819
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.00	0.39	0.00	0.00	0.00	0.04	0.22	0.00	0.00	0.27	0.51
Crit Moves:			****				****					****
Green/Cycle:	0.35	0.00	0.35	0.00	0.00	0.00	0.05	0.50	0.00	0.00	0.45	0.45
Volume/Cap:	0.31	0.00	1.12	0.00	0.00	0.00	0.71	0.43	0.00	0.00	0.59	1.12
Uniform Del:	23.9	0.0	32.7	0.0	0.0	0.0	46.8	15.8	0.0	0.0	20.3	27.3
IncremntDel:	0.3	0.0	75.2	0.0	0.0	0.0	22.9	0.2	0.0	0.0	0.6	71.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	24.1	0.0	107.8	0.0	0.0	0.0	69.7	16.0	0.0	0.0	20.9	98.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.1	0.0	107.8	0.0	0.0	0.0	69.7	16.0	0.0	0.0	20.9	98.4
LOS by Move:	C	A	F	A	A	A	E	B	A	A	C	F
HCM2kAvgQ:	4	0	31	0	0	0	3	8	0	0	12	40

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	3.400
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	591.8
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1! 0	0	0 0	1! 0	0	0 1	0 1	0	0 0	1! 0	0
Volume Module:												
Base Vol:	44	61	70	9	18	397	70	1254	75	99	1317	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	61	70	9	18	397	70	1254	75	99	1317	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	61	70	9	18	397	70	1254	75	99	1317	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	61	70	9	18	397	70	1254	75	99	1317	79
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	61	70	9	18	397	70	1254	75	99	1317	79
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.20	0.80	0.02	0.04	0.94	0.10	1.79	0.11	0.07	0.88	0.05
Final Sat.:	760	-313	313	10	19	430	45	806	49	29	387	23
Capacity Analysis Module:												
Vol/Sat:	0.06	-0.19	0.22	0.92	0.92	0.92	1.57	1.56	1.54	3.40	3.40	3.40
Crit Moves:			****		****		****				****	
Delay/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	286.7	281	275.8	1103	1103	1103
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	286.7	281	275.8	1103	1103	1103
LOS by Move:	C	C	C	F	F	F	F	F	F	F	F	F
ApproachDel:	15.5			52.7			281.3			1102.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	15.5			52.7			281.3			1102.6		
LOS by Appr:	C			F			F			F		
AllWayAvgQ:	0.5	0.5	0.5	5.3	5.3	5.3	34.2	33.4	33.4	133	133	133.3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 1.602
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 166.1
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	44	370	315	34	302	139	164	24	38	400	47	39
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	370	315	34	302	139	164	24	38	400	47	39
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	370	315	34	302	139	164	24	38	400	47	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	370	315	34	302	139	164	24	38	400	47	39
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	370	315	34	302	139	164	24	38	400	47	39
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.51	0.43	0.07	0.64	0.29	0.72	0.11	0.17	0.82	0.10	0.08
Final Sat.:	27	231	197	32	286	132	285	42	66	358	42	35
Capacity Analysis Module:												
Vol/Sat:	1.60	1.60	1.60	1.06	1.06	1.06	0.58	0.58	0.58	1.12	1.12	1.12
Crit Moves:			****	****				****			****	
Delay/Veh:	301.4	301	301.4	86.2	86.2	86.2	23.9	23.9	23.9	107.3	107	107.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	301.4	301	301.4	86.2	86.2	86.2	23.9	23.9	23.9	107.3	107	107.3
LOS by Move:	F	F	F	F	F	F	C	C	C	F	F	F
ApproachDel:	301.4			86.2			23.9			107.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	301.4			86.2			23.9			107.3		
LOS by Appr:	F			F			C			F		
AllWayAvgQ:	36.7	36.7	36.7	9.4	9.4	9.4	1.3	1.3	1.3	11.6	11.6	11.6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100 Critical Vol./Cap.(X): 1.015
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 40.8
Optimal Cycle: 0 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	61	581	10	27	399	77	94	45	46	19	44	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	581	10	27	399	77	94	45	46	19	44	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	61	581	10	27	399	77	94	45	46	19	44	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	581	10	27	399	77	94	45	46	19	44	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	61	581	10	27	399	77	94	45	46	19	44	12
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.09	0.89	0.02	0.05	0.80	0.15	0.51	0.24	0.25	0.25	0.59	0.16
Final Sat.:	60	573	10	34	496	96	253	121	124	116	269	73
Capacity Analysis Module:												
Vol/Sat:	1.01	1.01	1.01	0.80	0.80	0.80	0.37	0.37	0.37	0.16	0.16	0.16
Crit Moves:		****			****			****			****	
Delay/Veh:	62.3	62.3	62.3	27.4	27.4	27.4	13.6	13.6	13.6	11.6	11.6	11.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	62.3	62.3	62.3	27.4	27.4	27.4	13.6	13.6	13.6	11.6	11.6	11.6
LOS by Move:	F	F	F	D	D	D	B	B	B	B	B	B
ApproachDel:	62.3			27.4			13.6			11.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	62.3			27.4			13.6			11.6		
LOS by Appr:	F			D			B			B		
AllWayAvgQ:	9.6	9.6	9.6	3.2	3.2	3.2	0.5	0.5	0.5	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	3164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	879	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1323	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1323	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	4208	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1169	v
Trucks and buses	25	%
Recreational vehicles	2	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1760	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1760	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	60.7	mi/h
Number of lanes, N	3	
Density, D	29.0	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative with Project Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1766 veh/h
Directional split 56 / 44 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1885 pc/h
Highest directional split proportion (note-2) 1056 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 40.1 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1859 pc/h
Highest directional split proportion (note-2) 1041
Base percent time-spent-following, BPTSF 80.5 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 80.5 %

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.59	
Peak 15-min vehicle-miles of travel, VMT15	604	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2296	veh-mi
Peak 15-min total travel time, TT15	15.1	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

APPENDIX B

Merced Wal-Mart Distribution Center

Peak Hour Signal Warrant Analysis

Existing Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DR** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DR** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☒

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [ ] **NO** [X]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[ ]	No	[X]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ KIBBY RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ KIBBY RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @TOWER RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @TOWER RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @ COFFEE ST** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @ COFFEE ST** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @TOWER RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @TOWER RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **E MISSION AVE @ COFFEE ST** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **E MISSION AVE @ COFFEE ST** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☐	No ☒

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

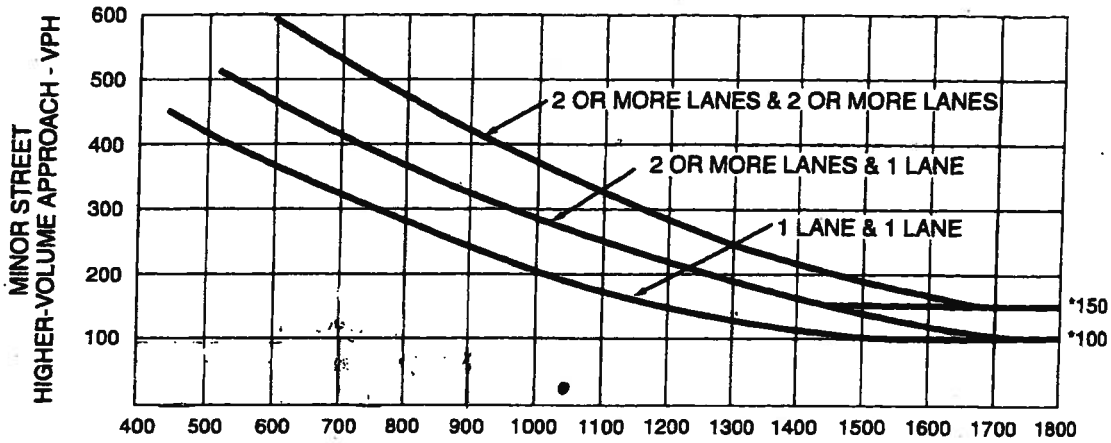
The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

Existing

Figure 4C-3. Warrant 3, Peak Hour

Baker/SR140 AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

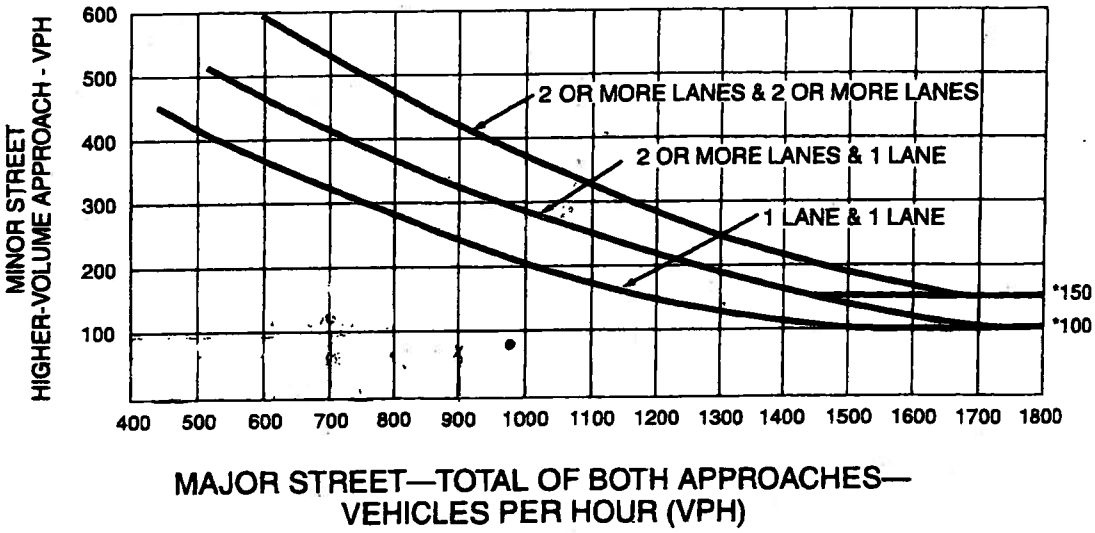
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

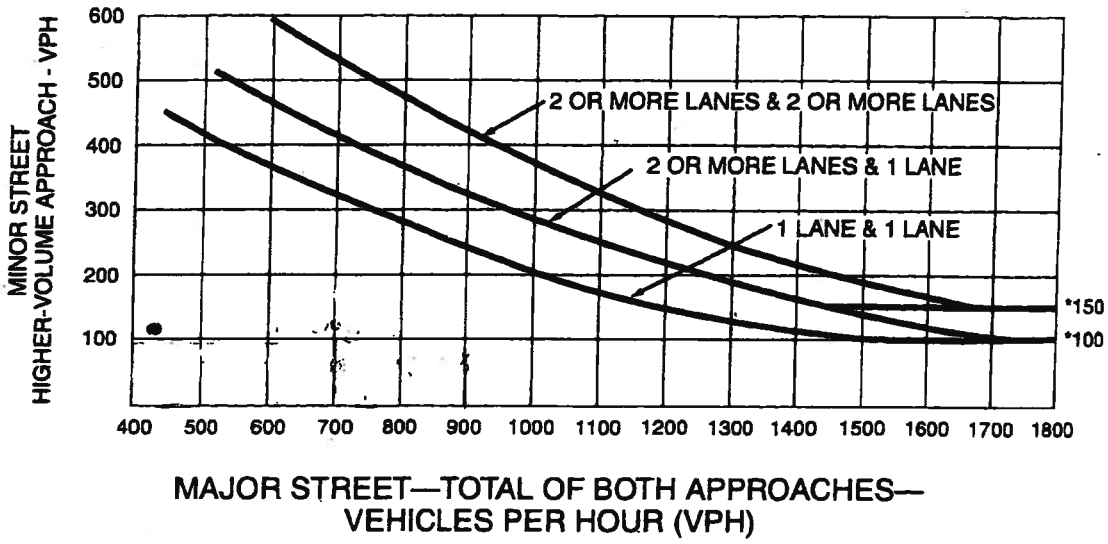


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

SR 140/Kibby AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

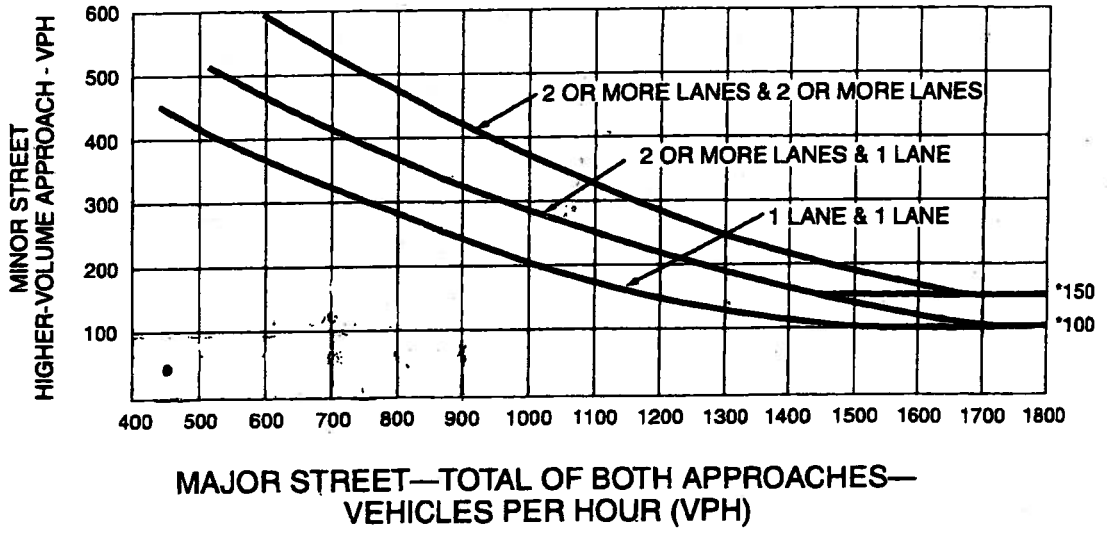
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

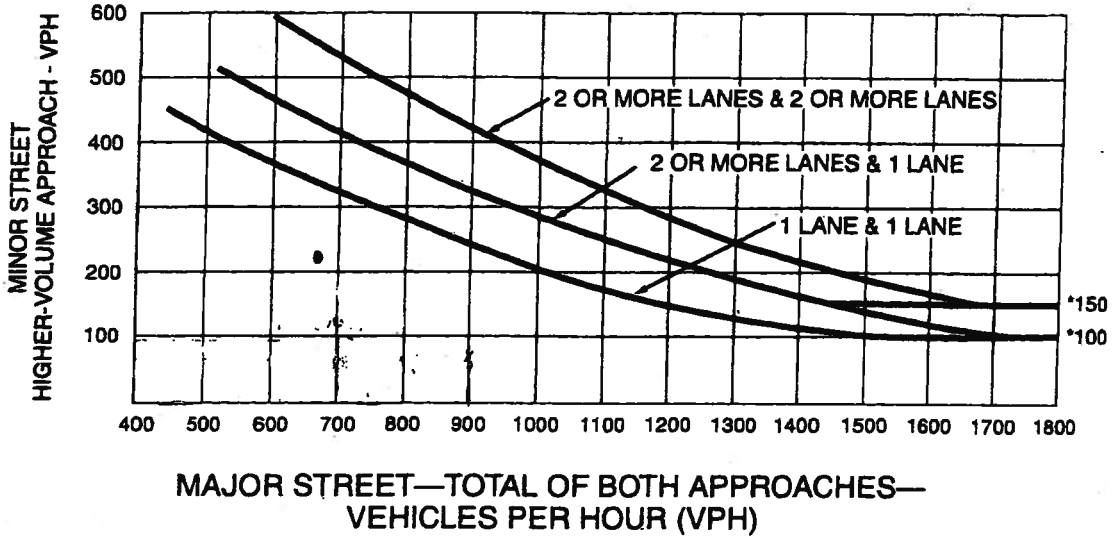


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

B SR99/Childs AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

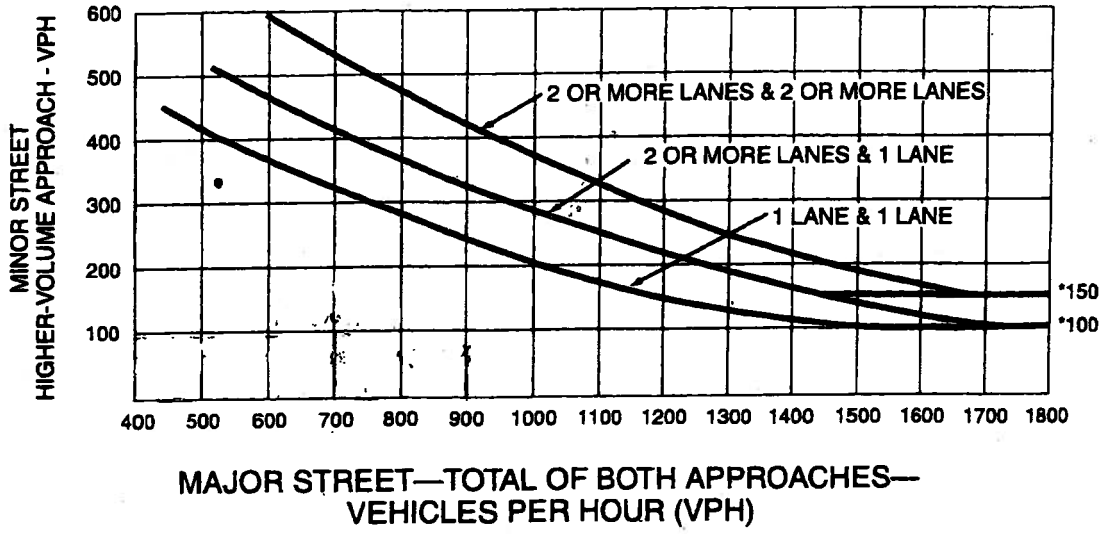
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

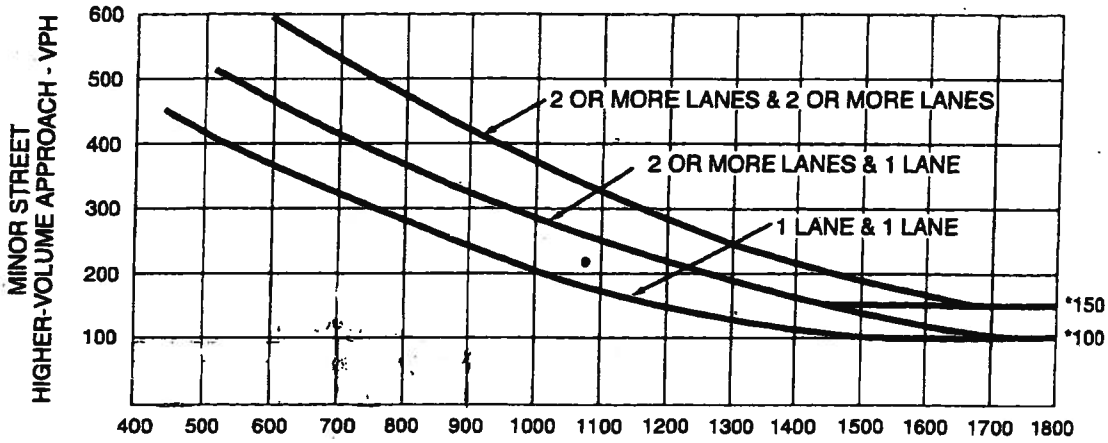


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

Carol / Childs AM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

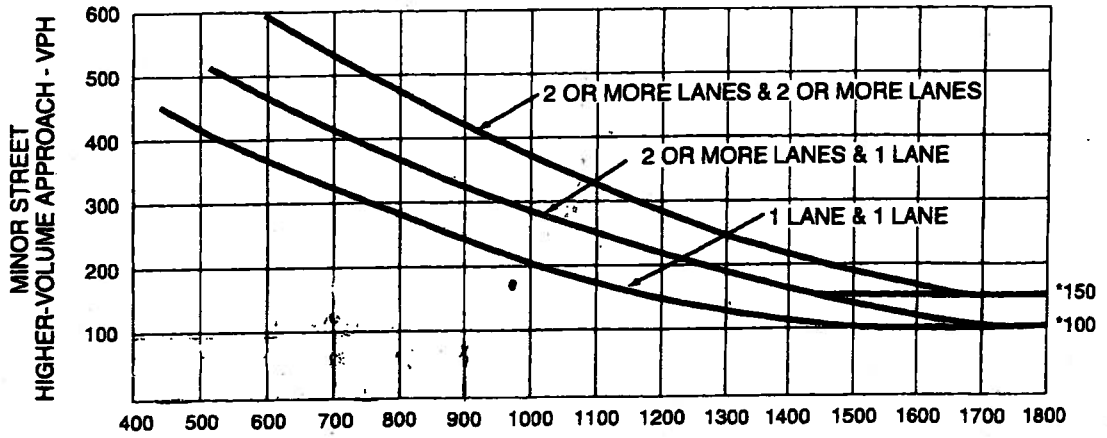
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

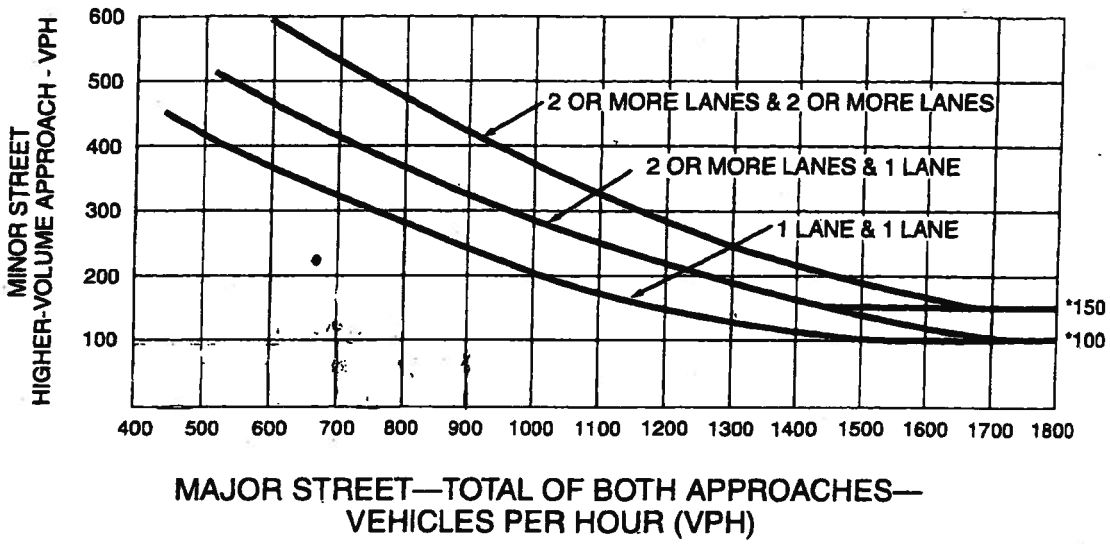
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

Childs/Kibby

AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

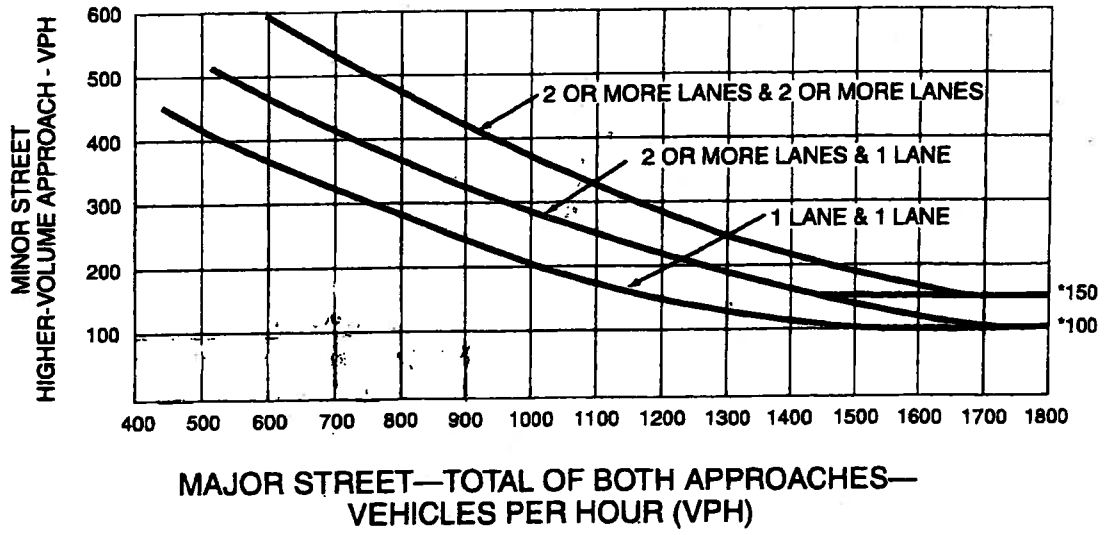
Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph - too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

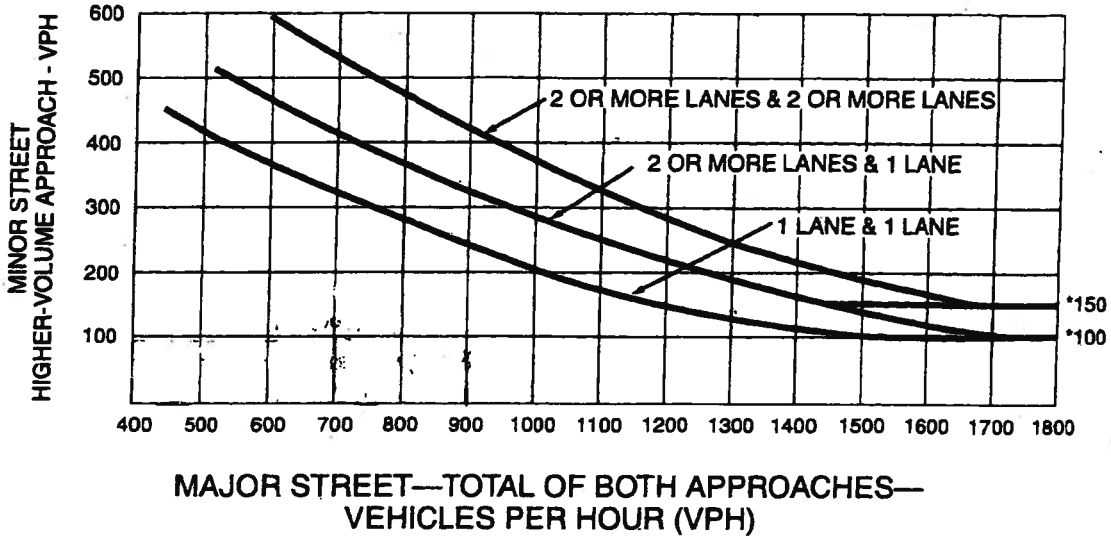
Figure 4C-3. Warrant 3, Peak Hour

Tower/Childs

AM

No

(not on graph - too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

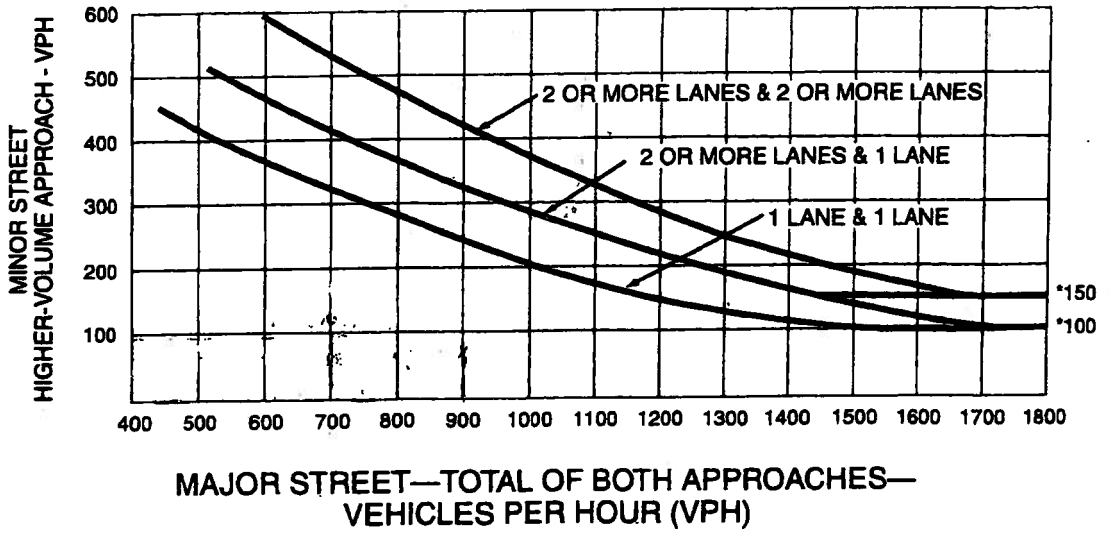
Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph - too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

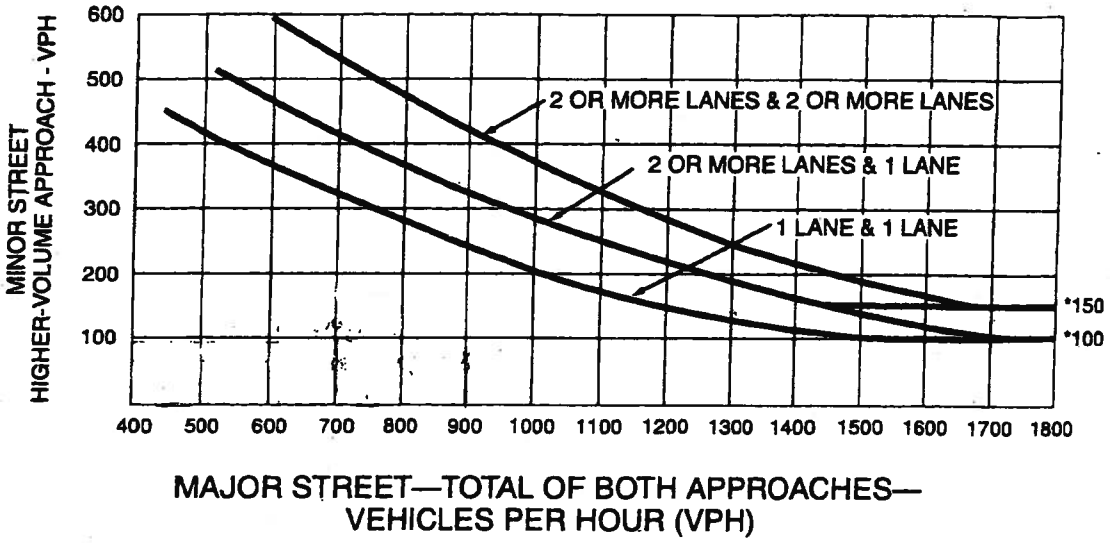
Figure 4C-3. Warrant 3, Peak Hour

Coffee/Gerrard

AM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

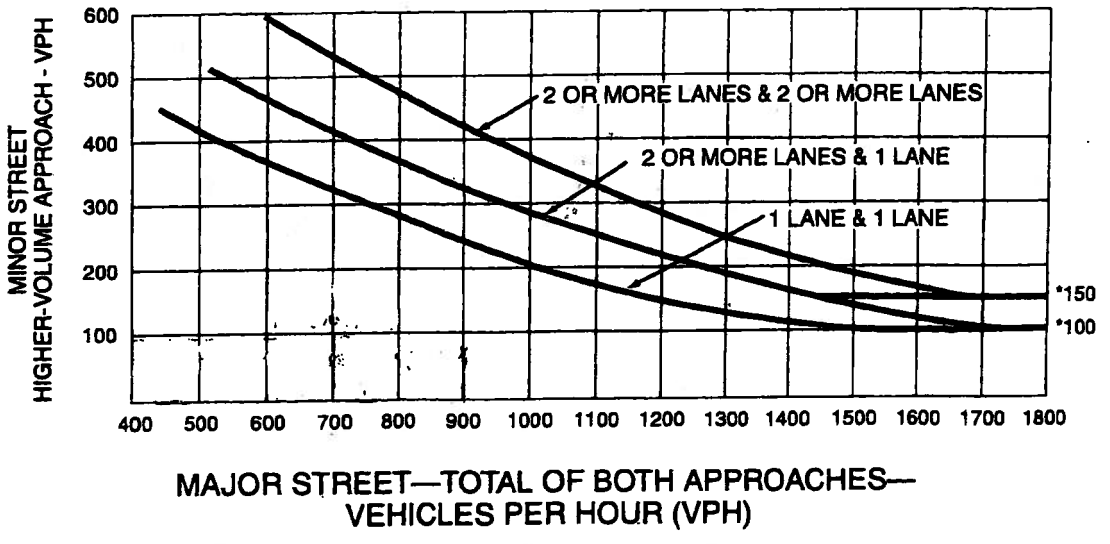
Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

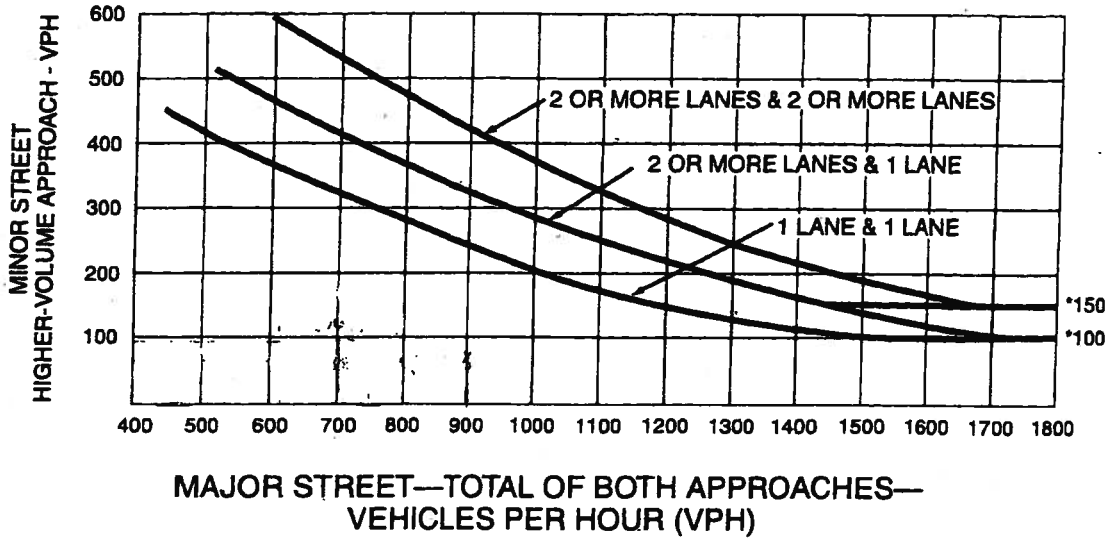
Figure 4C-3. Warrant 3, Peak Hour

Tower/Gerrard

AM

No

(not on graph-
too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

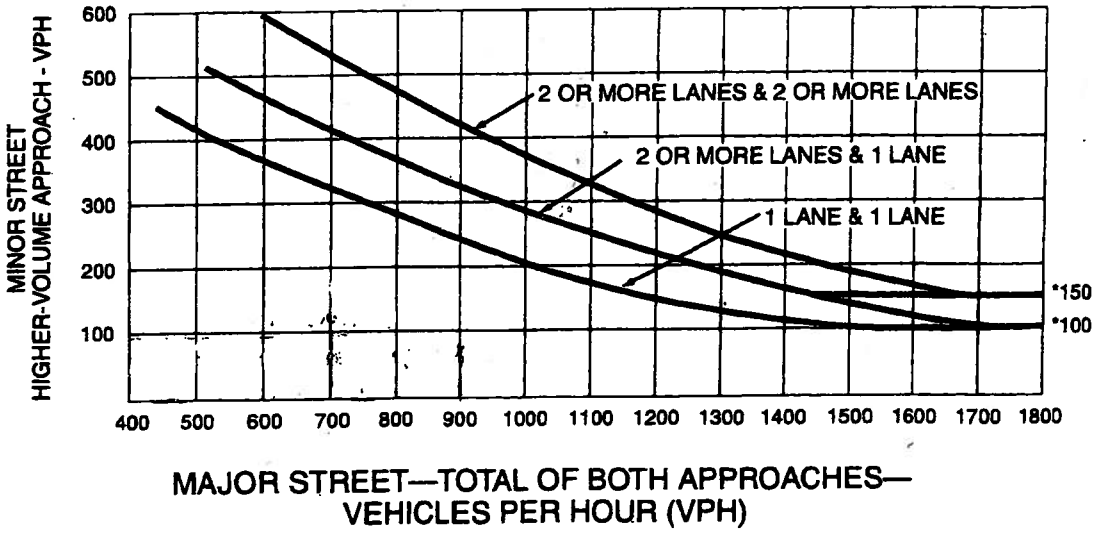
Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph-
too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

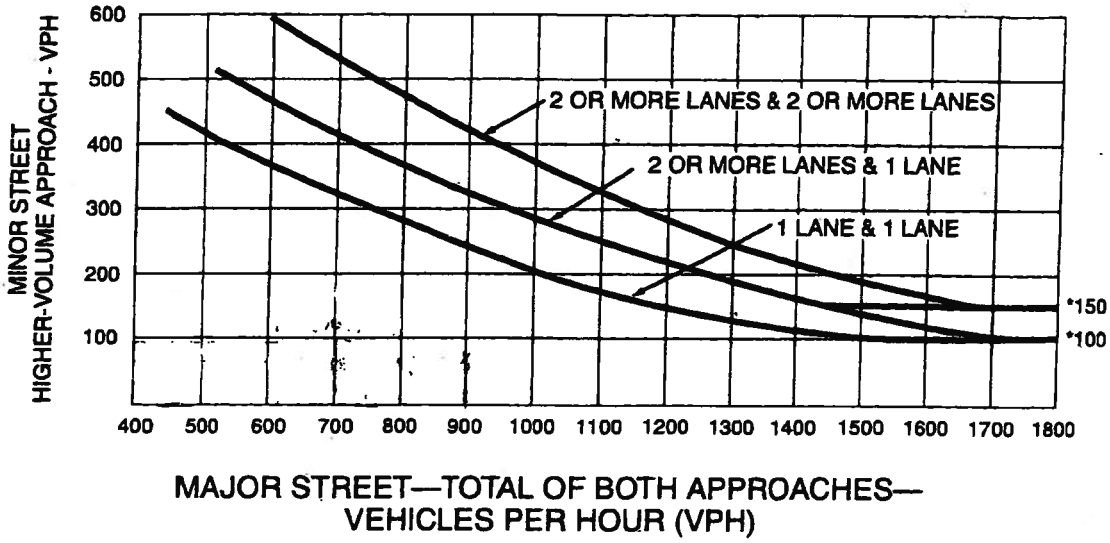
~~Gerard/Coffee~~

Coffee/Mission

AM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

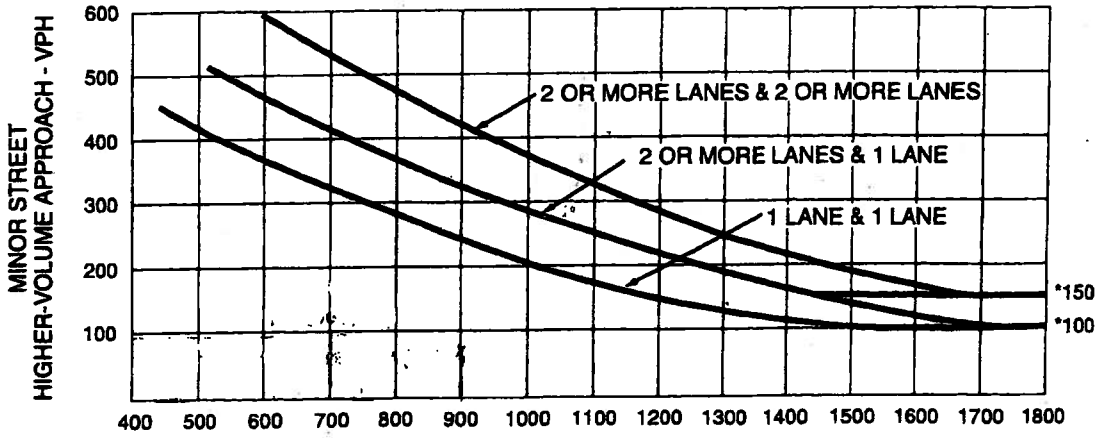
Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2010 Background Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DRIVE** **AM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [x]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [x]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	x		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[x]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **PM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DRIVE** **PM**
2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]
(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

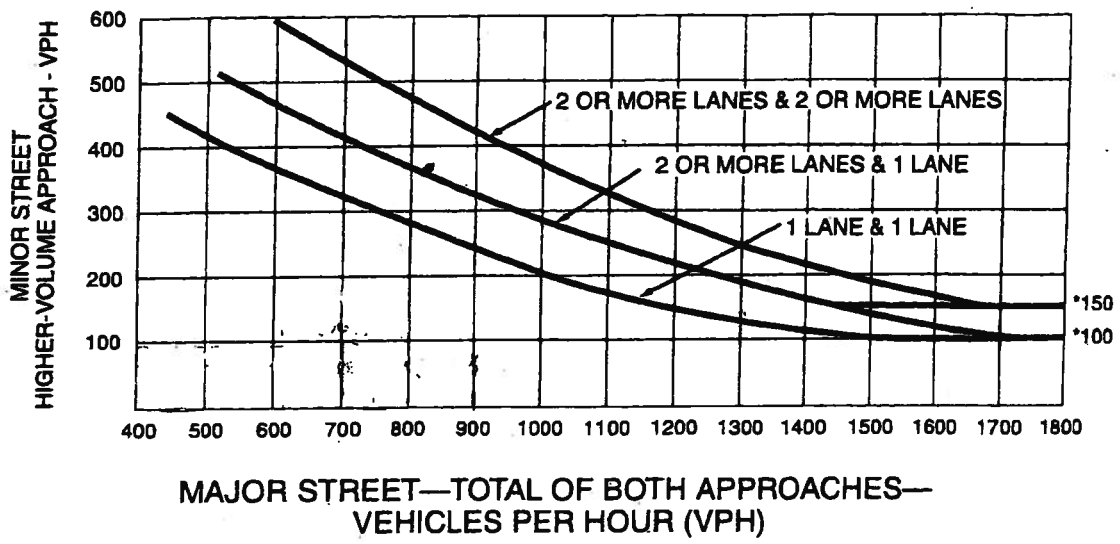
2010 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

SR140 @ Baker Drive

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

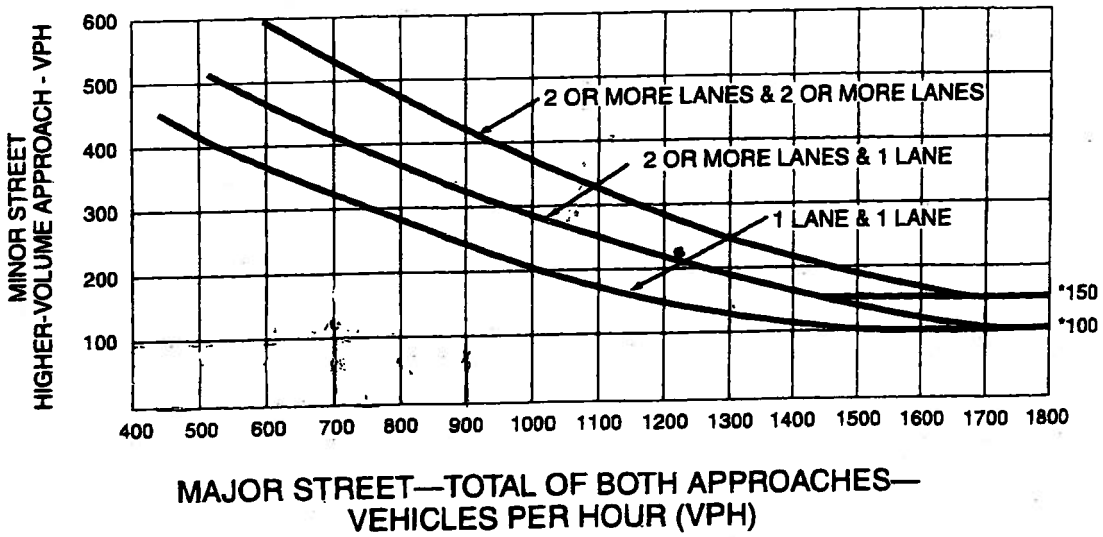
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

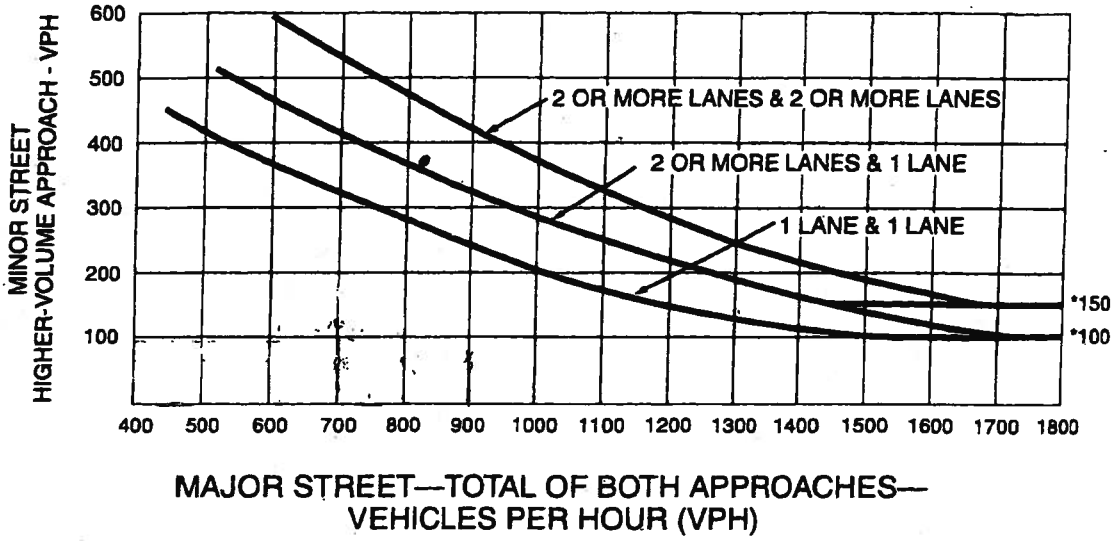
2010 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave. @ SB Ramps

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

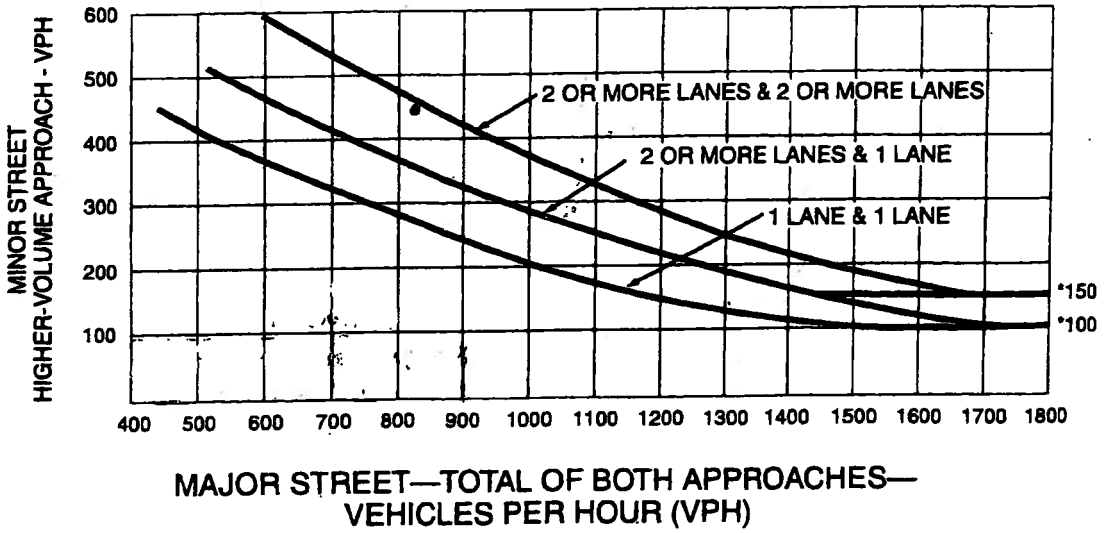
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

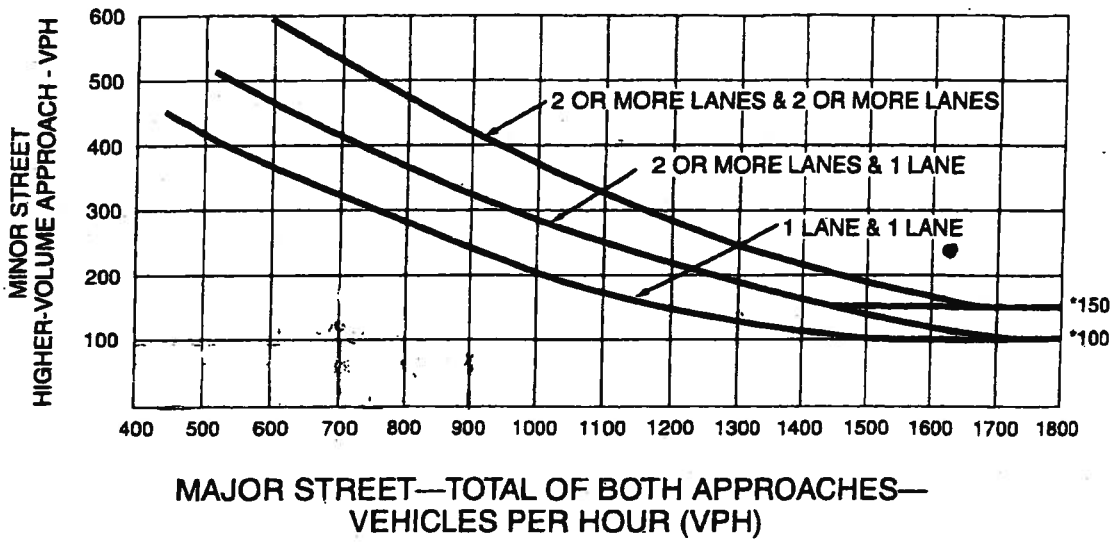
2010 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ NB Ramps

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

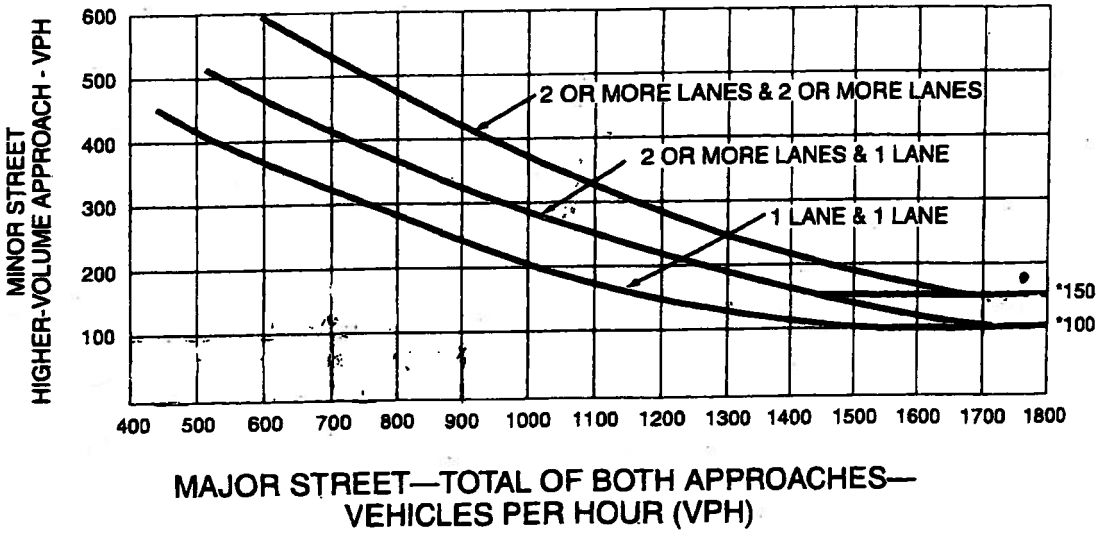
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2010 Background with Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DRIVE** **AM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DRIVE** **PM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street		X		
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **PM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No	[ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

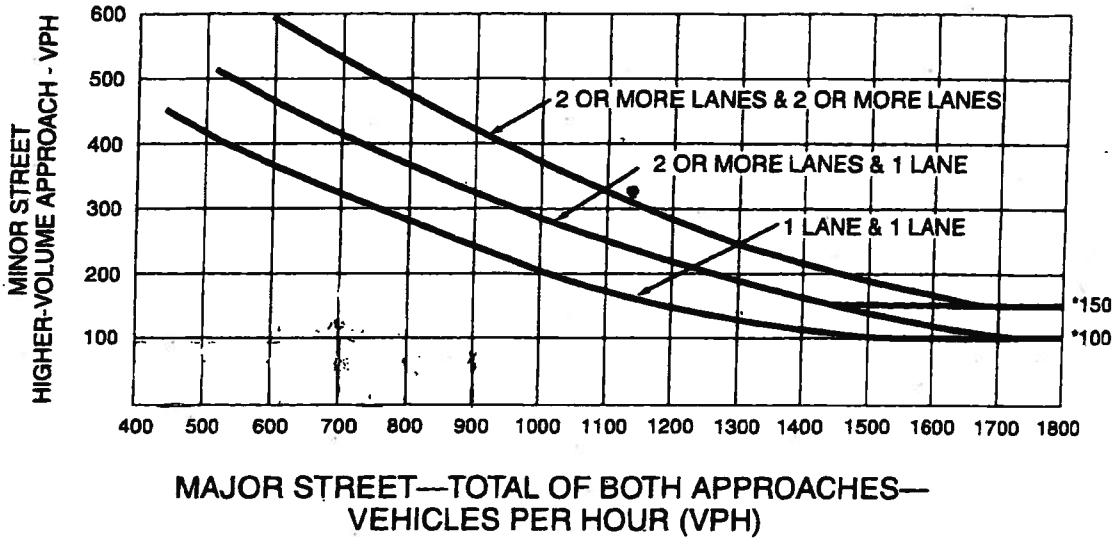
2010 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

SR 140 Yosemite @ Baker

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

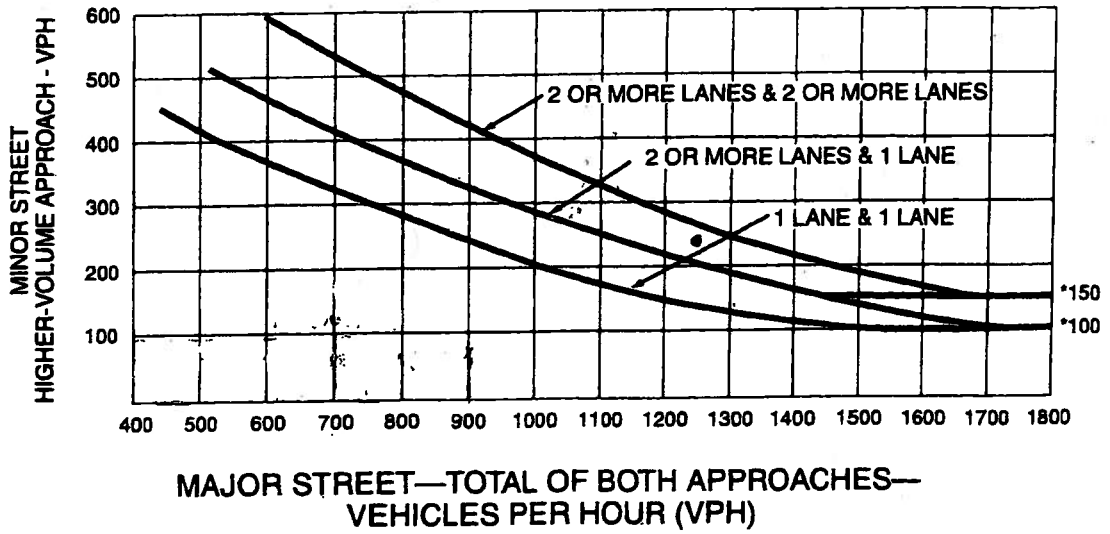
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

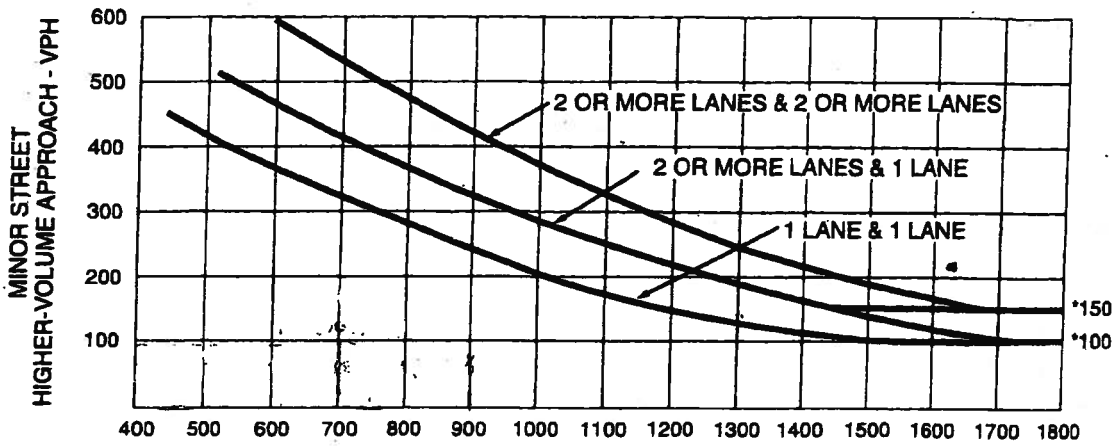
2010 W/ Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ NB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

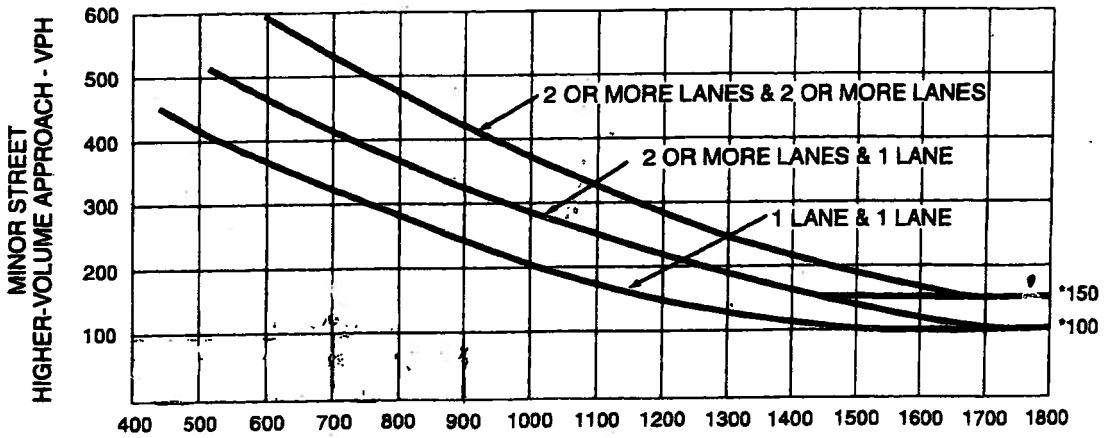
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

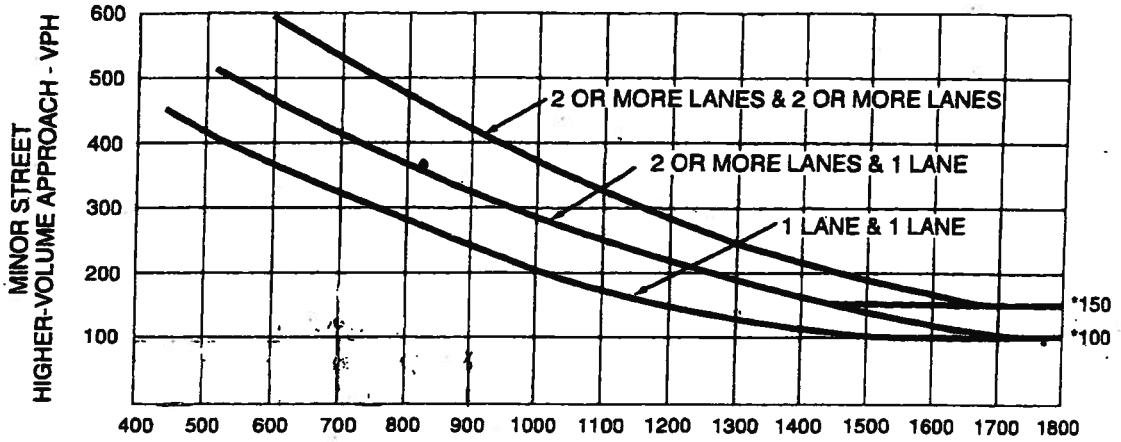
2010 w/Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ SB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

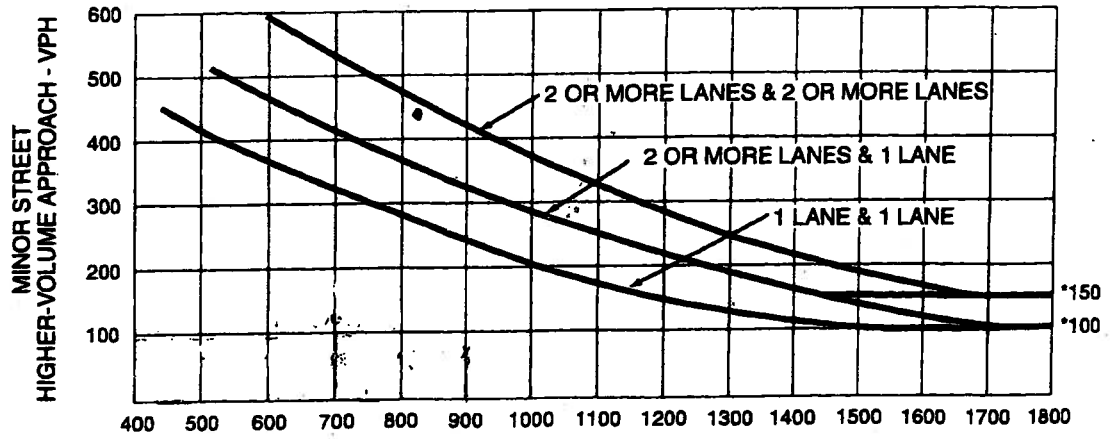
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 Cumulative No Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DR** **AM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DR** **PM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No	[ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **PM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☐	No	☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **MISSION AVE @ Coffee Street** **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **MISSION AVE @ COFFEE ST** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

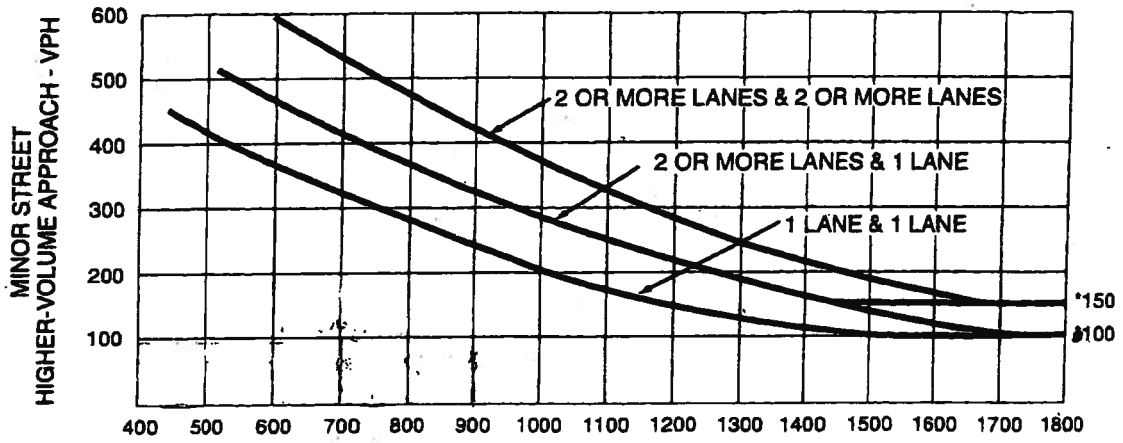
2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

SR 140 @ Baker Dr.

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

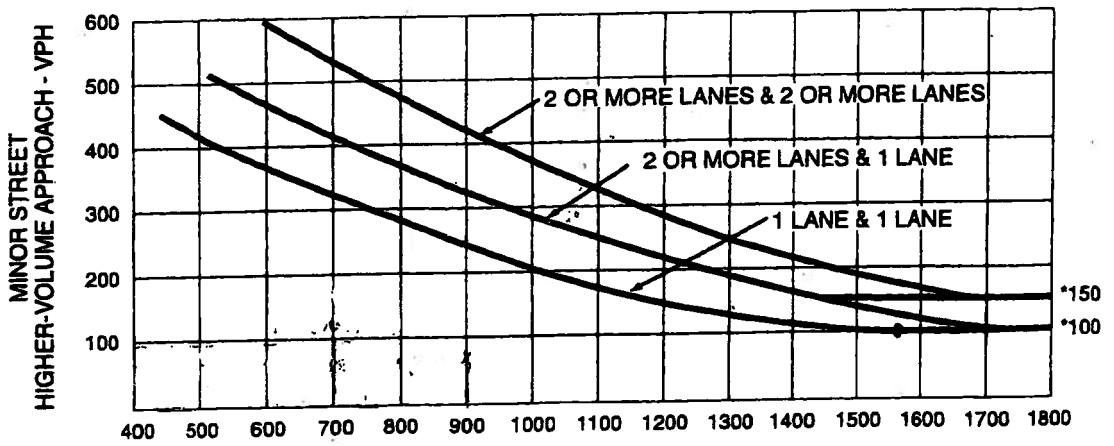
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

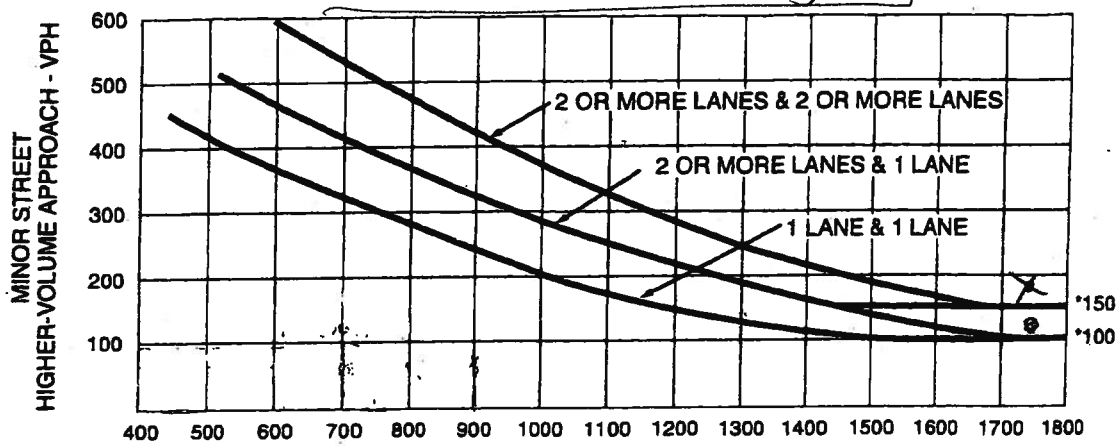
.. 2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

SR-140 Yosemite @ Kibby Rd

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

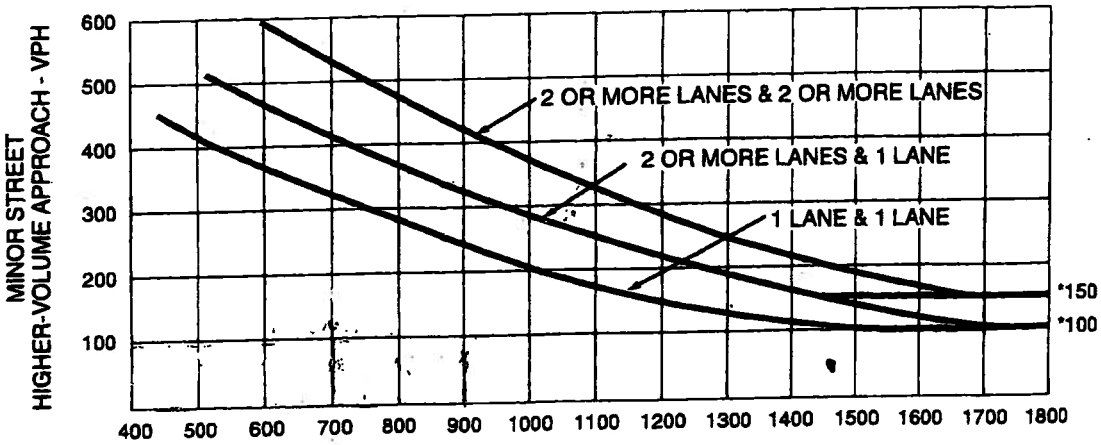
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

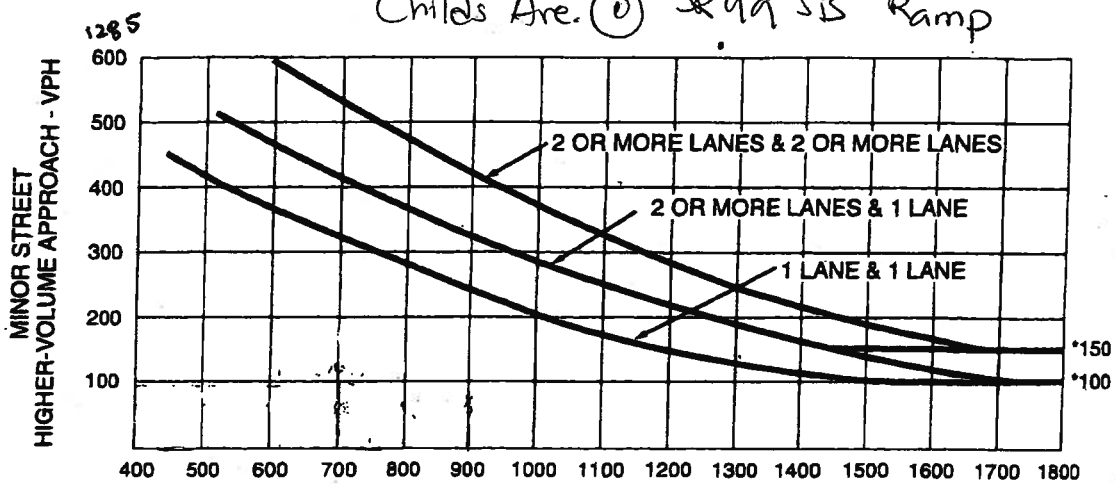
2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave. @ SR99 SB Ramp

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

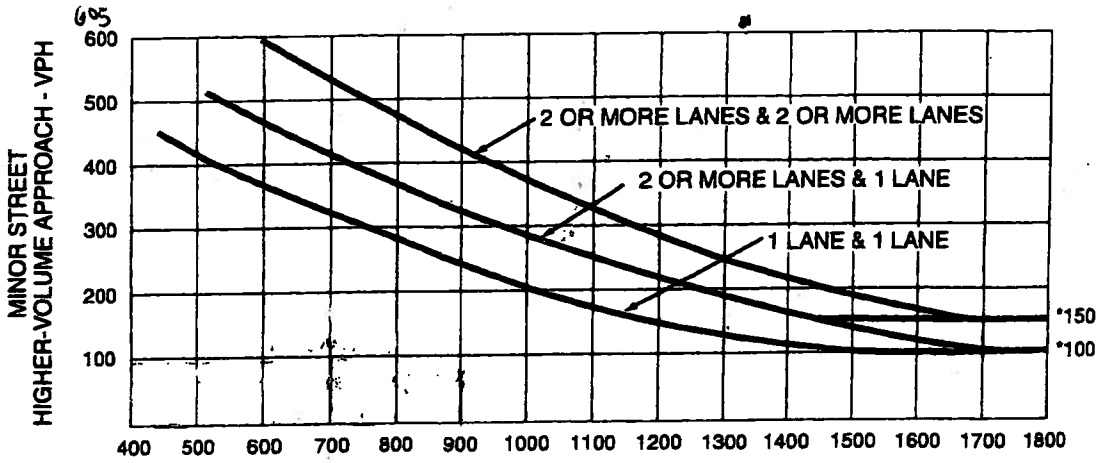
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

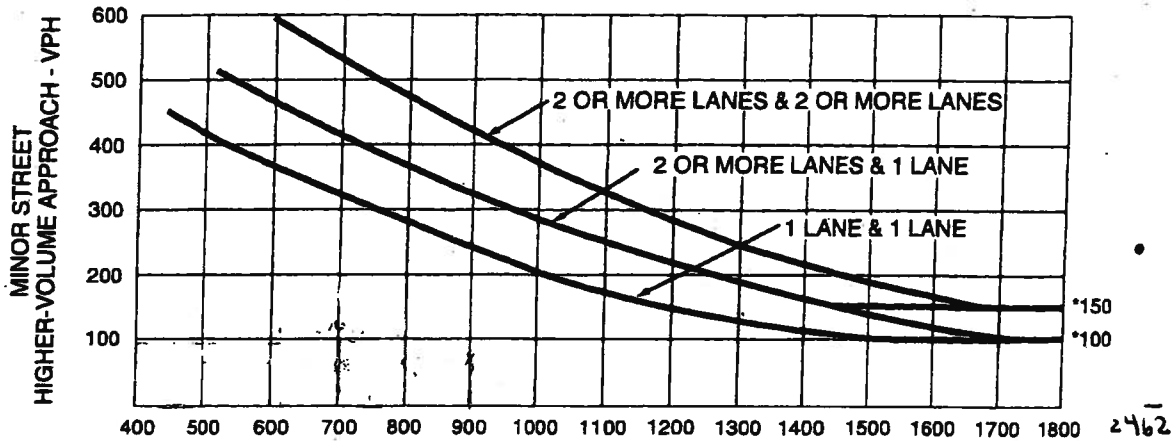
2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave. @ NB Ramp

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

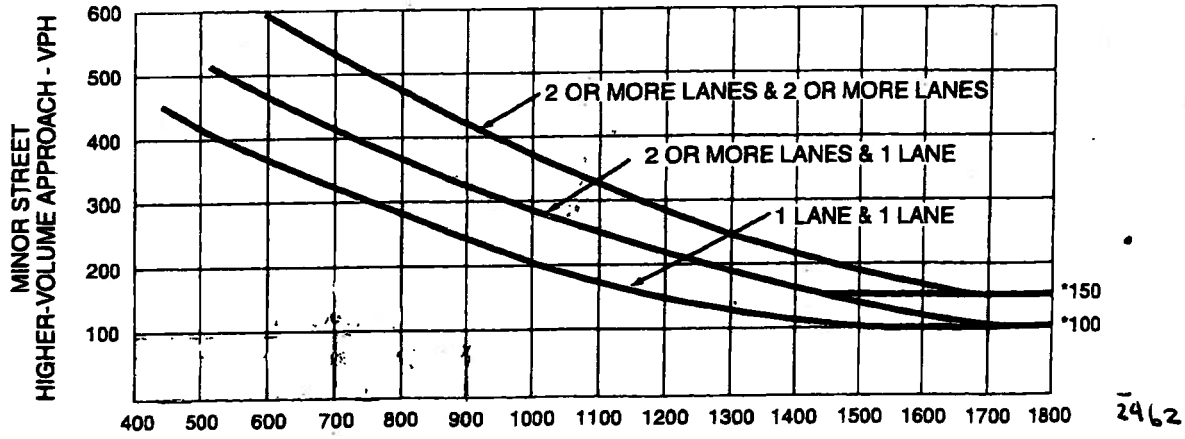
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

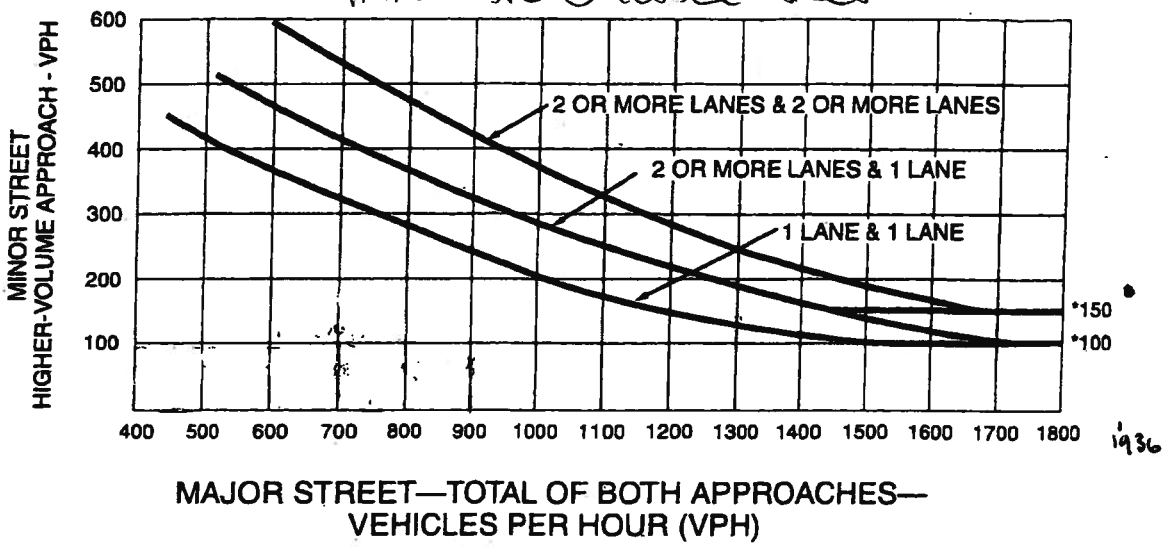
2030 w/out project

Figure 4C-3. Warrant 3, Peak Hour

Mason Ave. @ Coffee Street

AM

yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

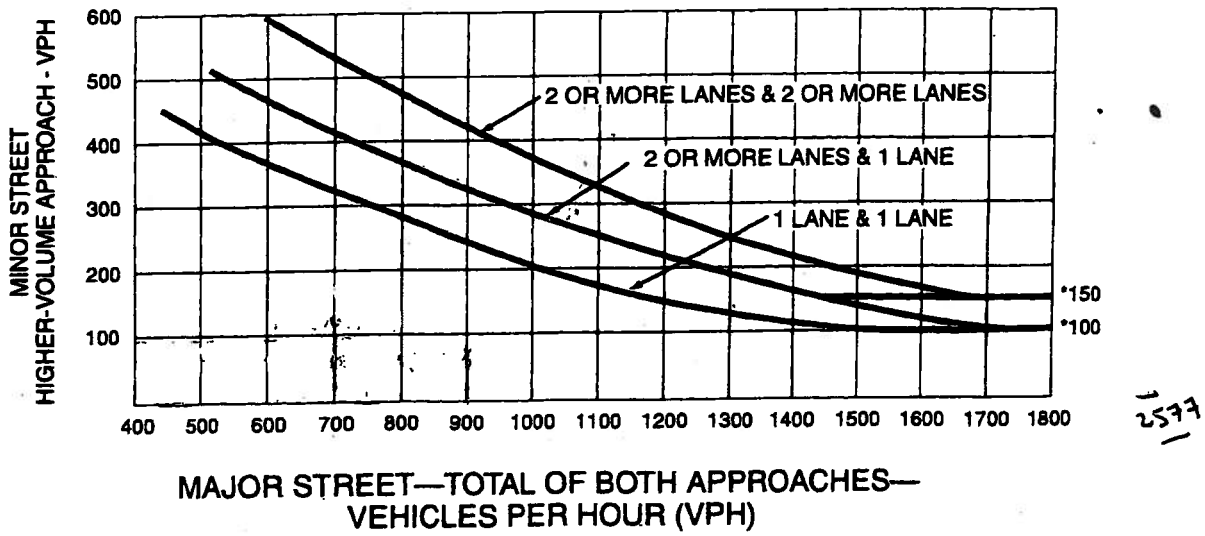
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 Cumulative with Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DR** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DR** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No	[ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	☒	No	☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes	☐	No	☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street		X		
Higher Approach - Minor Street		X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/ Hour

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **MISSION AVE @ COFFEE ST** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **MISSION AVE @ COFFEE ST** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No [ ]

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	X			
Higher Approach - Minor Street	X			

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

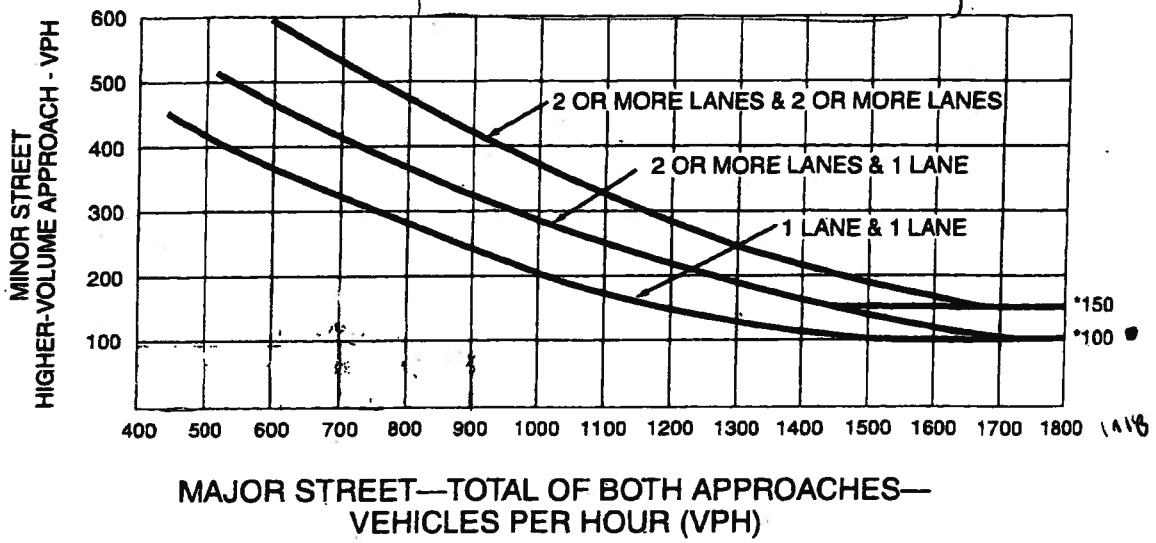
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

SR-140 @ Baker Ave.

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

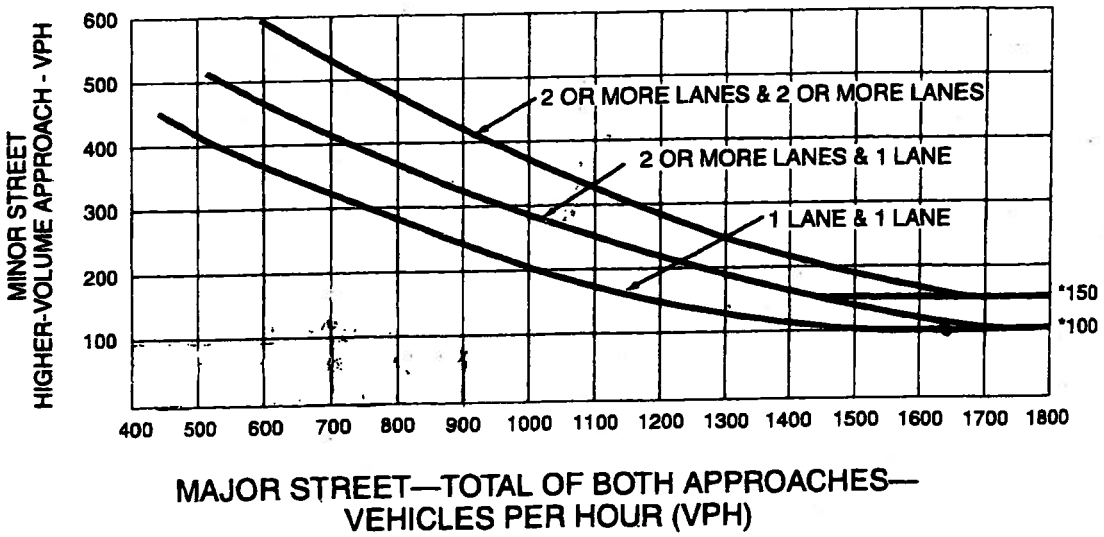
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 w/ Project

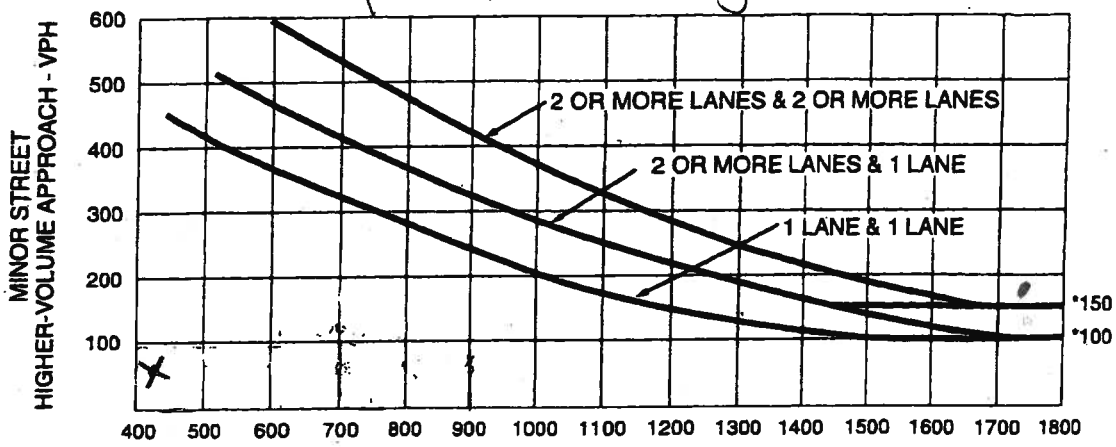
Figure 4C-3. Warrant 3, Peak Hour

[SR-140 @ Kibby]

AM

~~No~~

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

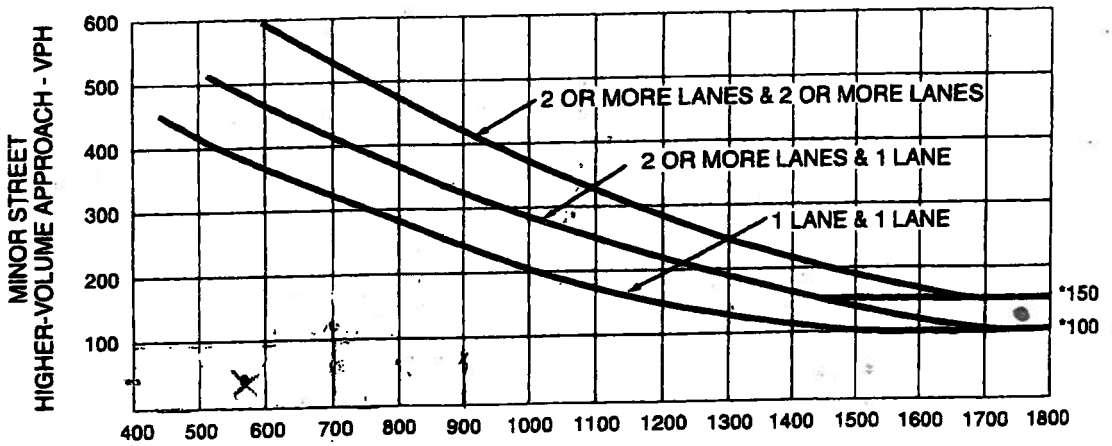
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

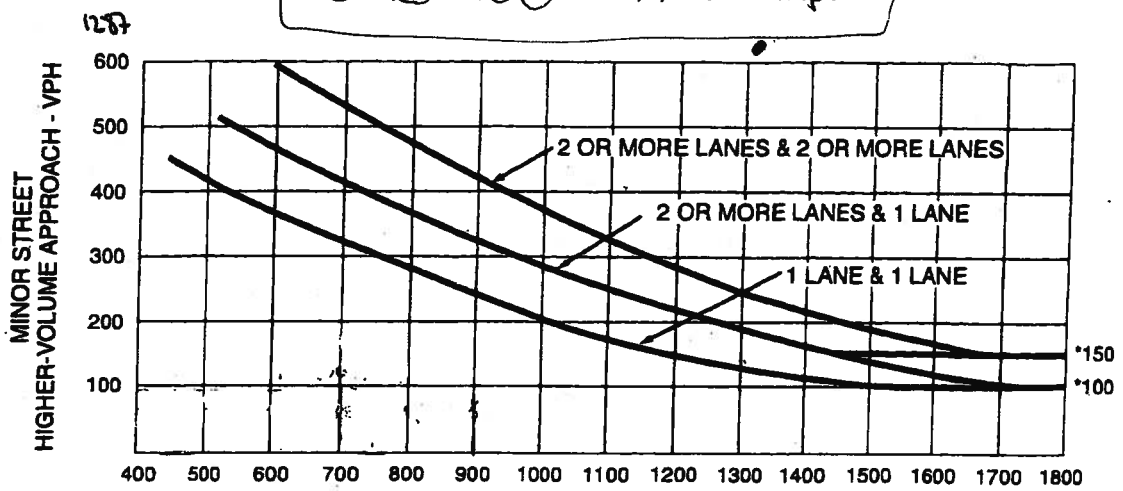
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ SR99 SB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

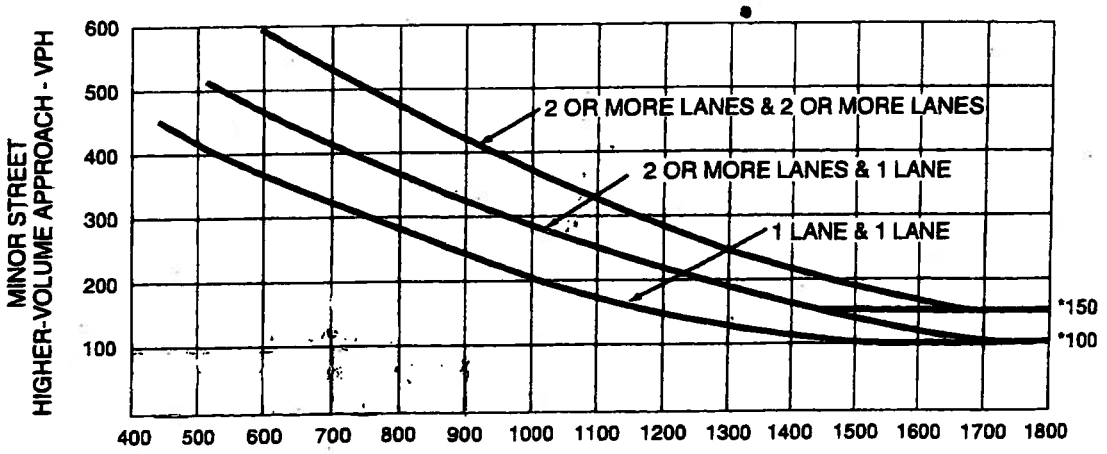
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

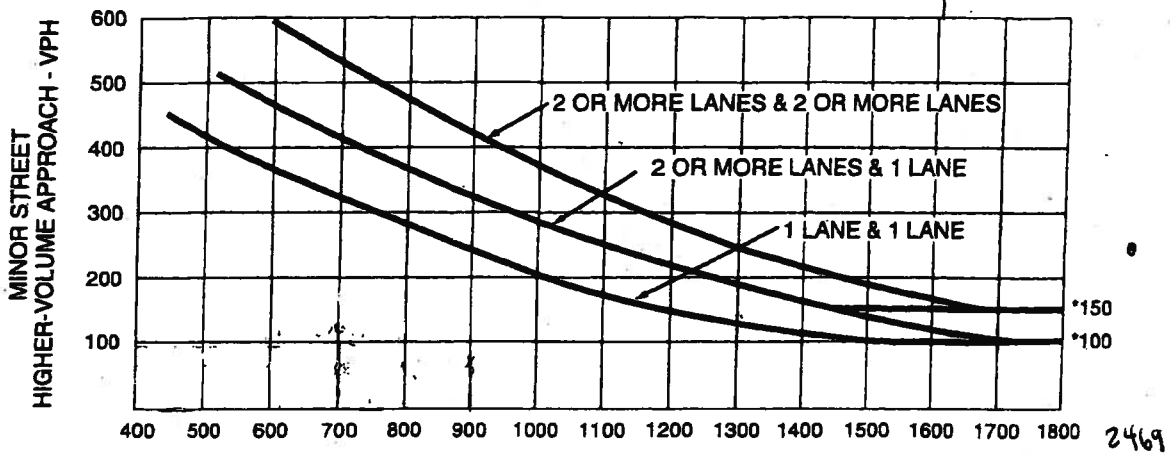
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Child's Ave. @ NB SR-99 Ramp

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

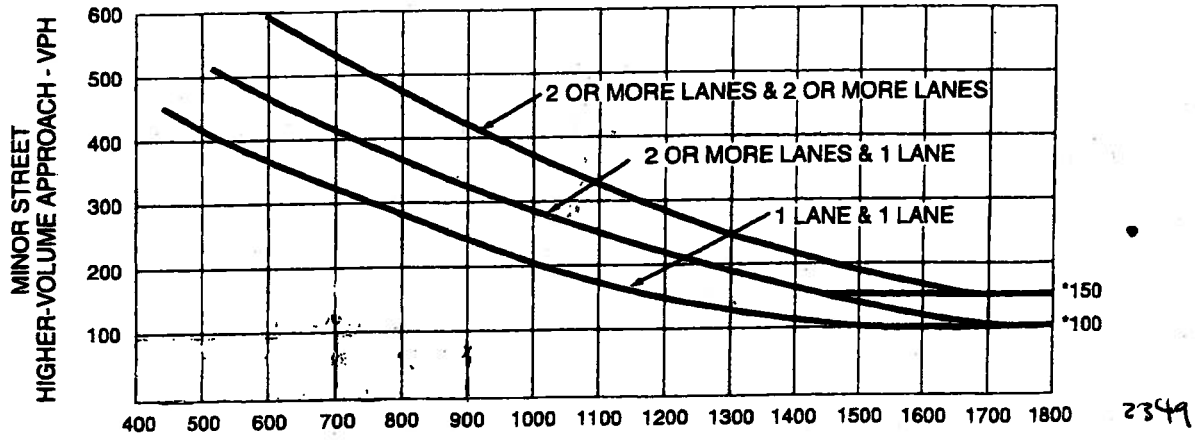
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

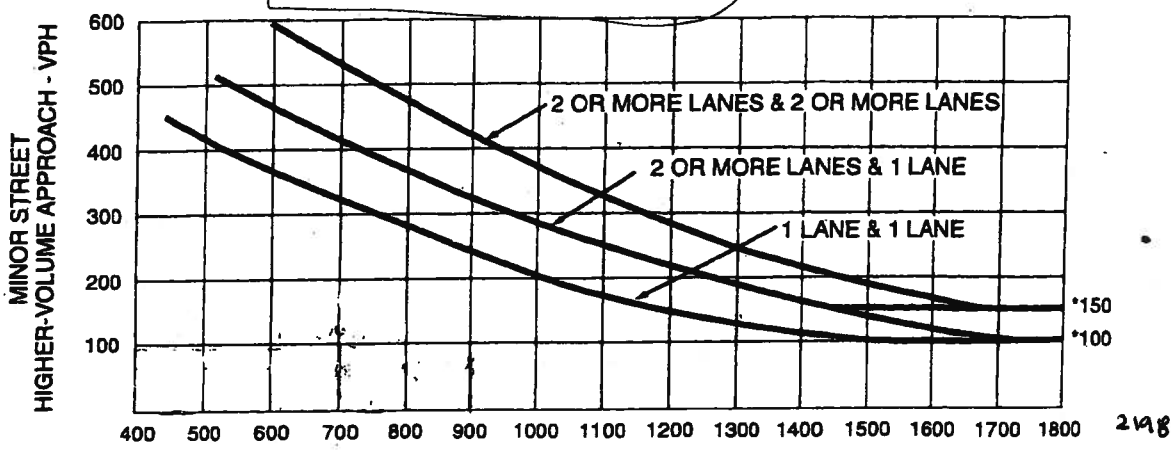
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Mission Ave @ Coffee St.

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

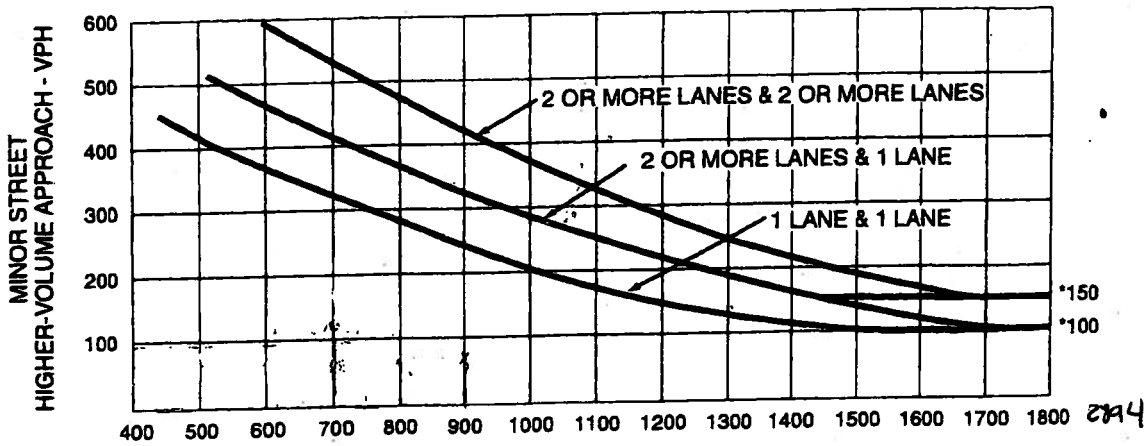
2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes

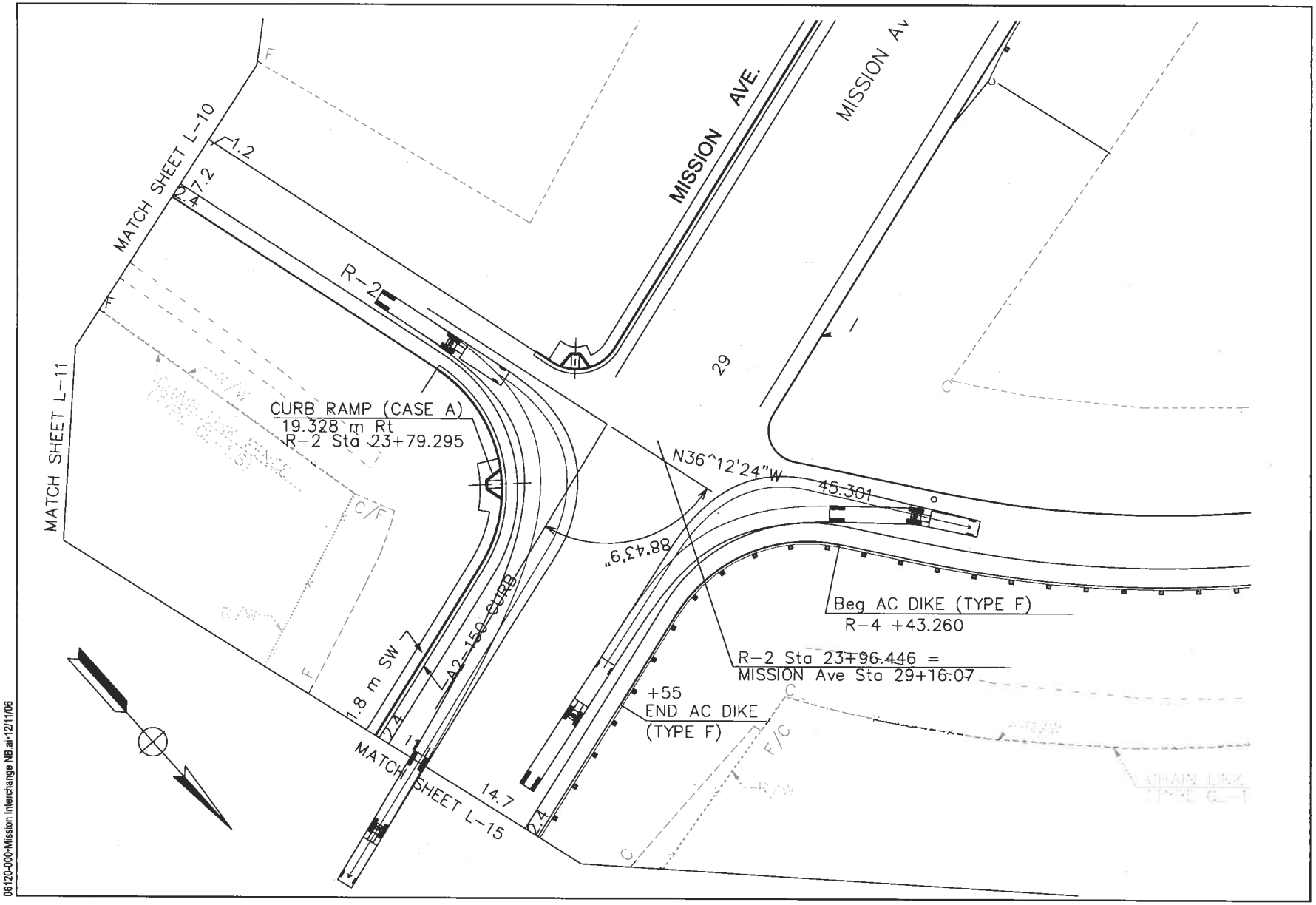


MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

APPENDIX C

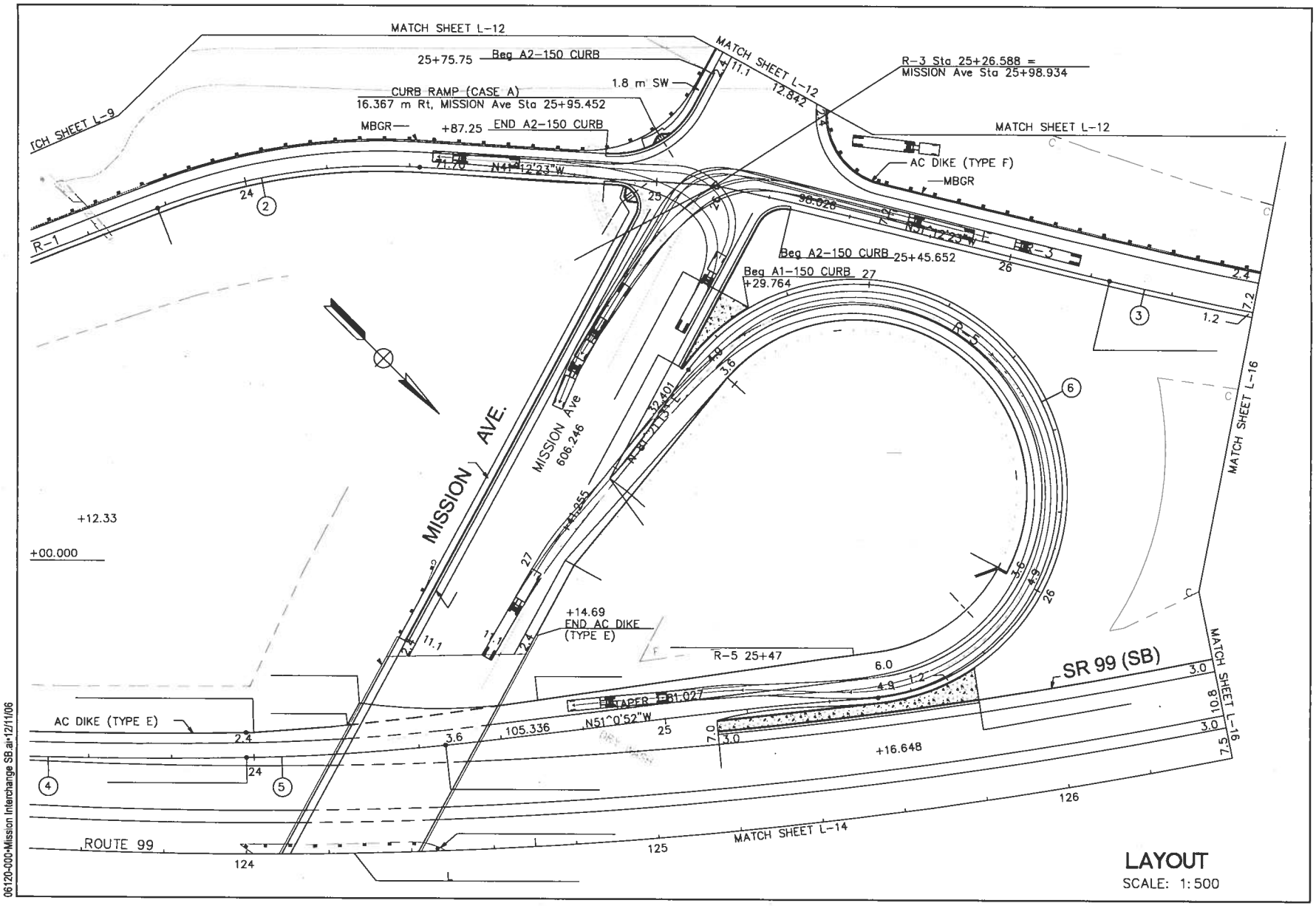
The Illustration of Truck Tunings



06120-000-Mission Interchange NB.ai-12/11/06

DKS Associates
TRANSPORTATION SOLUTIONS

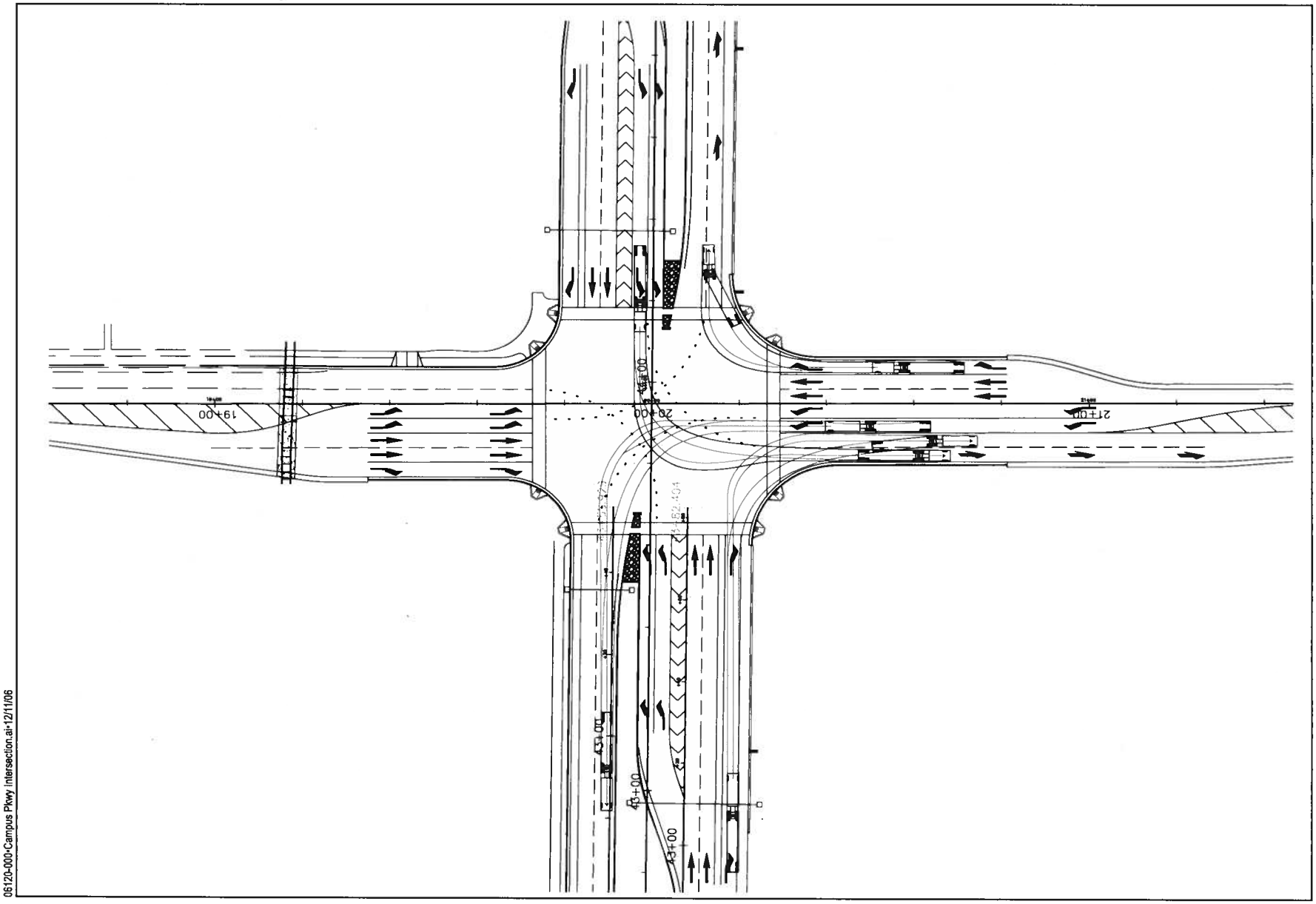
Figure B-3
Mission Interchange (Northbound Ramps)
Truck Turning Path



06120-000-Mission Interchange SB.ai-12/11/06

DKS Associates
TRANSPORTATION SOLUTIONS

Figure B-2
Mission Interchange (Southbound Ramps)
Truck Turning Path



06120-000-Campus Pkwy Intersection.ai-12/11/06

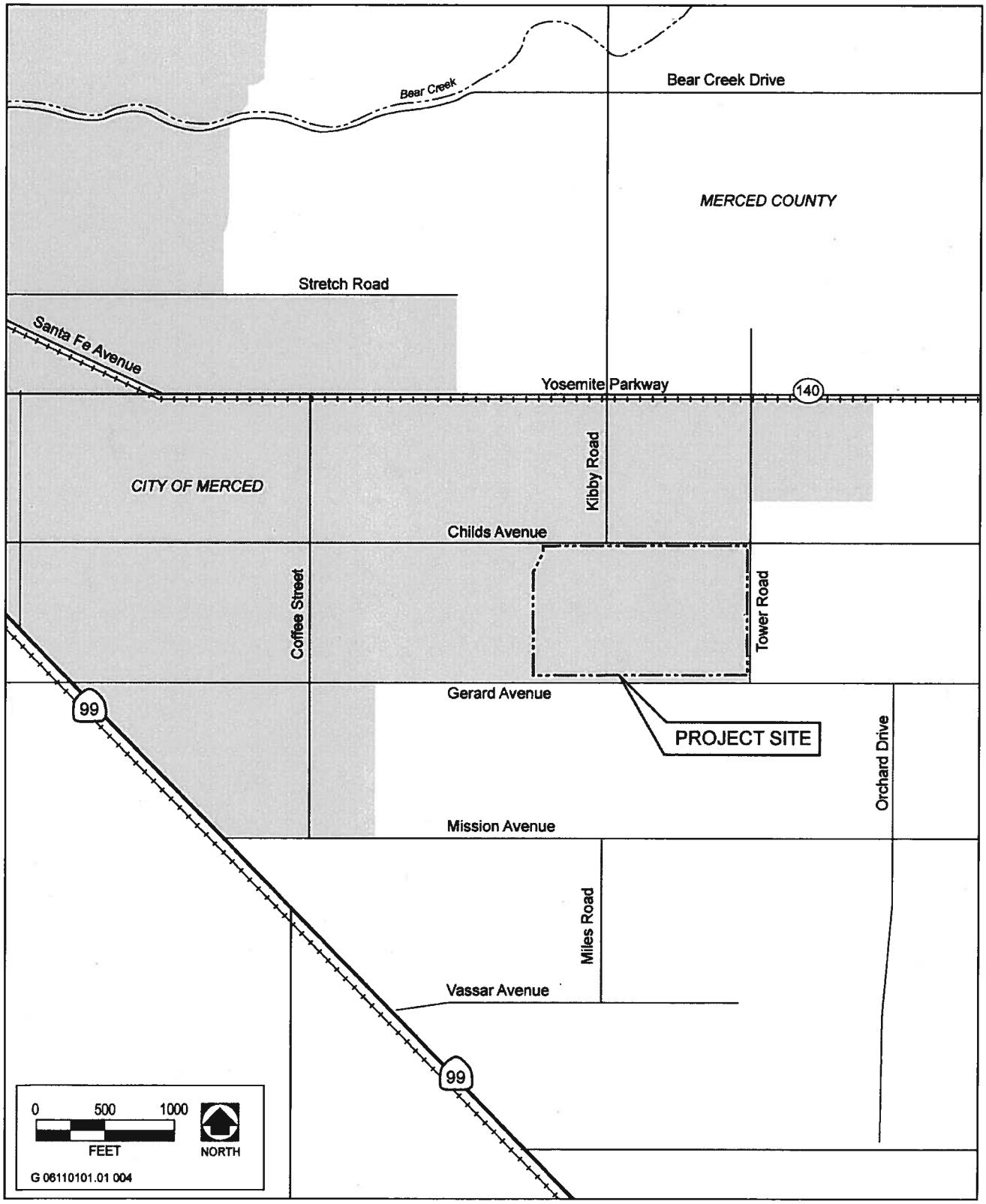
DKS *Associates*
TRANSPORTATION SOLUTIONS

Campus Parkway Intersection
Truck Turning Paths

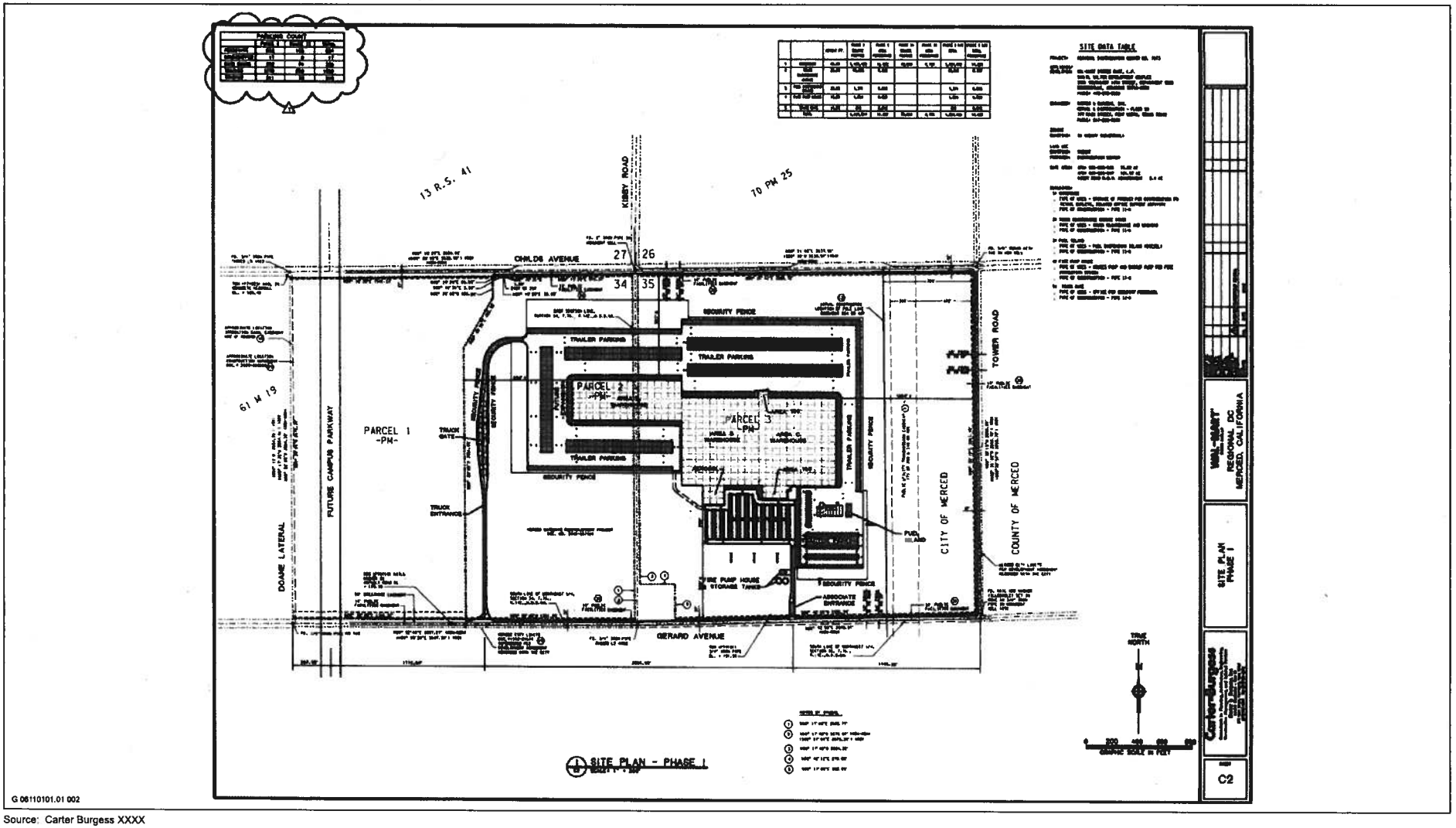
APPENDIX D

Merced Wal-Mart Distribution Center

Project Information



Local Vicinity Map **Exhibit 3-3**



G 06110101.01 002

Source: Carter Burgess XXXX

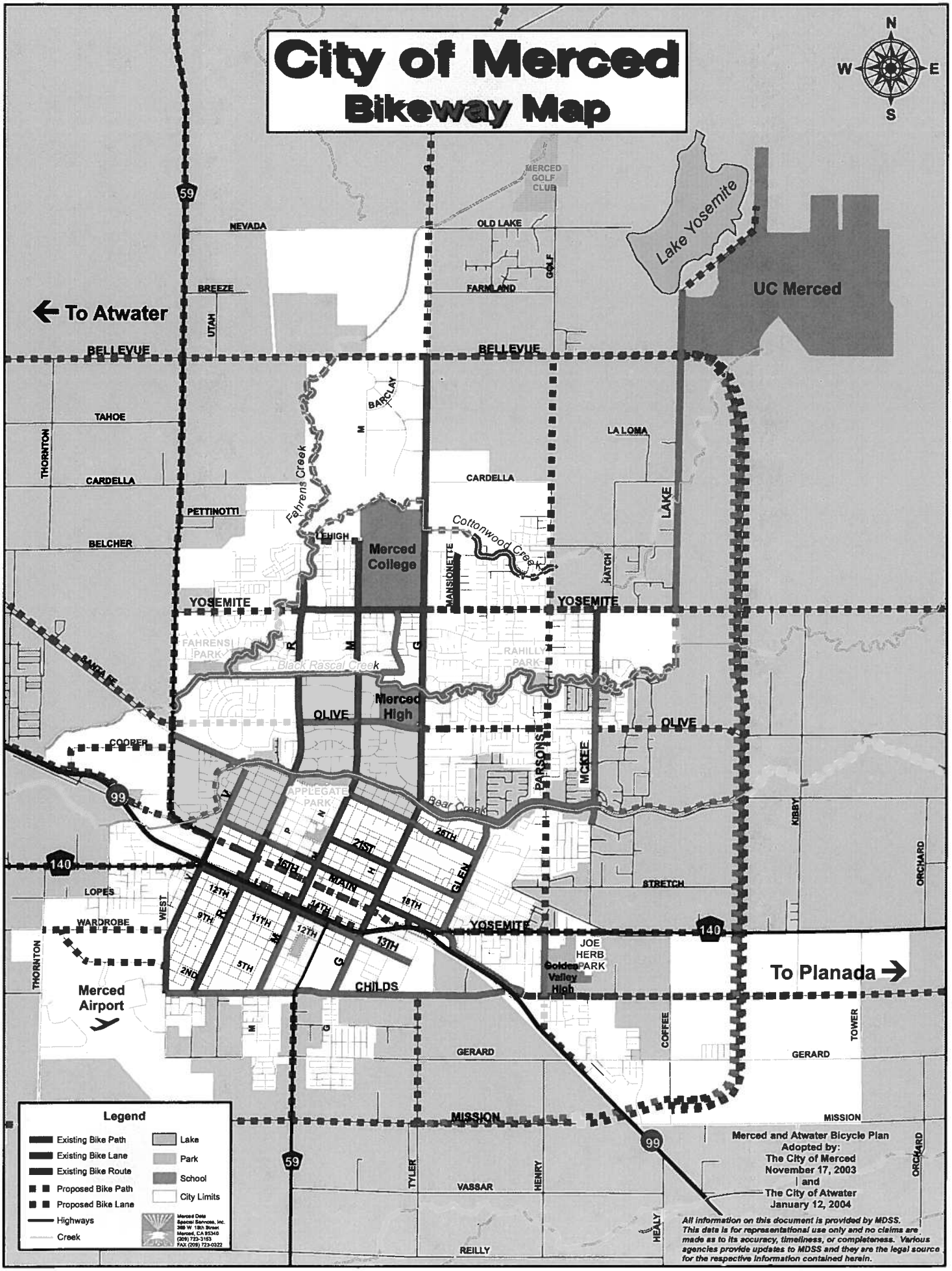
Proposed Project Site Plan

Exhibit 3-1

APPENDIX E

Merced County Association of Governments
The City of Merced Bikeway Map

City of Merced
Bikeway Map



Traffic Impact Analysis (kdAnderson)

TRAFFIC IMPACT ANALYSIS FOR

MERCED DISTRIBUTION CENTER
Merced, CA

Prepared For:

CARTER & BURGESS, INC.
Attn: Bryant Huckabay, AIA
777 Main Street
P.O. Box 901058
Fort Worth, Texas 76101-2058

Prepared By:

kdANDERSON Transportation Engineers
3853 Taylor Road, Suite G
Loomis, CA 95650
(916) 660-1555

June 29, 2005

Job No. 1281-06

Merced Distribution May 05.rpt

KDAnderson
Transportation Engineers

TRAFFIC IMPACT ANALYSIS FOR
MERCED DISTRIBUTION CENTER
Merced, CA

TABLE OF CONTENTS

EXISTING SETTING 1
- Existing Street and Highway System 1
- Study Intersections 4
- Existing Traffic Volumes 4
- Level of Service Calculation 6
- Current Intersection Levels of Service 9
- Traffic Signal Warrants 10
- Roadway Segment Levels of Service 10
- Pavement Condition / Design Issues 11

YEAR 2010 BACKGROUND CONDITIONS 11
- Methodology 11
- Year 2010 Background Conditions 12

PROJECT IMPACTS 15
- Project Characteristics 15
- 2010 Plus Project Conditions 17

YEAR 2030 BACKGROUND CONDITIONS 20
- 2030 No Project Conditions 20
- 2030 Plus Project Conditions 23

MITIGATION REQUIREMENTS 26
- Mitigation Alternatives 26

June 29, 2005

KDA

TRAFFIC IMPACT ANALYSIS FOR MERCED DISTRIBUTION CENTER
Merced, CA

This report summarizes **kdANDERSON Transportation Engineers** assessment of the traffic impacts and mitigation requirements associated with development of the **Merced Distribution Center** near Merced, California. The proposed project involves acquisition of a 222-acre site and the development of site improvements to accommodate a 1,250,000 sf regional distribution center that may handle 1,200 trucks per day and employ up to 900 persons on a 24-hour schedule.

The site is immediately east of State Route (SR) 99, an important regional facility that connects the site with the balance of northern and southern California, as shown in Figure 1. Access to the freeway occurs in the southern Merced area at two full interchanges (SR 140 and Childs Avenue) and at two at grade connections onto Northbound SR 99 (Gerard Avenue and Mission Avenue). Direct access to the project site is expected via Kibby Road, Childs Avenue and Gerard Avenue, three local Merced streets that link the site with SR 140 (Yosemite Parkway) and with SR 99. This study presents the potential impacts of the project under conditions anticipated with a new Mission Avenue interchange and Campus Parkway running parallel to the existing Coffee Street north across SR 140 into the UC campus area.

EXISTING SETTING

This report section describes the circulation system in the area of the project and assesses current peak hour traffic operations in this area of Merced.

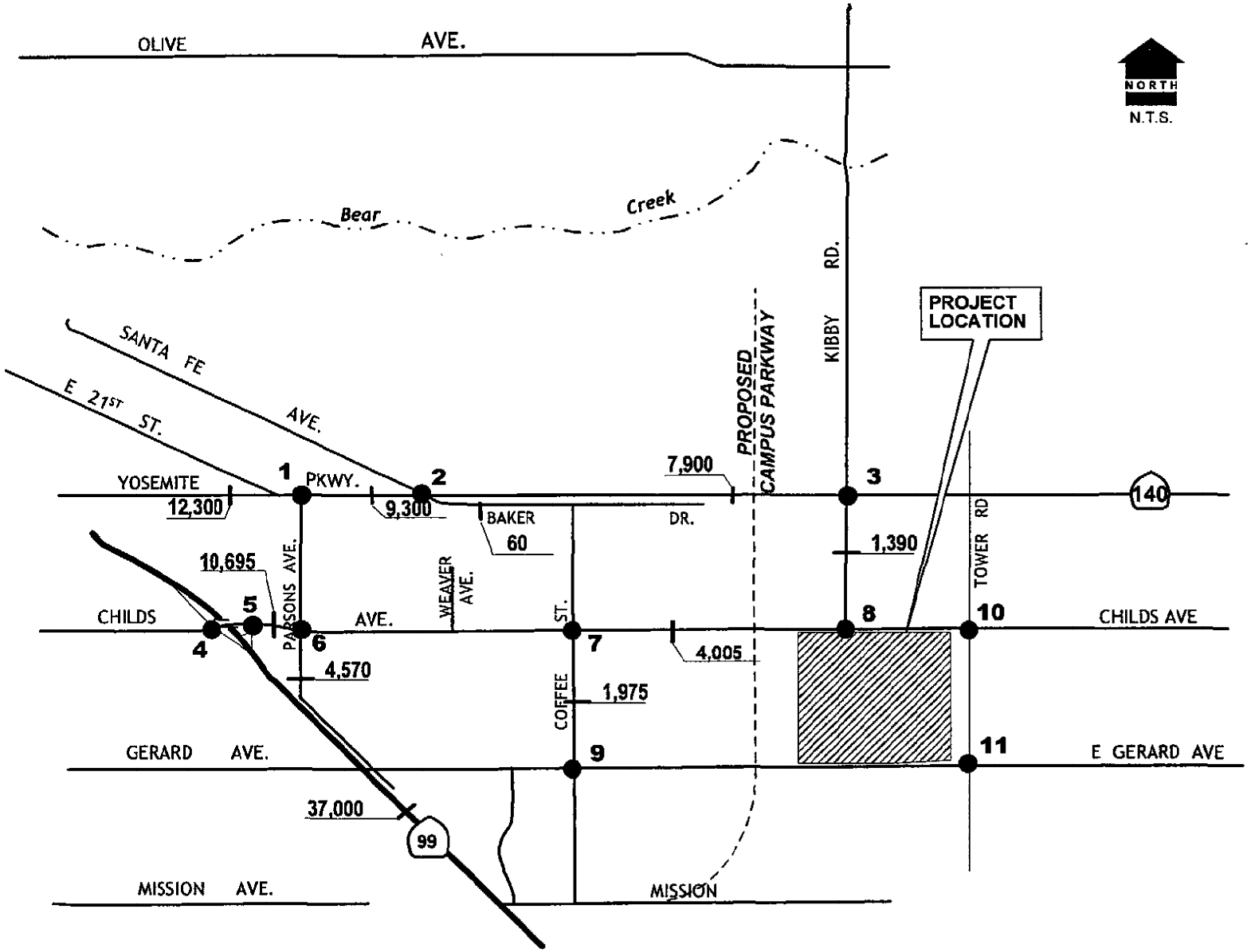
Existing Street and Highway System

State Highways, City of Merced Streets and Merced County roads will be used to access the site. The project site lies immediately east of SR 99 and south of SR 140 (Yosemite Parkway) in the unincorporated area Merced County immediately east of the City of Merced. The site could be developed with local access via Kibby Road, Childs Avenue or Gerard Avenue. The site has access to SR 99 via the Childs Avenue and SR 140 interchanges which are about two miles west of the project site, as well as the proposed Mission Avenue interchange. Access to SR 140 is available via Kibby Road and Parsons Avenue, and to a limited extent via Baker Drive.

The text that follows describes these facilities.

State Route 99 is the primary north-south transportation corridor through Merced County. It is a four-lane freeway through the City of Merced but is a four lane limited access expressway in the area south of Childs Avenue. Caltrans maintains a regular traffic count program for state highways and reports both average and seasonal peak traffic volumes. The most recent information published by Caltrans reveals that the highway currently carries daily traffic volumes of 39,000 ADT north of the SR 140 interchange and 37,000 ADT in the expressway area south of Merced. Trucks comprise 25% of the traffic on SR 99.

KDA



KD Anderson
Transportation Engineers

INTERSECTION INDEX AND
EXISTING DAILY TRAFFIC VOLUMES

1281-06 6/28/2005

figure 1

KDA

The condition of SR 99 is an important consideration in the current planning for the City of Merced, as the need to close existing at-grade connections and bring the facility up to full freeway standards is understood by the City and the California Department of Transportation (Caltrans). However, while this work is included in the current Regional Transportation Plan, funding is uncertain due to the current state budget crisis.

State Route 140 (Yosemite Parkway) is a key east-west facility extending in the study area from SR 99 east to from Merced to Mariposa County and Yosemite Park. SR 140 is a two-lane roadway. Railroad tracks exist on the south side of SR 140 easterly from the Sante Fe Avenue intersection. As a result, access to the local street system from the south is limited to a signalized intersection at Parsons Avenue and to unsignalized intersections at Kibby Road and Baker Drive. The existing daily traffic volume on SR 140 in the project area is 12,300 west of Parsons Avenue and 7,900 ADT in the area of Kibby Road. Trucks comprise about 4% to 6% of the current daily traffic on SR 140.

Childs Avenue is a two-lane collector road that extends from West Avenue west of SR 99 easterly through the study area. This road provides access to SR 99 at a full access interchange west of the project site. Childs Avenue carries about 10,695 ADT just east of SR 99 and 3,690 ADT in the area of the proposed project. Classifying counts conducted for this study revealed that trucks comprise about 8% of the traffic on Childs Avenue near the project site.

Two schools are located along Childs Avenue. Golden Valley High School is located on the northeast corner of the Childs Avenue / Parsons Avenue intersection, while Weaver Elementary School is on the northeast corner of the Childs Avenue / Coffee Street intersection

Gerard Avenue is a two lane minor road that extends easterly from an at-grade connection on northbound SR 99 to the project site. Gerard Avenue carries about 3,500 ADT east of the Parsons Avenue intersection and less than 500 ADT east of Coffee Street.

Pioneer Elementary School is located on the southwest corner of the Gerard Avenue / Coffee Street intersection.

Parsons Avenue is a two lane north-south arterial street that connects SR 140 to Childs Avenue and continues southerly along the east frontage of SR 99 to its terminus south of Gerard Avenue. Signalized intersections on Parsons Avenue in the study area exist at SR 140 and Childs Avenue.

Coffee Street is a two lane rural north-south road that extends southerly from Baker Drive to Mission Avenue. The existing daily traffic volume on Coffee Street is about 1,465 ADT.

Kibby Road is a rural north-south road immediately north of the project site that extends from Childs Avenue north to Yosemite Avenue. The current daily traffic volume on Kibby Road is 1,390 ADT. Trucks comprise 8% of this total.

A truck terminal (McClane) exists on the northeast corner of the Childs Avenue / Kibby Road intersection. Truck scales for this business are located on Kibby Road midway between SR 140 and Childs Avenue.

KDA

Baker Drive is a rural east-west minor road south of and running parallel to SR 140. Baker Drive passes under the SR 140 via a narrow connection in the area of the BNSF railroad overcrossing and terminates at a tee intersection on the north side of SR 140 near Sante Fe Avenue. The current daily traffic volume is less than 1,000 ADT.

Mission Avenue is a rural east-west minor road in the southern portion of the study area. Its western terminus is at SR 99, where at grade access is available for northbound and westbound right turn movements. Existing ADT is less than 1,000.

Study Intersections

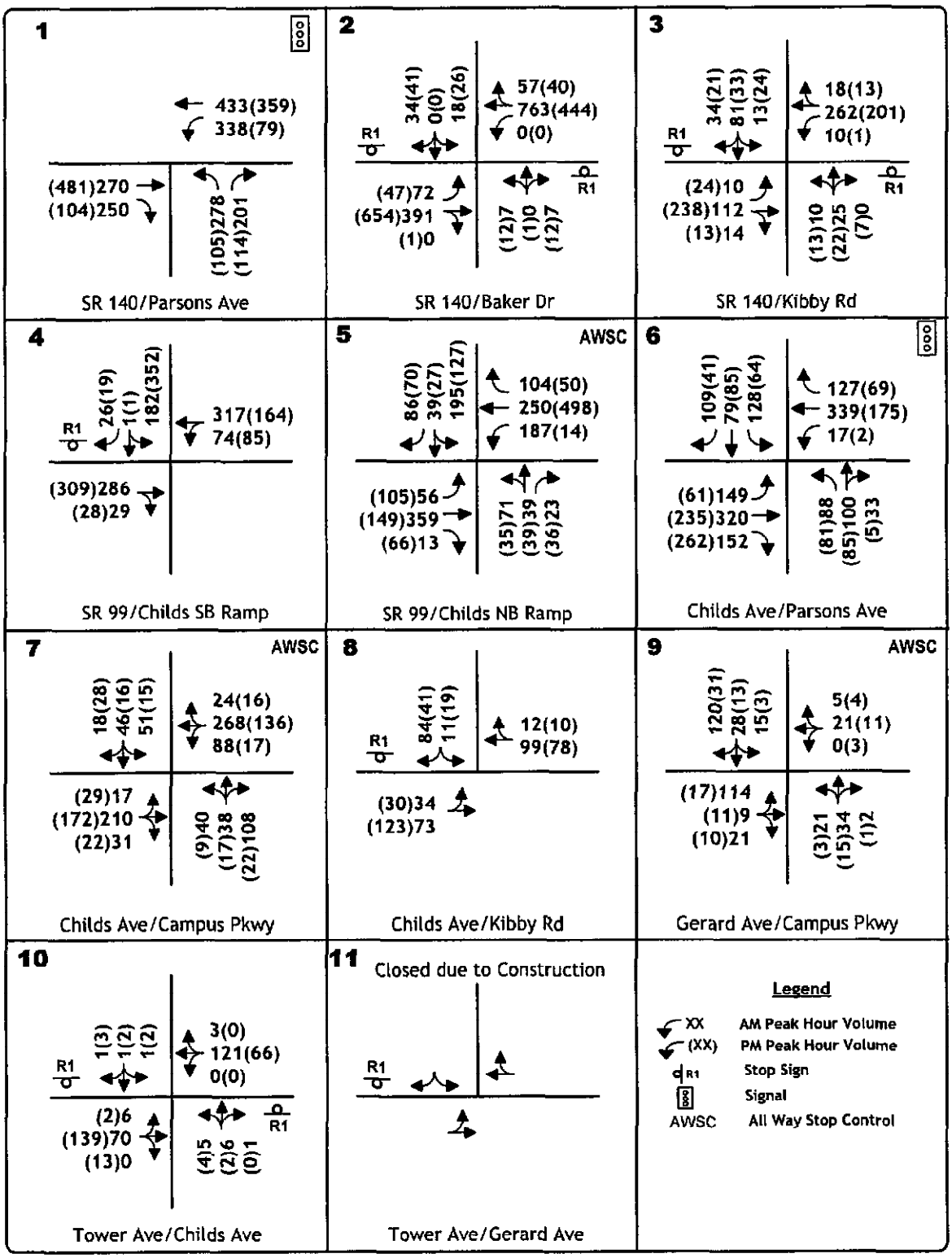
Because the overall quality of traffic flow is generally governed by the operation of major intersections, the operation of fifteen (11) existing intersections were addressed, including:

1. Yosemite Parkway (SR 140) / Parsons Avenue (traffic signal)
2. Yosemite Parkway (SR 140) / Baker Drive (SB Stop)
3. Yosemite Parkway (SR 140) / Kibby Road (NB / SB Stops)
4. Childs Road / SR 99 Southbound Ramp (SB stop)
5. Childs Road / SR 99 Northbound Ramp / Motel Drive (All Way Stop)
6. Childs Avenue / Parsons Avenue (traffic signal)
7. Childs Avenue / Coffee Street (All Way Stop)
8. Childs Avenue / Kibby Road (SB stop)
9. Gerard Avenue / Coffee Street (All Way Stop)
10. Tower Avenue / Childs Avenue (NB / SB Stop)
11. Tower Avenue / Gerard Avenue (SB Stop)

Existing Traffic Volumes

To quantify existing traffic conditions, new a.m. and p.m. peak hour traffic counts were made by the consultant in March 2005 to supplement available data collected in December 2003. The peak hours were selected as being representative of "Worst Case" background traffic conditions. These new peak hour counts are presented in the Appendix and are summarized in Figure 2. This figure also presents the current geometric layout of study area intersections.

KDA



KD Anderson
Transportation Engineers

EXISTING TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

1281-06 6/28/2005

figure 2

KDA

Level of Service Calculation

To quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic, "Levels of Service" were determined at study area intersections and on individual roadway segments.

"Level of Service" (LOS) is a quantitative measure of traffic operating conditions whereby a letter grade "A" through "F" is assigned to an intersection. LOS "A" through "F" represents progressively worsening traffic conditions. The characteristics associated with the various LOS for intersections are presented in Table 1. LOS "E" and "F" are associated with severe congestion and delay and are unacceptable to most motorists. The City of Merced designates LOS D as their minimum standard, consistent with General Plan policy.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10.0 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 60.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: 2000 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.			

KDA

Methodology. To quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic, "Levels of Service" were determined at study area intersections. Levels of Service (LOS) were calculated for different intersection control types using the respective methods in the following sources.

- **Signalized and Unsignalized Intersections.** Highway Capacity Manual, 2000 (HCM). For this analysis the weighted average delay and Level of Service for all vehicles was the basis for Level of Service at unsignalized intersections.

- **Traffic Signal Warrants.** The need for signalization has been determine based on Warrant No. 11 (Peak Hour Traffic Volume) presented in the *Caltrans Traffic Manual* / and the *Manual of Uniform Traffic Control Devices.*

Signalized Intersections. The methodology employed for determining levels of service at signalized intersections makes use of assumptions regarding traffic volume, intersection geometry and traffic signal timing to suggest the overall average delay per vehicle passing through the intersection. This average delay is compared to the prescribed thresholds to identify the applicable Level of service.

Unsignalized Intersections. The procedure for calculating the level of service at unsignalized intersections is based on the relative availability of gaps in traffic and the delay experienced for each movement that must yield the right-of-way. The number of gaps is a function of the volume and speed of conflicting traffic, type of control (stop or yield), and qualitative intersection geometrics. While the length of average delays and level of service can be calculated for each movement, an overall "weighted" level of service is also calculated for all the traffic passing through the intersection.

Levels of service at unsignalized intersections controlled by side street stops are indicative of the magnitude of the delay incurred by motorists turning at the intersection. However, because these calculations exclude the condition of through traffic flow (which is assumed to flow freely), unsignalized poor level of service is not judged to be significant unless the volume of traffic also satisfies warrants for traffic signals.

While the unsignalized level of service may indicate very long delays for individual movements (i.e., LOS "E") traffic conditions are generally not assumed to be significant unless a significant number of motorists are delayed. For this analysis, the satisfaction of traffic signal warrants has been used to suggest the significance of unsignalized level of service. Although satisfying signal warrants signifies that an intersection has unacceptable operating conditions, it does not mean that installation of a signal is the only way to mitigate those conditions. It is often possible to improve an intersection with additional lanes or improved geometrics so that signalization is not necessary.

Roadway Segment Level of service. The roads within the study area include urban streets and rural roads. As the area develops and is annexed into the City of Merced, the two lane rural roads will be replaced by urban streets as fronting developers improve their property.

KDA

For this analysis, the existing capacity and level of service on Childs Avenue, Kibby Road, Coffee Street and Gerard Avenue have been evaluated as two lane rural roads. Traffic operations on two lane, two-way highways are unique. Lane changing, passing and left turns are possible only in the face of oncoming traffic in the opposing lane. Passing demand increases rapidly as traffic volumes increase, while passing capacity in the opposing lane declines as traffic volumes increase. Motorists are forced to adjust their individual travel speed as volume increases and the ability to pass declines.

The 1997 Highway Capacity Manual presents methodologies for calculating practical capacity and level of service on two lane rural roads. These procedures account for the effects of physical features and traffic characteristics on average travel speed and delay. The resulting capacities and levels of service are expressed in terms of allowable vehicles per hour. As will be evident from the discussions that follow, the practical capacity of two lane rural roads on level terrain can be quite high, as capacities of up to 2,000 Vehicle Per Hour (VPH) could be physically accommodated. However, traffic flow conditions at "near capacity" levels are very poor and are typically described as "stop and go" or "bumper to bumper" conditions. As shown in Table 2, the number of vehicles that can be accommodated under satisfactory levels of service is much less. For this analysis we have assumed that study area roads are classified as "level" terrain.

Alternatively, the capacity and level of service thresholds associated with multi lane urban roads are different from those associated with rural roads. The quality of traffic operations is more closely linked to such factors as the degree of access control and the spacing of signalized intersections. The Merced County Congestion Management Plan (CMP) makes use of daily traffic volume thresholds first created by the Florida Department of Transportation. These thresholds have been applied to Yosemite Parkway and to Parsons Avenue.

TABLE 2
LEVEL OF SERVICE THRESHOLDS

Terrain	Pavement Width	Shoulder Width	Level of Service Threshold				
			A	B	C	D	E
Daily Traffic Volume Thresholds for Urban Streets							
Two Lane Urban Arterial with moderate access control (0.76 to 1.5 signals per mile)			9,000	13,700	14,500	15,300	16,100
Peak Hour Thresholds for rural roads							
Rural Road - two lanes in "Level" terrain	22	0	105	285	510	920	1,965

KDA

Current Intersection Levels of Service

Peak hour levels of service were calculated at the existing study intersections (Refer to Appendix for calculation worksheets) under "Existing - No Project" conditions. The results of these calculations are presented in Table 3. As shown, all intersections currently operate at acceptable levels of service.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	28.5 sec	C	15.1 sec	B
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(1.2 sec)	(A)	(1.2 sec)	(A)
NB approach		15.6 sec	C	14.8 sec	C
SB approach		15.4 sec	C	13.0 sec	C
EB left		6.1 sec	A	0.3 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(4.1 sec)	(A)	(3.0 sec)	(A)
NB approach		13.6 sec	B	13.5 sec	B
SB approach		13.8 sec	B	13.6 sec	B
EB left		7.8 sec	A	7.7 sec	A
WB left		7.5 sec	A	7.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(6.8) sec	A	(26.1 sec)	(C)
SB approach		26.7 sec	D	65.3 sec	F
WB left		8.1 sec	A	8.2 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	23.0 sec	C	31.8 sec	D
Childs Avenue / Parsons Ave	Signal	26.8 sec	C	22.5 sec	C
Childs Ave / Coffee St	AWSC	12.7 sec	B	8.6 sec	A
Childs Ave / Kibby Rd					
(overall)	SB Stop	(3.7 sec)	(A)	(2.6 sec)	(A)
SB approach		9.4 sec	A	9.5 sec	A
EB left		7.5 sec	A	7.4 sec	A
Gerard Ave / Coffee St	AWSC	8.0 sec	A	7.0 sec	A
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		4.3 sec	A	4.6 sec	A
SB approach		4.0 sec	A	3.8 sec	A
EB left		0.2 sec	A	2.3 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave Note: Intersection Closed for Construction at time of counts	N/A	N/A	N/A	N/A	N/A

KDA

Traffic Signal Warrants

Unsignalized Intersections and 4-Way Stop Intersections were analyzed to determine whether or not they meet Peak Hour Signal Warrants according to the *Manual of Uniform Traffic Control Devices (MUTCD 2000, Section 4C.04 Warrant 3, Peak Hour).* This methodology states the Peak Hour Warrant is met if all three of the following conditions are determined:

The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and;

The volume of the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and;

The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

None of the unsignalized study intersections meet the Peak Hour Signal Warrant under existing conditions.

Roadway Segment Levels of Service

Levels of Service have been calculated based on daily and weekday peak hour traffic volumes on individual segments of urban and rural study area roads, respectively. These volumes and the applicable Level of service are presented in Table 4. As shown, all segments carry traffic volumes that are indicative of LOS D or better conditions.

TABLE 4
EXISTING ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	12,300 ADT	B
	Parsons Avenue to Sante Fe Ave	15,300 ADT	9,300 ADT	A
	Sante Fe Ave to Kibby Rd	920 vph	510 vph	C-D
Coffee Street	Baker Dr to Childs Ave*	920 vph	57 vph	A
	Childs Ave to Gerard Ave	920 vph	41 vph	A
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,570	A
Kibby Rd	SR 140 to Childs Ave	920 vph	89 vph	A
Baker Drive	Coffee St to SR 140	15,300 ADT	1810 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	3,890	A
	Coffee St to project	920 vph	33 vph	A

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

KDA

Pavement Condition / Design Issues

While a complete evaluation of the condition of the roads in the study area is beyond the scope of this study, our field review did reveal several locations where existing pavement deficiencies could be expected to be exacerbated by truck traffic.

Pavement Conditions. The condition of pavement on **Yosemite Parkway** is good and would not be expected to represent a constraint to site access. Pavement conditions on the rural roads in the area of the project vary. **Chiles Avenue** varies in width from 24 feet to 32 feet in the area where fronting development has completed frontage improvements. The pavement is in fair condition, but no major deficiencies were observed. **Kibby Road** has a paved width of about 32 along the McLane Distribution frontage, and the pavement is in fair condition.

YEAR 2010 BACKGROUND CONDITIONS

Background

The City of Merced has been actively planning for the development of the community as a whole and the study area in particular. In the study area, the most significant issue is the development of **Campus Parkway** and the **SR 99 / Mission Avenue Interchange.** As shown in Figure 1 these facilities are immediately adjacent to the proposed project site. Campus Parkway is intended to provide important access to the new UC Merced Campus and to the developing area north of Merced. In concert with the **Castle Parkway** between Merced and Atwater, these facilities are intended to create a "ring road" that will relived internal Merced Street as well as SR 99 through the community.

For the purposes of this study, the Mission Avenue interchange and Campus Parkway are assumed under 2010 conditions. The Campus Parkway is only assumed to be construction to Childs Avenue within this time period. It should be noted that due to current statewide funding constraints for transportation improvements, these projects may not be developed by year 2010.

Methodology

To develop the Year 2010 traffic volumes, the Merced County Association of Governments (MCAG) travel demand forecast model was used along with specific projects identified by the City of Merced anticipated to develop within this time frame. The model contains land use development levels consistent with adopted General Plans for Cities in the County as well as for development in rural community plan areas. The model was modified to include several residential projects in the study area. Those projects are the Renaissance and Renaissance 2, Sandcastle, Franco (Weaver Annexation), Tuscany and Tuscany East, Hartley Crossings, and Starlight Estates projects. City staff provided unit counts for these projects, and the status of construction for each project.

KDA

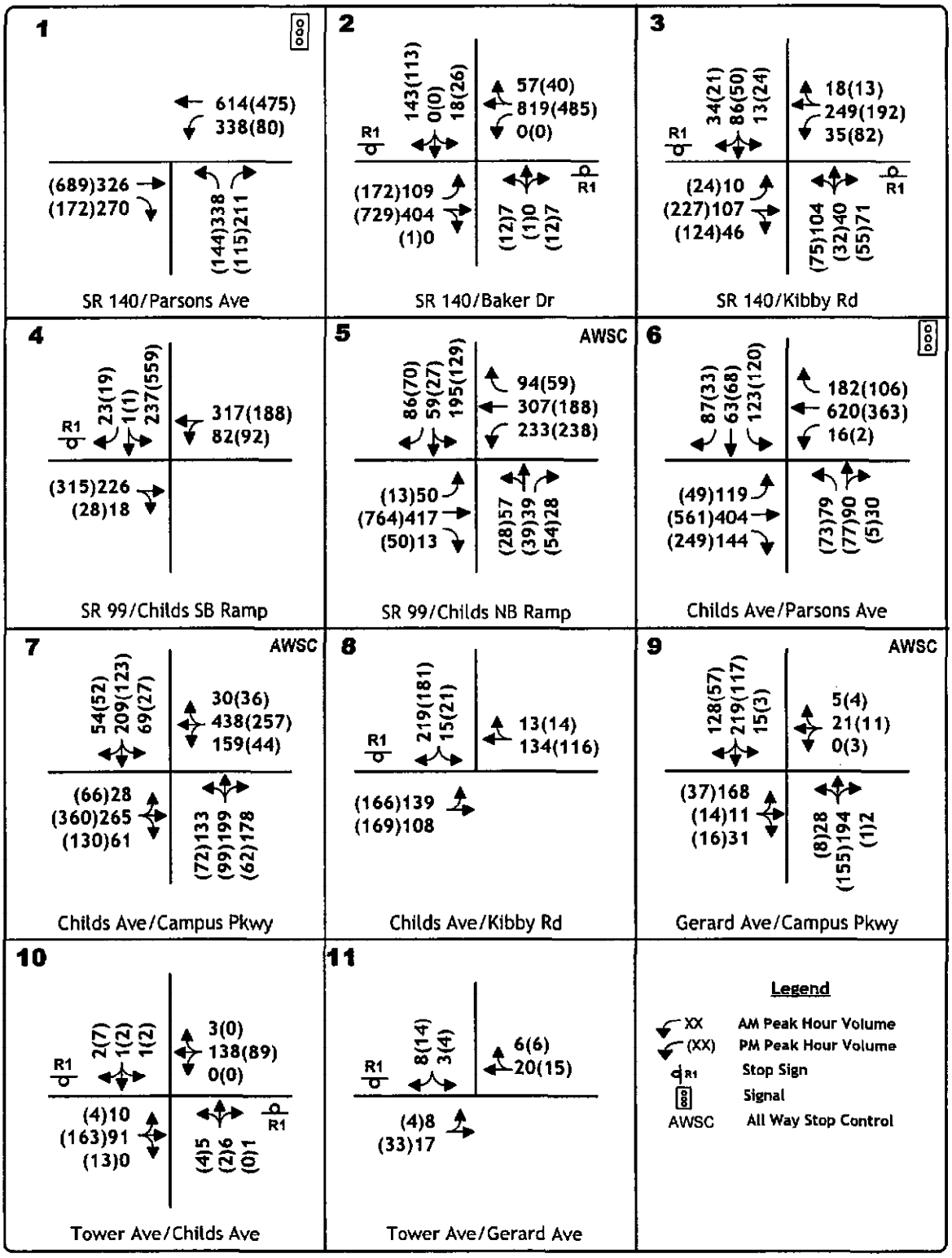
The undeveloped components of these projects were added to the MCAG transportation model and new traffic projections were developed for this study. Growth rates derived from the model runs were applied to create the 2010 background peak hour condition. Additional adjustment to the "raw" model forecast was performed to reflect the inclusion of the proposed Mission Avenue interchange and parkway. For this analysis, the majority of trips on Coffee Avenue area expected to shift to the Campus Parkway. As a base condition, the Campus Parkway was assumed initially to provide two through lanes, with traffic signals and turning lanes at intersections at Childs Avenue and Gerard Avenue.

Year 2010 Background Conditions

Background year 2010 peak hour traffic volumes are depicted in Figure 3. The resulting intersection levels of service under these conditions are identified in Table 5, while year 2010 roadway levels of service are listed in Table 6.

As shown, anticipated traffic growth will lead to poor traffic conditions at two locations, even with the construction of the Mission Avenue interchange and Campus Parkway. Both ramp intersections at SR 99 / Childs Avenue will operate at LOS F under 2010 no project conditions. Peak hour traffic signal warrants are projected to be met in at both locations in 2010 with or without the project.

The traffic volumes on most study area roads will remain below the City's LOS D threshold, but the volume on SR 140 between SR 99 and Parsons Avenue will marginally exceed the level of service standard.



KD Anderson
Transportation Engineers

EXISTING PLUS APPROVED PROJECTS TRAFFIC VOLUMES AND LANE CONFIGURATIONS

1281-06 6/28/2005

figure 3

KDA

TABLE 5
YEAR 2010 BASELINE INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	30.6 sec	C	16.1 sec	B
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(2.7 sec)	(A)	(2.5 sec)	(A)
NB approach		27.7 sec	C	27.0 sec	D
SB approach		17.5 sec	C	15.8 sec	C
EB left		7.1 sec	C	1.0 sec	A
WB left		N/A	N/A		N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(7.6 sec)	(A)	(7.0 sec)	(A)
NB approach		17.5 sec	C	22.1 sec	C
SB approach		15.4 sec	C	21.0 sec	C
EB left		7.8 sec	A	7.7 sec	A
WB left		7.6 sec	A	8.2 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(10.2) sec	B	(>100 sec)	(F)
SB approach		32.7 sec	D	>100 sec	F
WB left		7.9 sec	A	8.1 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	35.3 sec	E	>100 sec	F
Childs Avenue / Parsons Ave	Signal	23.3 sec	C	18.2 sec	B
Childs Ave / Campus Parkway	Signal	29.6 sec	C	24.2 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(5.8 sec)	(A)	(5.3 sec)	(A)
SB approach		10.9 sec	B	11.0 sec	B
EB left		7.8 sec	A	7.8 sec	A
Gerard Ave / Campus Parkway	Signal	21.5 sec	B	14.0 sec	B
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		4.6 sec	A	4.9 sec	A
SB approach		3.9 sec	A	3.7 sec	A
EB left		0.3 sec	A	2.3 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave	SB Stop				
(overall)		0.9 sec		(0.9 sec)	A
SB approach		3.0 sec		2.9 sec	A
EB left		2.2 sec		2.2 sec	A

KDA

TABLE 6
YEAR 2010 ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	15,480 ADT	D-E
	Parsons Avenue to Sante Fe Ave	15,300 ADT	14,890 ADT	D
	Sante Fe Ave to Kibby Rd	920 vph	510 vph	C-D
Campus Parkway	Mission Ave to Childs Ave**	15,300 ADT	9,500 ADT	B
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,220 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	380 vph	C
Baker Drive	Coffee St to SR 140	15,300 ADT	3,270 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	3,870 ADT	A
	Coffee St to project	920 vph	43 vph	A

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

PROJECT IMPACTS

Project Characteristics

Trip Generation. To quantify the number of vehicular trips generated by the proposed project, information was employed by the project proponent regarding the possible range of truck / employee activity to and from the site (refer to Regional Distribution Center (RDC) Traffic Data in the Appendix).

This analysis assumes that the proposed project is a Regional Distribution Center (RDC) with a Center Point. For this analysis 600 trucks were assumed to access the site each day (1,200 trips), with this traffic spread over a 24-hour day.

The site is expected to employ a maximum of 900 persons working three shifts throughout the week. About 72% of the employment would be persons working typical weekday (Tuesday through Friday) shifts. A portion of the employee count (18%) is persons that are not assigned to the 1st, 2nd or weekend shifts. For this analysis we have conservatively assumed that these employees arrive and depart during the a.m. and p.m. peak hour.

Assumptions have been made regarding automobile occupancy. Based on the data provided regarding typical traffic counts at other RDC's, each employee is assumed to generate 1.70 daily trips.

The data provided suggests that some additional traffic is generated that is not related to tractor-trailers and/or employee commute activity. These trips (180 daily trips, with 5 inbound and 5 outbound peak hour trips) were also included.

KDA

Resulting daily and peak hour trip generation projections are presented in Table 7.

TABLE 7
DISTRIBUTION CENTER TRIP GENERATION

Direction	Daily Trips			A.M. Peak Hour Trips (7:00 to 9:00 a.m.)			P.M. Peak Hour Trips (4:00 to 6:00 p.m.)		
	Trucks	Autos	Total	Trucks	Autos	Total	Trucks	Autos	Total
Expressed as Vehicles									
Inbound	600	740	1,340	29	142	171	25	180	205
Outbound	600	740	1,340	27	5	32	25	380	405
Total	1,200	1,480	2,680	56	147	203	50	560	610
Expressed as Passenger Car Equivalents (PCE's)									
Inbound	2,400	740	3,140	116	142	537	100	180	280
Outbound	2,400	740	3,140	108	5	113	100	380	480
Total	4,800	1,480	6,280	224	147	650	200	560	760

Because large trucks have acceleration and deceleration characteristics that differ from those associated with passenger cars, project truck trips have been expressed in terms of ***Passenger Car Equivalents (PCE's).*** Information contained in the Highway Capacity Manual (HCM) suggests that trucks have been determined to the equivalent of two to four automobiles. For the purpose of this Level of Service analysis, because of the rural nature of the area roads, we have conservatively assumed that each new truck trip generates 4.0 PCE's, and that each automobile trip generates 1.0 PCE.

Trip Distribution. During peak hours the distribution of trips generated by the proposed project will reflect regional truck travel as well as the commute patterns of employees.

The distribution of truck trips would reflect the site's regional positioning along SR 99. The distribution of employee traffic and "other" trips will reflect the regional distribution of residences in Merced County. As shown in Table 8, it is reasonable to expect that the majority of associates will live in the greater Merced / Atwater area to the north, with some associates living south in Chowchilla / Fresno area and to the east in rural Merced County. For the purposes of this study, 90% of the trucks were assigned through the new Mission Interchange via the Campus Parkway. While limiting employee trips to certain routes is difficult to enforce, the distribution center can control the truck routes in and out of the site.

KDA

TABLE 8
TRIP DISTRIBUTION ASSUMPTIONS

Direction	Percentage of Total Traffic	
	Automobiles	Trucks
North via State Route 99	40%	31%
East via SR 140	10%	-
West via SR 140 / SR 152	3%	37%
South Via SR 99	20%	32%
North via E 16th Street	5%	-
North on Santa Fe / E 21st	5%	-
North on Kibby Road	10%	-
East on Chiles Avenue	2%	-
West on Chiles Avenue	5%	-
Total	100%	100%

2010 Plus Project Traffic Conditions

Using the trip generation and distribution described above, project generated trips (PCE's) were assigned to the area street system. The resulting "existing plus project" traffic volumes are presented in Figure 4.

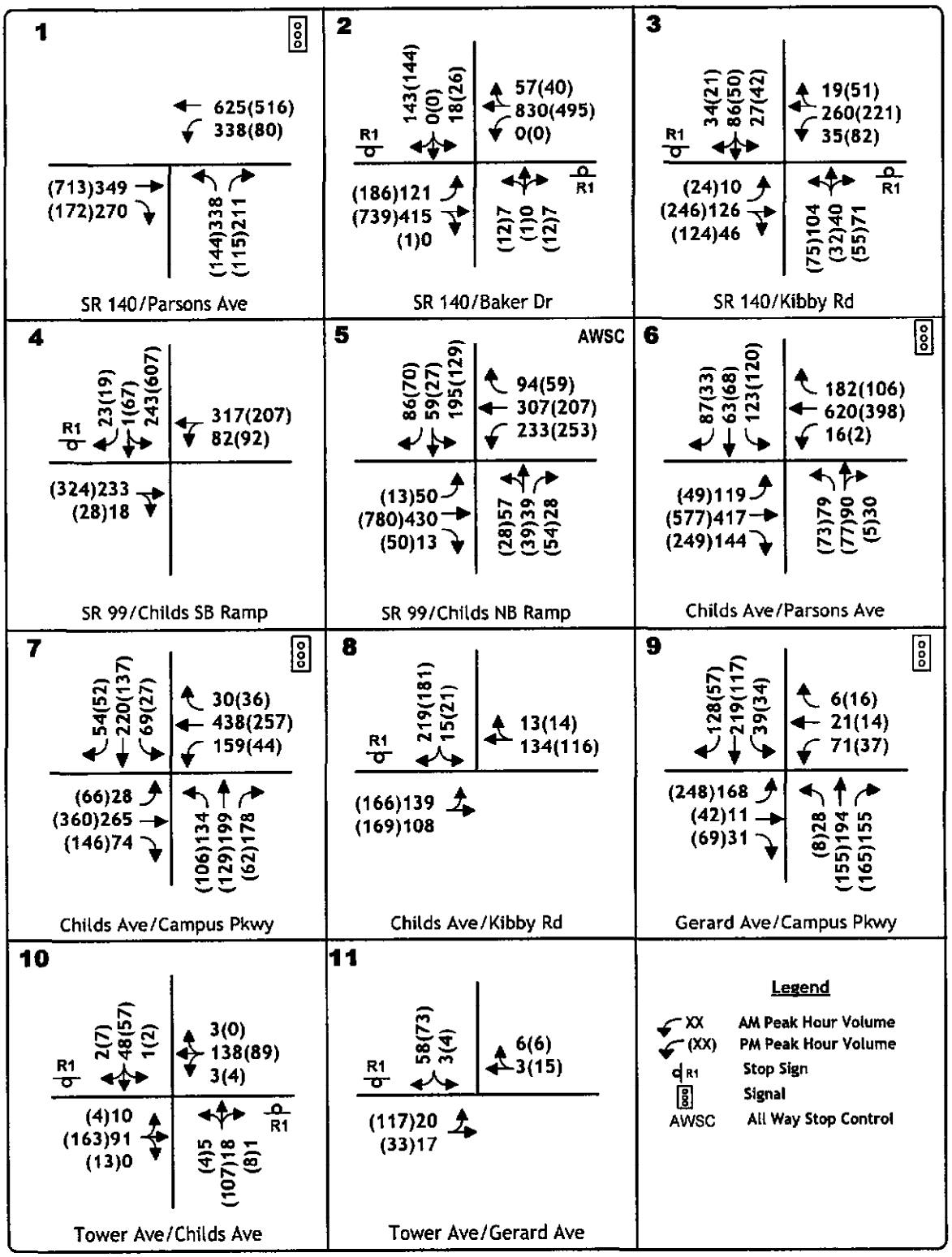
Resulting Levels of Service were calculated for intersections as shown in Table 9. As noted, the operating conditions at two deficient intersections would be exacerbated by development of the project. The Childs ramp intersections with SR 99 would operate at LOS F in at least one of the a.m. or p.m. peak hours. Traffic related impacts from the project at these locations would be limited to visitor or employee traffic only. All trucks would be routed either on the Mission Ave Interchange / Campus Parkway or SR 140.

The extent of improvements needed to deliver LOS D or better conditions is discussed later under "Mitigation".

Table 10 summarizes "existing plus project" traffic volumes on study area roadways. As shown, the addition of project traffic in combination with background traffic would theoretically result in LOS F on Yosemite Parkway east of SR 99 to Parsons Avenue. However, as much of the incremental volume increase is based on truck PCE's, it is possible that the effect of project traffic in this area may be overstated with regard to the City's LOS D threshold.

All of the intersection and roadway impacts are consistent with the 2010 No Project condition. No additional impacts occur as a result of project generated traffic.

KDA



KD Anderson
Transportation Engineers

EXISTING PLUS APPROVED PROJECTS
PLUS PROJECT TRAFFIC
VOLUMES AND LANE CONFIGURATIONS

1281-06 6/28/2005

figure 4

KDA

TABLE 9
2010 PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	31.2 sec	C	16.0 sec	B
Yosemite Parkway / Baker Dr	SB Stop				
(overall)		(2.9 sec)	(A)	(2.9 sec)	(A)
NB approach		30.0 sec	D	31.6 sec	E
SB approach		18.6 sec	C	16.7 sec	C
EB left		7.4 sec	C	1.1 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd	NB / SB Stop				
(overall)		(8.0 sec)	(A)	(8.0 sec)	(A)
NB approach		18.6 sec	C	26.0 sec	D
SB approach		17.0 sec	C	27.4 sec	D
EB left		7.8 sec	A	7.9 sec	A
WB left		7.6 sec	A	8.3 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(29.9) sec	C	(>100 sec)	(F)
SB approach		83.0 sec	F	>100 sec	F
WB left		7.9 sec	A	8.1 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	38.0 sec	E	>100 sec	F
Childs Avenue / Parsons Ave	Signal	23.2 sec	C	18.0 sec	B
Childs Ave / Campus Parkway	Signal	29.7 sec	C	25.5 sec	C
Childs Ave / Kibby Rd	SB Stop				
(overall)		(5.8 sec)	(A)	(5.3 sec)	(A)
SB approach		10.9 sec	B	11.0 sec	B
EB left		7.8 sec	A	7.8 sec	A
Gerard Ave / Campus Parkway	Signal	23.6 sec	C	24.5 sec	C
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(1.3 sec)	(A)	(2.3 sec)	(A)
NB approach		4.8 sec	A	5.5 sec	A
SB approach		4.8 sec	A	5.0 sec	A
EB left		0.3 sec	A	2.3 sec	A
WB left		2.3 sec	A	0.1 sec	A
Tower Ave / Gerard Ave	SB Stop				
(overall)		(1.8 sec)	(A)	(2.0 sec)	A
SB approach		2.9 sec	A	2.9 sec	A
EB left		2.2 sec	A	2.4 sec	A

KDA

TABLE 10
2010 PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	18,820 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	15,230 ADT	D
	Sante Fe Ave to Kibby Rd	920 vph	540 vph	D
Campus Parkway	Mission Ave to Childs Ave**	15,300 ADT	13500 ADT	D
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,220 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	380 vph	C
Baker Drive	Coffee St to SR 140	15,300 ADT	3,390 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	4,200 ADT	A
	Coffee St to project	920 vph	300 vph	C

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

YEAR 2030 BACKGROUND CONDITIONS

2030 No Project Conditions

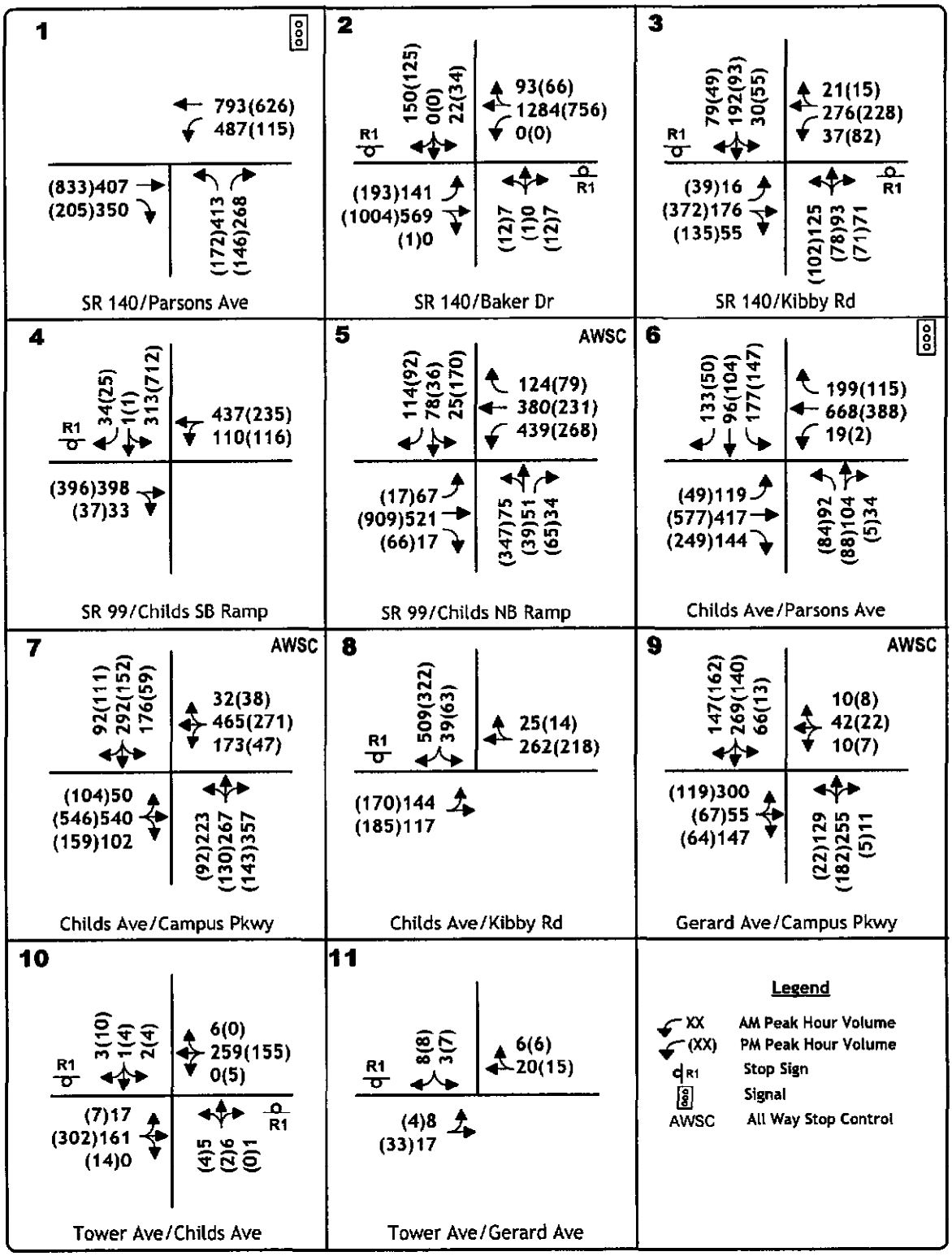
The MCAG Year 2030 transportation model was used as the basis for identifying 2030 traffic volumes in the study area. Adjustments to the model were performed similar to the year 2010 process to ensure specific projects in the study area were accounted for, or in some cases, not "double counted." Growth rates from these forecasts were then applied to developed peak hour turning movements at individual intersections.

Under 2030 baseline conditions, the Campus Parkway is assumed fully extended as a four-lane facility north of SR 140 with a grade separation. No other improvements to local roads or intersections are assumed.

Background year 2030 peak hour traffic volumes are depicted in Figure 5. The resulting intersection levels of service under these conditions are identified in Table 11, while year 2030 roadway levels of service are listed in Table 12.

Under 2030 No Project conditions five intersections would exceed the LOS standard. They include: SR 140 / Parsons Avenue; SR 140 / Baker Drive; SR 140 / Kibby Road; and the SR 99 Ramp intersections with Childs Avenue. Additionally, the roadway segment of SR 140 from SR 99 to Santa Fe Avenue would operate at LOS E or F.

KDA



KD Anderson
Transportation Engineers

CUMULATIVE NO PROJECT TRAFFIC VOLUMES
AND EXISTING LANE CONFIGURATIONS

1281-06 6/28/2005

figure 5

KDA

TABLE 11
2030 BASELINE PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	63.2 sec	E	22.5 sec	C
Yosemite Parkway / Baker Dr	SB Stop				
(overall)		(42.2 sec)	(E)	(22.2 sec)	(C)
NB approach		>100 sec	F	>100 sec	F
SB approach		>100 sec	F	>100 sec	F
EB left		17.9 sec	C	1.4 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd	NB / SB Stop				
(overall)		(41.3 sec)	(E)	(52.2 sec)	(E)
NB approach		>100 sec	F	>100 sec	F
SB approach		43.3 sec	C	>100 sec	F
EB left		8.0 sec	A	7.8 sec	A
WB left		7.8 sec	A	8.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(78.6) sec	F	(>100 sec)	(F)
SB approach		>100 sec	F	>100 sec	F
WB left		8.6 sec	A	8.6 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	>100 sec	F	>100 sec	F
Childs Avenue / Parsons Ave	Signal	27.5 sec	C	20.0 sec	C
Childs Ave / Campus Parkway	Signal	33.0 sec	C	22.7 sec	C
Childs Ave / Kibby Rd	SB Stop				
(overall)		(15.9 sec)	(B)	(9.1 sec)	(A)
SB approach		29.6 sec	D	19.5 sec	C
EB left		8.2 sec	A	8.1 sec	A
Gerard Ave / Campus Parkway	Signal	14.1 sec	B	19.6 sec	B
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		6.0 sec	A	6.6 sec	A
SB approach		4.9 sec	A	4.7 sec	A
EB left		0.3 sec	A	0.1 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave	SB Stop				
(overall)		0.9 sec	(A)	(0.8 sec)	A
SB approach		3.0 sec	A	3.2 sec	A
EB left		0.8 sec	A	2.2 sec	A

KDA

TABLE 12
2030 BASELINE ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	19,660 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	15,510 ADT	E
	Sante Fe Ave to Kibby Rd	920 vph	750 vph	D
Campus Parkway	Mission Ave to Childs Ave**	32,000 ADT	17,000 ADT	C
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	5,350 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	570 vph	D
Baker Drive	Coffee St to SR 140	15,300 ADT	4,060 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	6,280 ADT	A
	Coffee St to project	920 vph	390 vph	

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

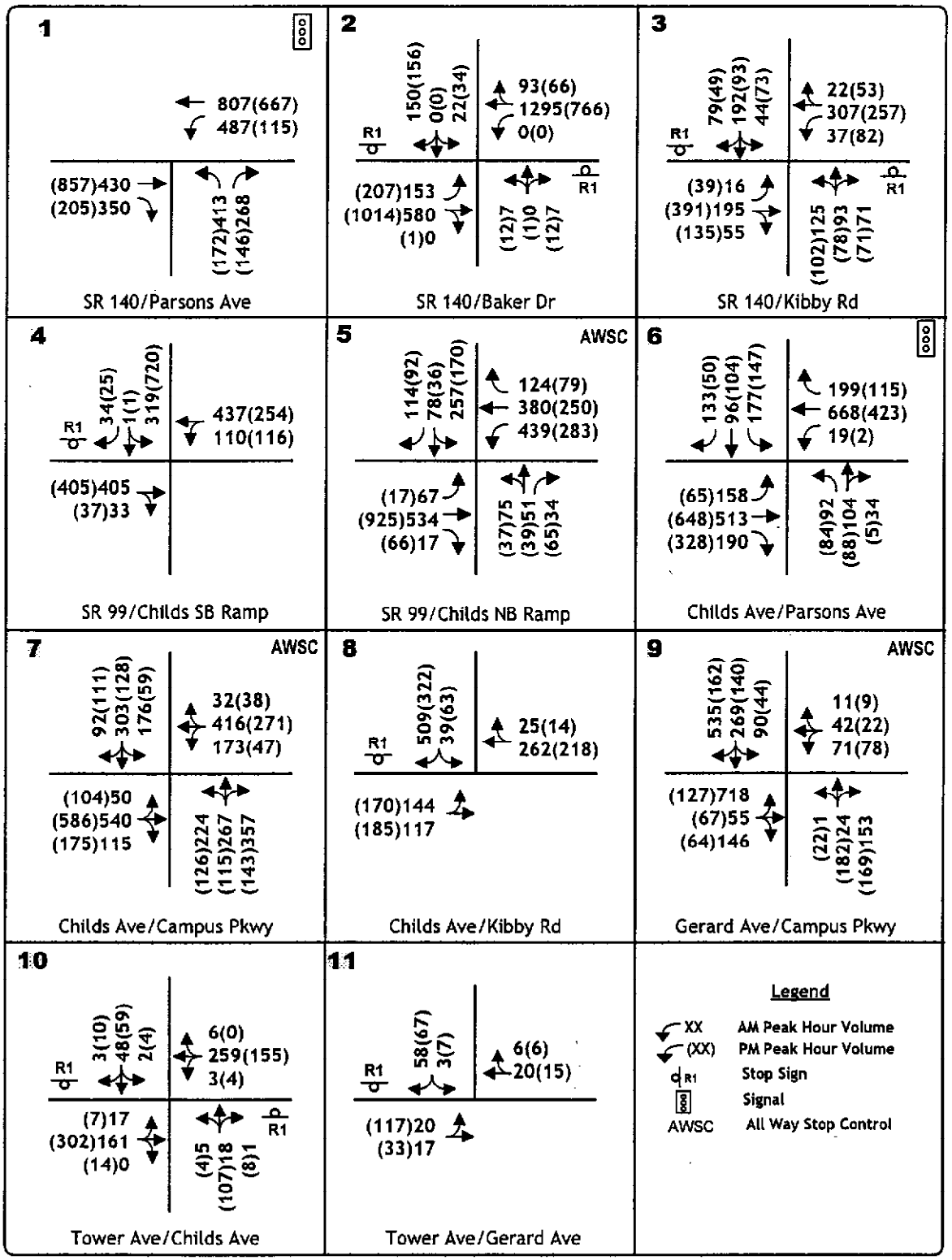
2030 Plus Project Conditions

The assessment of project impacts under year 2030 conditions was based on the same trip generation, distribution and assignment characteristics employed for "existing plus project" conditions. Resulting traffic volumes are presented in Figure 6.

Peak hour levels of service have been calculated assuming no improvements to the study area street system, with the exception of the Mission Avenue Interchange and Campus Parkway projects and consistent with the 2030 No Project scenario. Resulting intersection conditions are presented in Table 13. Traffic volume forecasts on study streets are shown in Table 14.

As shown, the addition of project traffic will exacerbate conditions at five intersections and at two roadway segments that will already exceed City standards in 2030. At several other area locations, LOS will deteriorate, but remain within accepted standards

KDA



KD Anderson
Transportation Engineers

CUMULATIVE PLUS PROJECT
AND EXISTING LANE CONFIGURATIONS

1281-06 7/15/2005

figure 6

TABLE 13
2030 PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	66.0 sec	F	23.0 sec	C
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(52.8 sec)	(F)	(41.3 sec)	(E)
NB approach		>100 sec	F	>100 sec	F
SB approach		>100 sec	F	>100 sec	F
EB left		4.4 sec	A	1.5 sec	A
WB left		N/A	A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB	(51.9 sec)	(F)	(>100 sec)	(F)
NB approach	Stop	>100 sec	F	>100 sec	F
SB approach		61.6 sec	F	>100 sec	F
EB left		8.0 sec	A	8.0 sec	A
WB left		7.8 sec	A	8.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(>100) sec	(F)	(>100 sec)	(F)
SB approach		>100 sec	F	>100 sec	F
WB left		8.6 sec	A	8.6 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	>100 sec	F	>100 sec	F
Childs Avenue / Parsons Ave	Signal	27.4 sec	C	19.9 sec	B
Childs Ave / Campus Parkway	Signal	33.0 sec	C	23.7 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(15.9 sec)	(C)	(9.1 sec)	(A)
SB approach		29.6 sec	D	19.5 sec	C
EB left		8.2 sec	A	8.1 sec	A
Gerard Ave / Campus Parkway	Signal	17.6 sec	B	22.6 sec	C
Tower Ave / Childs Ave	NB / SB				
(overall)	Stop	(1.1 sec)	(A)	(2.2 sec)	(A)
NB approach		6.4 sec	A	7.6 sec	A
SB approach		6.4 sec	A	0.1 sec	A
EB left		0.3 sec	A	0.1 sec	A
WB left		2.5 sec	A	0.1 sec	A
Tower Ave / Gerard Ave	SB Stop				
(overall)		(1.8 sec)	(A)	(2.1 sec)	(A)
SB approach		2.9 sec	A	3.0 sec	A
EB left		2.2 sec	A	2.4 sec	A

KDA

TABLE 14
2030 PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	20,000 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	17,500 ADT	F
	Sante Fe Ave to Kibby Rd	920 vph	780 vph	D
Campus Parkway	Mission Ave to Childs Ave**	32,000 ADT	21,000 ADT	C
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	5,360	A
Kibby Rd	SR 140 to Childs Ave	920 vph	580 vph	D
Baker Drive	Coffee St to SR 140	15,300 ADT	4,200 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	6,600	F
	Coffee St to project	920 vph	460 v	C

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

MITIGATION REQUIREMENTS

The project will be required to make all necessary frontage improvements and design driveways to meet existing standards.

Mitigation Alternatives

The addition of the Mission Avenue interchange and Campus Parkway does divert traffic from existing interchanges and roadways, but not to a level that would completely result in acceptable LOS under 2010 and 2030 conditions, with or with the proposed project.

To achieve the LOS D standard on the area street system, the following improvements would be needed. These improvements will be required to serve traffic levels without the proposed Distribution Center.

Year 2010 Conditions. LOS D or better conditions can be delivered if the following improvements are made:

> **Childs Avenue / SB SR 99 Ramps:** Install traffic signal and widen Childs Avenue to provide a westbound left turn lane.
>
> **Childs Avenue / NB SR 99 Ramps / Motel Drive:** Install traffic signal and add a southbound left turn lane.

KDA

2030 Conditions. These improvements will be required to serve traffic levels without the proposed Distribution Center in year 2030. The improvements noted above will remain necessary, and the following additional mitigations will be needed:

Yosemite Blvd / Parson Avenue: Install additional westbound left turn lane and one additional through lane in each direction. The through lanes would need to extend at least 500 feet through the intersection.

Yosemite Blvd / Baker Drive: This location would meet signal warrants in the peak hours. While a signal should be considered at this location, intersection spacing and the proposed new connection from the Douglas overcrossing should be evaluated before a final decision is made.

Childs Avenue / NB SR 99 Ramps / Motel Drive: Install traffic signal and add/convert the northbound and southbound approaches to include separate left, through, and right turn lanes. This may be problematic due to existing right of way and engineering constraints. These improvements may also not be necessary depending on the extent of traffic diversion resulting from the construction of the Mission Avenue interchange.

Yosemite Blvd / Kibby Road: Install traffic signal and provide turning lanes.

These improvements will cumulatively allow for acceptable traffic operating conditions with the proposed project.

APPENDIX F

Water Supply Assessment

Water Supply Assessment

Proposed Wal-Mart Regional Distribution Center

Prepared for:

City of Merced Planning
and Permitting
678 West 18th Street
Merced, CA 95340

Prepared by:

EDAW
2022 J Street
Sacramento, CA 95814

September 7, 2006

EDAW

Water Supply Assessment

Proposed Wal-Mart Distribution Center

Prepared for:

City of Merced Planning and Permitting
678 West 18th Street
Merced, CA 95340

Attn: Kim Espinosa
Planning Manager
(209) 385-6858

Prepared by:

EDAW
2022 J Street
Sacramento, CA 95814

Contact:

Randy Chafin, AICP
Principal
916/414-5800

September 7, 2006

EDAW

06110101.01

Table of Contents

Section **Page**

Introduction 1
Background 1

The Proposed Wal-Mart Regional Distribution Center Facility 2
Project Location 2
Existing Land Use 2
Proposed Development 3
Existing and Projected Water Demands for the Project Site 3
City of Merced Water Supplies 12
City of Merced Projected Water Use 13
Compliance with Provisions of the Water Code 15
Requirements of the WSA 16

References 23

Appendices

A Urban Water Management Plan

Exhibits

1 City of Merced Service Area Boundaries 4
2 Proposed Project Site Plan 5
3 Regional Location Map 7
4 Local Vicinity Map 8
5 Aerial Photo of Project Vicinity 9
6 General Plan Designations 11
7 City of Merced Water Supply Facilities 14

Tables

1 Estimated Annual Water Demands for Existing Land Use at Project Site 12
2 Wal-Mart Regional Distribution Center Annual Water Demands 12
3 City of Merced System Wells 13
4 Projected Normal Year Water Demands by Water Use Sector in SUDP 15
5 City of Merced Historical Water Production 20
6 City of Merced Water Supply Reliability 22

ACRONYMS

afa	acre-feet per acre
afy	acre-feet per year
APNs	Assessor's Parcel Numbers
CEQA	California Environmental Quality Act
City	city of Merced
DWR	California Department of Water Resources
EIR	environmental impact report
gpd	gallons per day
gpm	gallons per minute
MID	Merced Irrigation District
msl	mean sea level
Project	proposed Wal-Mart Regional Distribution Center
SR 99	State Route 99
SUDP	Specific Urban Development Plan
UWMP	Urban Water Management Plan
Wal-Mart WSA	WSA for the Wal-Mart Regional Distribution Center
WSA	Water Supply Assessment

INTRODUCTION

This report presents the Water Supply Assessment (WSA) prepared for the proposed Wal-Mart Regional Distribution Center (Project) in the City of Merced (City) in eastern Merced County. The Project consists of a 1.1 million square-foot warehouse and distribution center and surrounding supportive operations and parking for the Wal-Mart Corporation on a 230-acre site.

BACKGROUND

The California Water Code requires coordination between land use lead agencies and public water suppliers to ensure that prudent water supply planning has been conducted and that planned water supplies are adequate to meet both existing and planned future project demands. Senate Bill 610 amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. The statute requires detailed information regarding water availability to be provided to the city and county decision makers before approval of specified large development projects. The statute also requires this detailed information be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects.

WATER CODE PART 2.10

Water Code Part 2.10 clarifies the roles and responsibilities of the Lead Agency under CEQA and the water supplier (i.e. public water system) with respect to describing current and future supplies compared to current and future demands, it defines the projects that are required to prepare a WSA, and the Lead Agency's responsibilities related to the WSA. A WSA is required for:

1. A proposed residential development of more than 500 dwelling units;

2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;

3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;

4. A proposed hotel or motel, or both, having more than 500 rooms;

5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;

6. A mixed-use development that includes one or more of the uses described above;

7. A development that would demand an amount of water equivalent to or greater than the amount of water required by a 500-dwelling-unit project; and

8. For Lead Agencies with fewer than 5,000 water service connections, any new development that will increase the number of water service connections in the service area by 10% or more.

Under Part 2.10, the Lead Agency must identify the affected water supplier and ask the water supplier whether the new demands associated with the project are included in the suppliers' Urban Water Management Plan (UWMP). If the UWMP includes the demands it may be incorporated by reference in the WSA (Water Code Section 10910[c][2]). If there is no public water system to serve the project, the Lead Agency must prepare the WSA itself. (Water Code Section 10910[b]).

THE URBAN WATER MANAGEMENT PLANNING ACT

The Urban Water Management Planning Act requires a water supplier to document water supplies available during normal, single dry, and multiple dry water years during a 20-year projection and the existing and projected future water demand during a 20-year projection. The act requires that the projected supplies and demands be presented in 5-year increments for the 20-year projection (Water Code Section 10631).

The City finalized its 2005 UWMP in December. The UWMP encompasses the City's entire water service boundary which is bounded by the City limits, the Specific Urban Development Plan (SUDP) boundary, and the UC Merced Campus. The *Merced 2015 Vision General Plan* (City of Merced 1997) describes growth area boundaries, which are referred to as SUDP boundaries or the urban expansion area. The SUDP boundary is recognized as the ultimate growth boundary of the City over the life of the *Merced Vision 2015 General Plan*. For purposes of the City's UWMP, the SUDP boundary was used to describe the future City water system service area. The service area limits, including the SUDP boundary, current city limits, and the UC Merced campus are illustrated in Exhibit 1.

The City is proceeding with environmental review of the Project in conformance with the requirements of the California Environmental Quality Act (CEQA). The environmental review for the proposed project includes an environmental impact report (EIR) and an assessment of the available water supply to serve the project in the form of a WSA. The project is located within the city limits of the city of Merced and the City is identified as both the water supplier and the lead agency for the Project. The City, as the water supplier is required to make a determination through the WSA whether sufficient water supplies are available to meet project demands. Assuming that the WSA makes this determination, the City would adopt the WSA as part of the CEQA documentation prepared for the project.

THE PROPOSED WAL-MART REGIONAL DISTRIBUTION CENTER FACILITY

PROJECT LOCATION

The approximately 230-acre Project site is bounded on the north by Childs Avenue, on the East by Tower Road and on the South by Gerard Avenue. Kibby Road, which heads north from this area, terminates at Childs Avenue at the north end of the Project site. The future Campus Parkway is approximately 975 feet west of the Project site. The site is approximately three miles southeast of downtown Merced and two miles east of State Route 99 (SR 99). The proposed site plan is illustrated in Exhibit 2. The Project location is illustrated in Exhibit 3. The vicinity of the Project is shown in a map in Exhibit 4 and in an aerial photo in Exhibit 5. City and County General Plan land use designations are shown in Exhibit 6.

The site consists of two parcels, Assessor's Parcel Numbers (APNs) 061-250-035 and 061-290-047. The site is located in the northern half of Section 34 and the northern half of Section 35, Township 7 South, Range 14 East, Mt. Diablo Base and Meridian.

EXISTING LAND USE

The Project site is generally flat but gently slopes to the west and ranges from 185 to 190 feet above mean sea level (msl). In the recent past, the site has mainly been used for growing alfalfa, almonds, and walnuts.

The site contains no structures or improvements, except for an irrigation water well. The western one-third of the site contains a walnut orchard, and the eastern two-thirds consist of agricultural fields.

PROPOSED DEVELOPMENT

The primary building on the site is the approximately 1.1 million square foot regional distribution warehouse. The warehouse is primarily a materials handling operation whereby most goods typically are conveyed through the distribution center. There will also be warehouse support space to house administrative offices, the data processing center, and a cafeteria.

The site plan (Exhibit 2) includes the warehouse with related administrative and support functions, truck maintenance, fueling, fire pump house, truck gate and aerosol storage (located within the warehouse). All buildings will be single-story and constructed of pre-engineered steel components with metal panels. Maximum building height will be 40 feet above the finished floor level. On three sides of the building the finished floor will be 4 feet above finished grade. The main office floor will be at finished grade level.

The 17,000-square foot truck maintenance building will be used for routine maintenance of tractor/trailers serving the facility. The building will include a wash bay for trucks and trailers, service bays, break rooms, offices, storage rooms and restrooms.

The 1,600-square foot fire pump house will house the primary and stand-by fire pumps serving the building fire sprinkler systems and site fire hydrants. Adjacent to the fire pump house will be two 300,000-gallon steel ground-level water storage tanks. The tanks are directly connected to the fire pumps to serve as their water source.

The truck gate will be located on the truck driveway serving the site and will contain workspace for two security officers as well as a storage closet and a restroom. This will involve approximately 500 square feet of building floor space.

The land use associated with the Project is categorized industrial which is consistent with the land use designation in the in the *Merced 2015 Vision General Plan* (City of Merced 1997) (Exhibit 6).

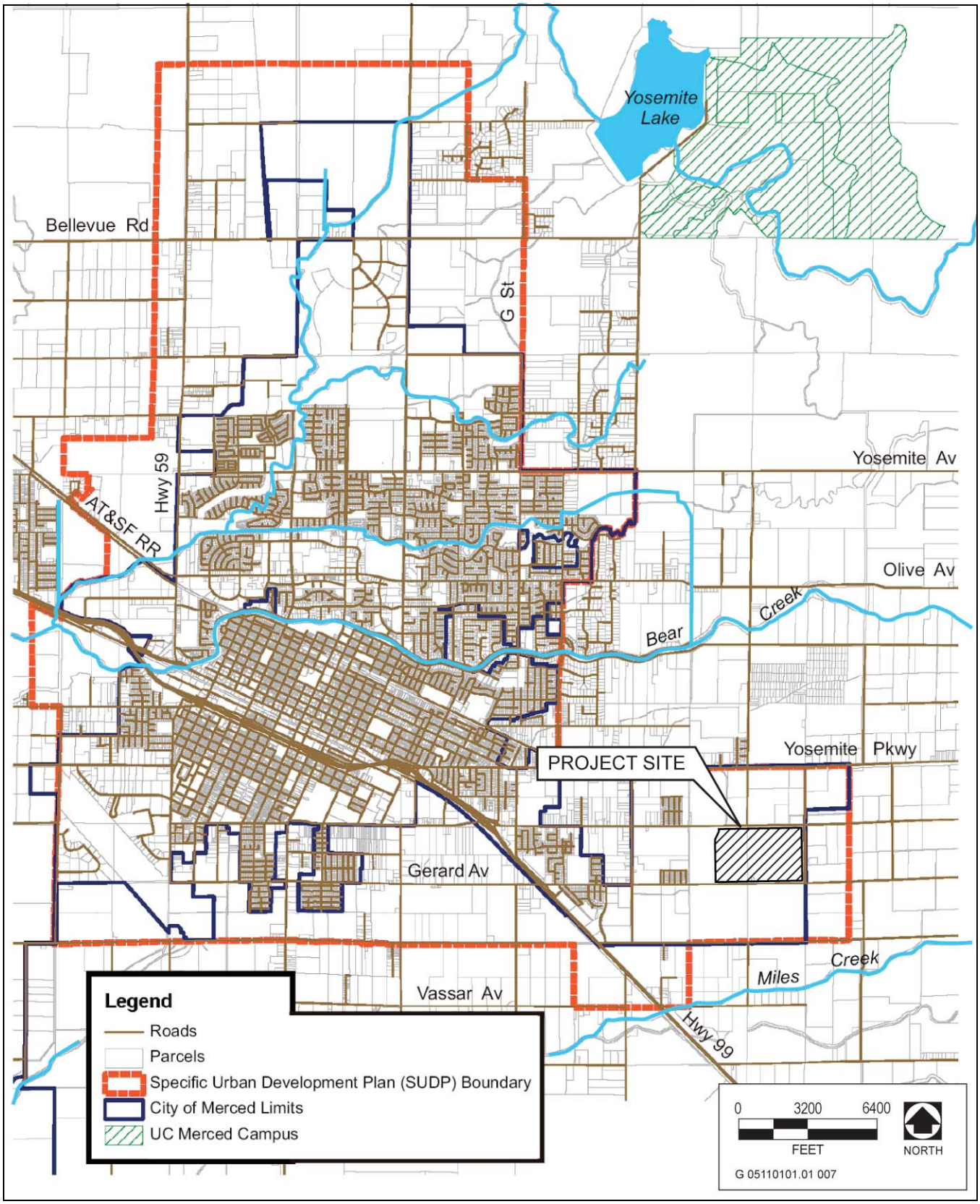
EXISTING AND PROJECTED WATER DEMANDS FOR THE PROJECT SITE

EXISTING WATER DEMANDS

The western one-third of the Project site contains a walnut orchard, and the eastern two-thirds consist of agricultural fields. There is an irrigation well on the Project site. The amount of groundwater pumped annually from this well is unknown.

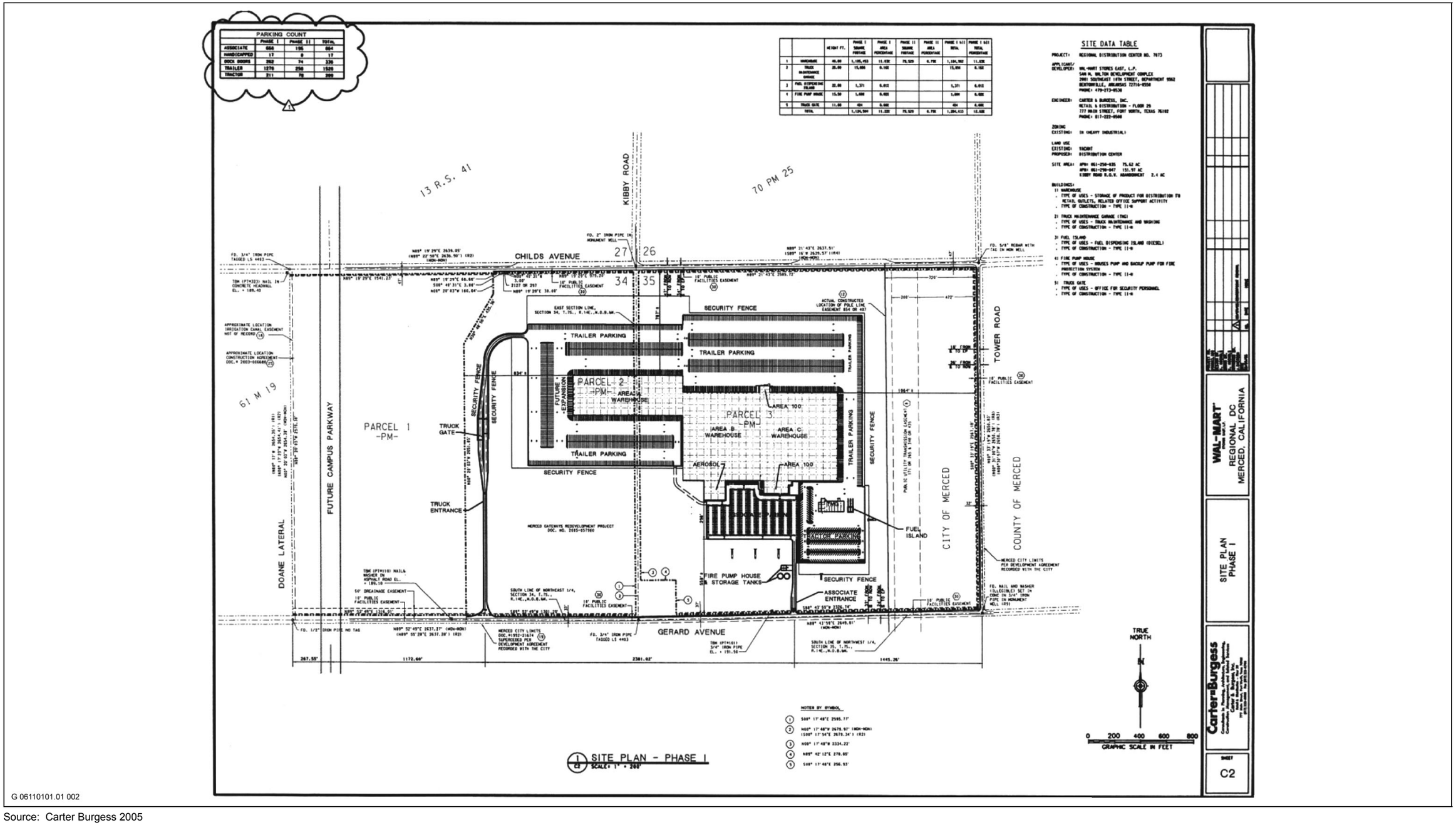
Unit applied water demand is the amount of water needed to meet the demand of its user. For agriculture, unit applied water demand is the annual amount needed to meet a particular crop type, often expressed as acre-feet of water per acre of land. To calculate the annual water demands for a particular parcel of agriculture land, the unit applied water demand is multiplied by the total parcel size (in acres) to establish an annual water demand.

California Department of Water Resources (DWR) estimates that unit applied water demand for deciduous orchards (e.g. walnuts) in the Merced region range from 2.1 acre-feet per acre (afa) to 3.0 afa and unit applied water demand for agricultural fields range from 1.7 afa to 2.4 afa (DWR 1975). The annual water demands for the walnut orchard and agricultural fields are estimated to be approximately 160 acre-feet per year (afy) to 228 afy and 262 afa to 370 afa respectively. Total existing water demands at the Project site would be approximately 422 afa to 598 afa (Table 1).



Source: City of Merced 2005

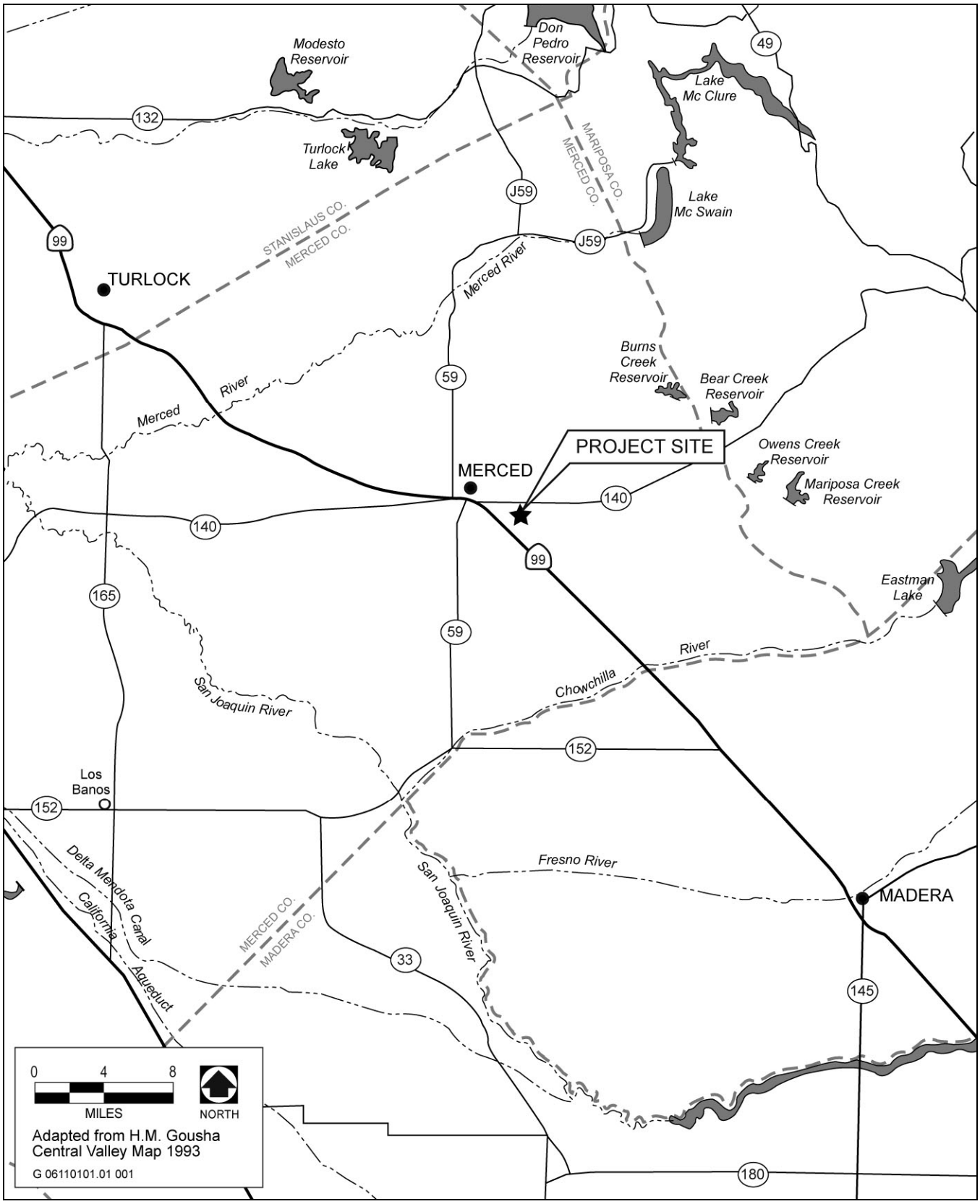
City of Merced Service Area Boundaries **Exhibit 1**



G 06110101.01 002

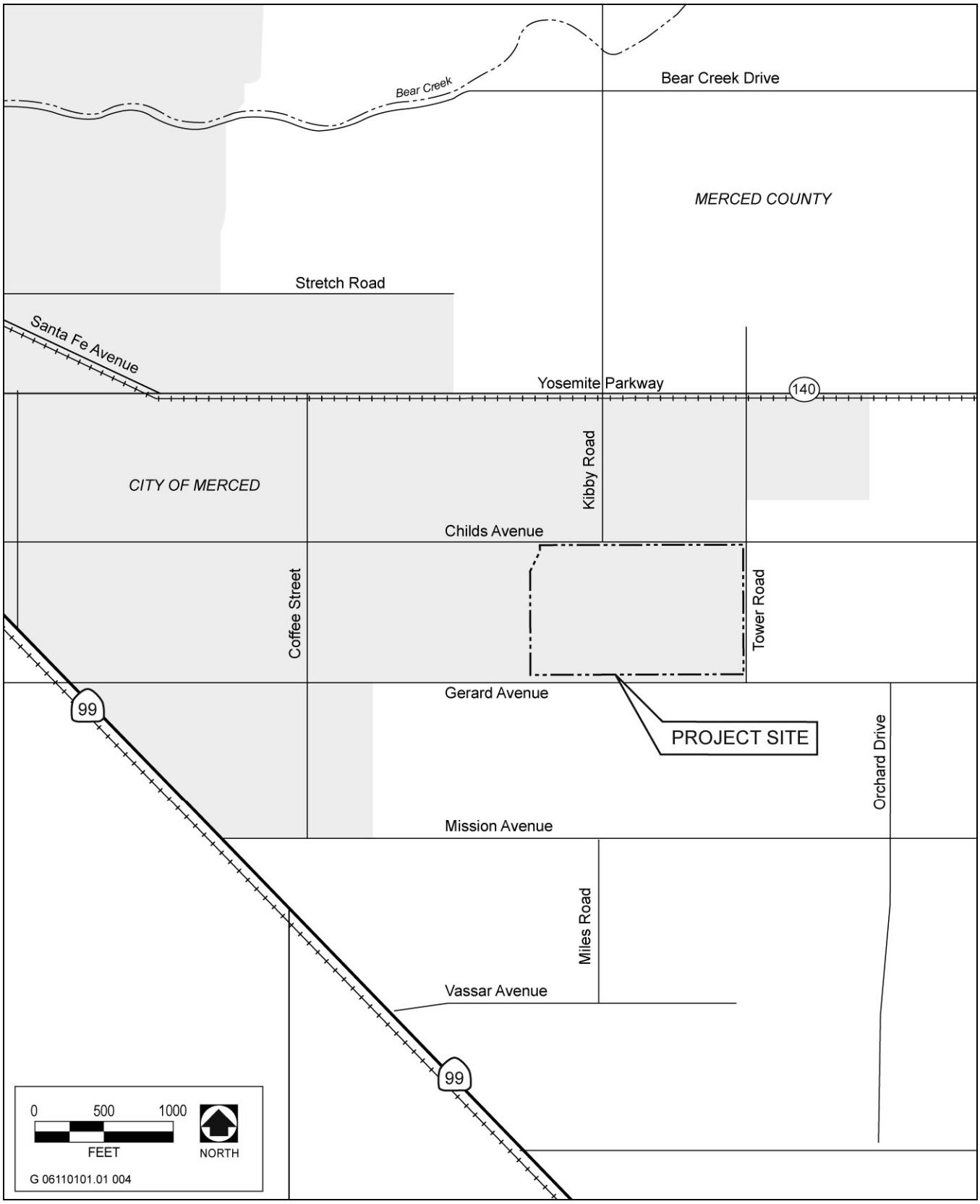
Source: Carter Burgess 2005

Proposed Project Site Plan **Exhibit 2**



Source: EDAW 2006

Regional Location Map **Exhibit 3**

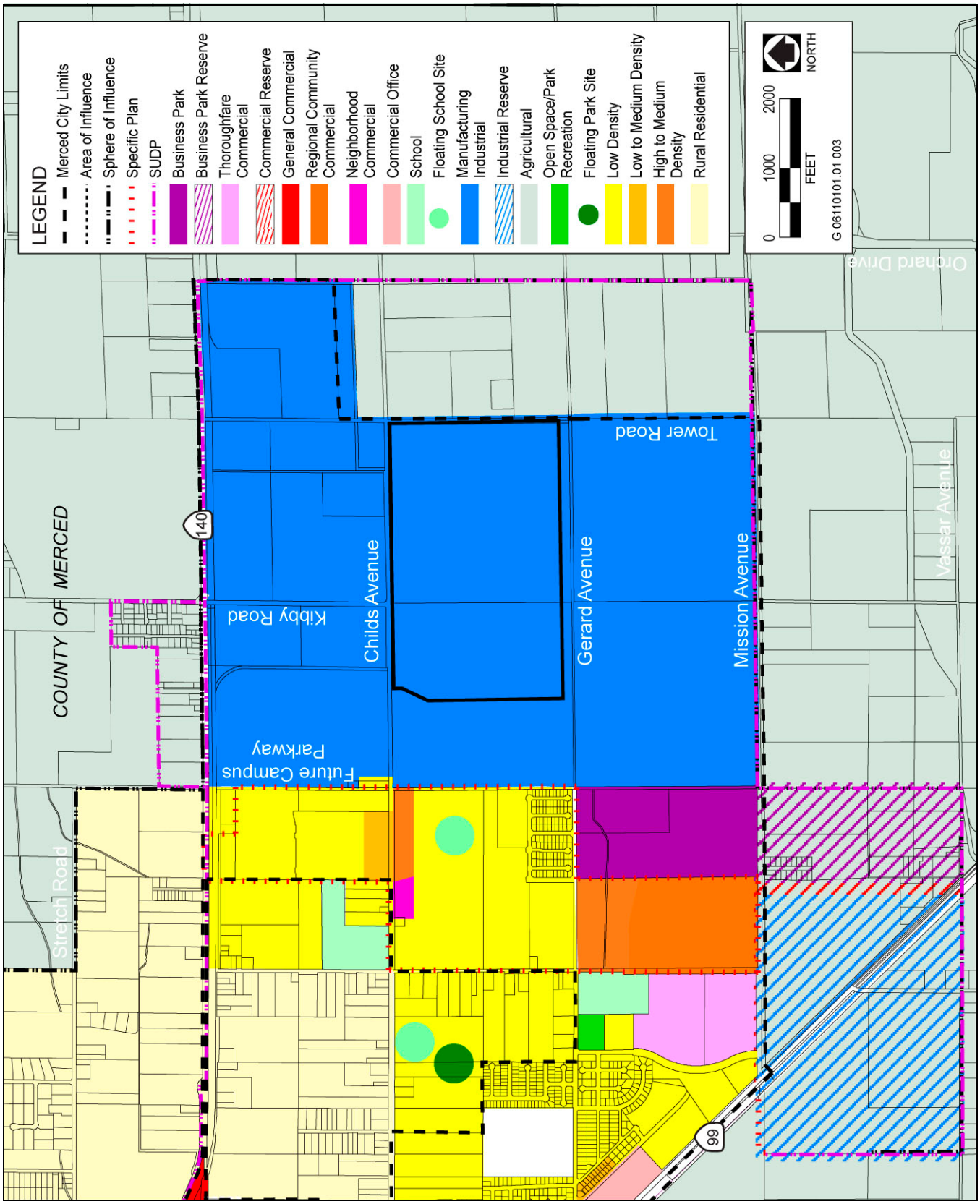


Source: EDAW 2006

Local Vicinity Map **Exhibit 4**

Source: EDAW 2006

Aerial Photo of Project Vicinity **Exhibit 5**



Source: Merced County Association of Governments 2004

General Plan Designations **Exhibit 6**

Table 1 Estimated Annual Water Demands for Existing Land Use at Project Site			
Land Use	Acreage	Unit Water Demand (afa)	Total Water Demand (afy)
Walnut Orchard	76	2.1–3.0	160–228
Fields	154	1.7–2.4	262–370
Total	230		422–598

PROJECT WATER DEMANDS

Water requirements for the Project are broken into two categories: domestic and fire protection. The domestic water requirements for the project are approximately 55,000 gallons per day (gpd) or 61.6 afy. Domestic water useage is distributed into two categories—domestic plumbing and truck wash. Domestic useage is approximately 20,000 gpd and includes restrooms, sinks, water fountains and the kitchen. The truck wash usage is approximately 25,000 gpd and is for washing company tractors and trailers.

In addition to the domestic water requirements, the Project facility would have two 300,000-gallon (0.9 af) ground-level water storage tanks. The tanks are dedicated to service the facility fire protection system and are not connected to the domestic water system. The total amount of water needed for the tanks would be 600,000 gallons (1.8 af). Because it is not possible to predict when, if ever, these water tanks would be needed for fire protection, it is assumed that the tanks would be flushed and refilled annually, and the amount of water necessary for each tank would be 1.8 afy. Therefore, total annual water demands for the Project would be 61.6 afy for domestic water and 3.6 afy for fire protection, a total of 65.2 afy (Table 2) (Dalferes 2006).

Table 2 Wal-Mart Regional Distribution Center Annual Water Demands			
Category		Unit Water Demand	
		gallons per day (gpd)	acre-feet per year (afy)
Domestic Water	Plumbing	20,000	22.4
	Truck Wash	35,000	39.2
	Total	55,000	61.6
Fire Protection	(2) 300,000 gallon storage tanks flushed and refilled annually	1,200,000 gallons	3.6
Total Water Demands			**65.2**
Source: Dalferes 2006			

Development of the Project would require 65.2 af to be pumped from the groundwater basin annually. The project would therefore result in a reduction in total groundwater basin pumpage because the water demands associated with the proposed conditions (Table 2) are only about 13% of existing water demands associated with agricultural land use (Table 1).

The purpose of this WSA is to demonstrate that the City has planned water supplies to meet the water demands associated with the Project, in addition to meeting the existing and planned future water demands projected for the next 20 years.

CITY OF MERCED WATER SUPPLIES

Groundwater is currently the only water supply source for the City. Nineteen active production wells, with a combined capacity of 49,500 gallons per minute (gpm), make up the City's total water supply. All of the wells pump directly into the distribution system and have chlorination facilities for disinfection. The capacity of the existing wells is summarized in Table 3 and the locations of the groundwater wells and storage facilities are

illustrated in Exhibit 7. The active wells are fully operational and used on a regular basis for water supply within the City. Well 10B was taken offline in November 2004 due to a threat of trichloroethene contamination and replaced with Well 10-R2. Water production from Well 10-R2 began in May 2005. Wells 15 and 16 are scheduled to be placed into service in 2006. Well 17 is located within the UC Merced campus and 90% of its supply will be for the campus at first phase build-out with the remaining contributing to the City distribution system. (City of Merced 2005.)

Table 3
City of Merced System Wells

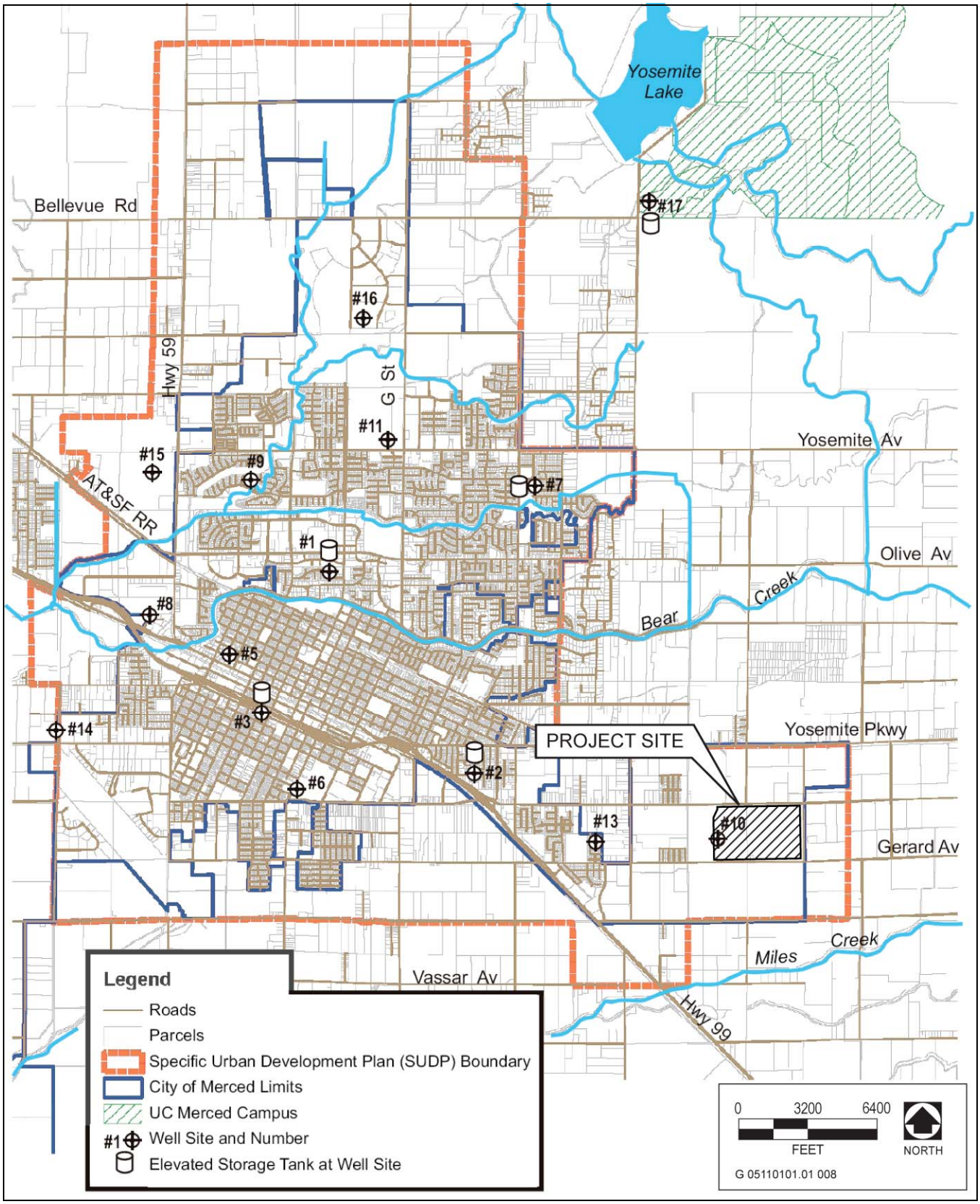
Well ID	Well Capacity (gpm)
1A	2,500
1B	2,200
1C	2,200
2A	2,500
2B	2,500
2C	3,000
3C	3,200
5B	3,000
6	1,000
7A	2,000
7B	2,200
7C	3,500
8	2,000
9	1,700
10B	–
10-R2	3,000
11	3,000
13	3,000
14	4,000
15 (online in 2006)	3,000
16 (online in 2006)	3,000
17	3,000
Total Well Capacity	55,500

Source: City of Merced 2005

CITY OF MERCED PROJECTED WATER USE

The City's UWMP projects future potable water demands to ensure that the future needs of residents and businesses in the City's SUDP are planned for and adequately addressed. The water demands are based on population projections. In 1990 the population in the SUDP was approximately 60,900. It is estimated that the 2005 population in the SUDP is approximately 82,763. Of this total, approximately 90% are served by the City water system. The SUDP population is expected to reach 131,763 by 2025. Population within the SUDP is expected to grow at an annual average growth rate of about 2.5% to 3% from years 2005 through 2025. (City of Merced 2005.)

Unit water use factors, and total water demands are developed to estimate future water needs based on the housing and employment projections within the SUDP. Water demands were projected for three water year scenarios; normal year, single-dry year and multiple-dry years. Projected normal water year demands are presented in Table 4.



Source: City of Merced 2005

City of Merced Water Supply Facilities **Exhibit 7**

Table 4 Projected Normal Year Water Demands by Water Use Sector in SUDP					
Sector	2005	2010	2015	2020	2025
			(acre-feet per year)		
Single family	12,954	14,729	16,166	17,454	18,584
Multi-family	3,344	3,811	4,188	4,526	4,823
Commercial/Industrial/Institutional	10,080	11,029	12,247	15,109	18,129
Landscape Irrigation	10	58	105	153	200
Water sales	0	0	0	0	0
Saline barriers	0	0	0	0	0
Groundwater recharge	0	0	0	0	0
Conjunctive use	0	0	0	0	0
Raw water	0	0	0	0	0
Recycled water for urban use	0	50	133	217	300
UC Merced campus	718	3,236	4,889	6,481	8,073
Unaccounted-for water [1]	3,012	3,657	4,192	4,882	5,568
Total	30,118	36,570	41,920	48,822	55,677
Percent of Year 2005	100	121	139	162	185

Notes: [1] Unaccounted-for water assumed to be 10% of total water production
Source: City of Merced 2005

COMPLIANCE WITH PROVISIONS OF THE WATER CODE

RESPONSIBILITIES OF THE LEAD AGENCY

The City of Merced is the CEQA Lead Agency responsible for evaluating the environmental impacts of the project in compliance with CEQA, certifying the EIR, and issuing the associated entitlements.

The City would be the water purveyor for the project and would be the agency responsible for preparation and approval of the WSA. In preparing the WSA, The City must do the following:

- Determine the sufficiency of the supply to meet the project demands under normal, single dry and multiple dry years over a 20-year projection.
- Identify existing water supply entitlements and water rights for the proposed project and quantify water received in prior years pursuant to these existing entitlements and rights.
- Describe the groundwater basin from which the proposed project will be supplied, if applicable. The description must include information regarding overdraft in the basin. The amount and location of groundwater pumped by the City must be quantified, based on reasonably available information.
- Describe and analyze the amount and location of groundwater projected to be pumped by the City from the basin from which the project will be supplied. The assessment must include an analysis of the sufficiency of groundwater from the basin to meet the projected water demand associated with the proposed project.

REQUIREMENTS OF THE WSA

The California Water Code Sections 10910–10915 require that a WSA for a project include the following information:

- A description and quantification of the existing and planned water sources.
- A description of the reliability and vulnerability of the water supply to seasonal or climatic shortages in the average water year, single dry water year, and multiple dry water year during a 20-year projection.
- Contingency plans including demand management and conjunctive use potential.
- A description of current and projected water demands
- A description of all water supply projects and water supply programs that may be undertaken by the City to meet the total projected water use.

In addition, because the City uses groundwater as one of its supply sources, the WSA should include:

- A description of any groundwater basin (or basins) from which the City pumps groundwater.
- Information that characterizes the condition of the groundwater basin and a description of the measures currently being taken by the City to minimize any potential for overdraft conditions to occur.
- A detailed description and analysis of the amount and location of groundwater pumped by the City for the past five years from any groundwater basin from which the proposed project will be supplied.
- An analysis of the location, amount, and sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

The following analysis presents the WSA for the Wal-Mart Regional Distribution Center (Wal-Mart WSA) in compliance with the requirements of the Water Code. The Wal-Mart WSA is structured accordingly.

DETERMINE WHETHER PROJECT IS SUBJECT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA). [WATER CODE SECTION 10910(A)]

The City has made the determination that the Wal-Mart Regional Distribution Center Facility is subject to CEQA and is a “project” as defined by Water Code Section 10910(a) because it would result in the construction of an industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

IDENTIFY THE PUBLIC WATER SYSTEM THAT WILL SUPPLY WATER FOR THE PROJECT [WATER CODE SECTION 10910(B)]

The City of Merced Development Services Department—Planning Division has identified the City of Merced—Public Works Department as the responsible public water system purveyor for the Project.

IS THERE AN ADOPTED URBAN WATER MANAGEMENT PLAN (UWMP)? ARE THE PROJECTED WATER DEMANDS ASSOCIATED WITH THE PROPOSED PROJECT ACCOUNTED FOR IN THE MOST RECENTLY ADOPTED URBAN WATER MANAGEMENT PLAN? [WATER CODE SECTION 10910(C)]

The City has adopted an UWMP dated December 2005.

As described above, the projected water demand associated with industrial land use for the Project site was accounted for in the most recently adopted UWMP. Therefore, pursuant to Section 10910(c)(2), the relevant sections of the UWMP may be incorporated by reference into this WSA to comply with subsections (d), (e), (f), and (g) of Water Code section 101910. The City's UWMP (without appendices) is attached hereto as Appendix A and incorporated in this WSA to satisfy the above referenced requirements in addition to the information provided below.

IDENTIFY EXISTING WATER SUPPLIES FOR THE PROJECT [WATER CODE SECTION 10910(D)]

Section 10910(d) requires identification of existing water supply entitlements, water rights, or water service contracts relevant to the Project and a description of the quantities of water obtained by the City pursuant to these water supply entitlements, water rights, or water service contracts in previous years. The City does not currently receive surface water supplies from any sources. The Merced groundwater basin is not adjudicated and the City is not limited to a specific withdrawal amount.

DOES THE SUPPLY INCLUDE GROUNDWATER AS A SOURCE? [WATER CODE SECTION 10910(F)]

The water demands for the proposed project would be met solely with groundwater. Consequently, Section 10910(f) requires the following additional information.

Water Code Section 10910(f)(1) Requires a Review of Any Information Contained in the Urban Water Management Plan Relevant to the Identified Water Supply for the Proposed Project.

A description of the City's groundwater wells and distribution system is described above. The City's UWMP concludes that the groundwater supply will be sufficient to meet the increased demand identified for build out of the SUPD through 2025. The City acknowledges however that they, along with Merced Irrigation District (MID) are cooperating on a long-range plan to stabilize groundwater levels and to investigate the potential of groundwater recharge with imported surface water from the Merced River (City of Merced 2005). The City has adequate groundwater supply to provide water supply during single-dry and multiple-dry years, which is discussed in more detail below.

Water Code Section 10910(f)(2) Requires a Description of the Groundwater Basin and the Efforts Being Taken to Prevent Long-Term Overdraft.

The UWMP describes the groundwater basin extensively in Chapter 4 (City of Merced 2005).

Description of Basin

The local groundwater basin is referred to as the Merced Groundwater Basin. The Merced Groundwater Basin (groundwater subbasin number 5-22.04) is a subbasin of the San Joaquin Valley Groundwater Basin (DWR 2003).

The Merced subbasin includes lands south of the Merced River between the San Joaquin River on the west and the crystalline basement rock of the Sierra Nevada foothills on the east. The subbasin boundary on the south stretches westerly along the Madera-Merced County line (Chowchilla River) and then between the boundary of the Le Grand-Athlone Water District and the Chowchilla Water District. The boundary continues west along the northern boundaries of Chowchilla Water District and El Nido Irrigation District. The southern boundary then follows the western boundary of El Nido I.D. south to the northern boundary of the Sierra Water District, which is followed westerly to the San Joaquin River. Average annual precipitation is 11 to 13 inches, increasing eastward.

Geologic units in the Merced Subbasin consist of consolidated rocks and unconsolidated deposits. The consolidated rocks include the Ione Formation, the Valley Springs Formation, and the Mehrten Formation. In the eastern part of the area, the consolidated rocks generally yield small quantities of water to wells except for the Mehrten Formation, which is an important aquifer.

The unconsolidated deposits were laid down during the Pliocene to present. From oldest to youngest, these deposits include continental deposits, lacustrine and marsh deposits, older alluvium, younger alluvium, and floodbasin deposits. The continental deposits and older alluvium are the main water-yielding units in the unconsolidated deposits. The lacustrine and marsh deposits (which include the Corcoran, or “E-” Clay), and the floodbasin deposits yield little water to wells, and the younger alluvium in most places probably yields only moderate quantities of water to wells.

There are three ground water bodies in the area: an unconfined water body, a confined water body, and the water body in consolidated rocks. The unconfined water body occurs in the unconsolidated deposits above and east of the Corcoran Clay, which underlies the western half of the subbasin at depths ranging between about 50 and 200 feet (DWR 1981), except in the western and southern parts of the area where clay lenses occur and semi-confined conditions exist. The confined water body occurs in the unconsolidated deposits below the Corcoran Clay and extends downward to the base of fresh water. The water body in consolidated rocks occurs under both unconfined and confined conditions.

Groundwater flow is primarily to the southwest, following the regional dip of basement rock and sedimentary units. DWR (2000) data show two groundwater depressions south and southeast of the city of Merced during 1999.

Changes in groundwater levels are based on annual water level measurements by DWR and cooperators. Water level changes were evaluated by quarter township and computed through a custom DWR computer program using geostatistics (kriging). On average, the subbasin water level has declined nearly 30 feet from 1970 through 2000. The period from 1970 through 1978 showed steep declines totaling about 15 feet. The 10-year period from 1978 to 1988 saw stabilization and a rebound of about 10 feet. 1988 through 1995 again showed steep declines, bottoming out in 1996 with water levels rising from 1996 to 2000. Water level declines have been more severe in the eastern portion of the subbasin.

Estimations of the total storage capacity of the subbasin and the amount of water in storage as of 1995 were calculated using an estimated specific yield of 9.0% and water levels collected by DWR and cooperators. According to these calculations, the total storage capacity of this subbasin is estimated to be 21,100,000 af to a depth of 300 feet and 47,600,000 af to the base of fresh groundwater. These same calculations give an estimate of 15,700,000 af of groundwater to a depth of 300 feet stored in this subbasin as of 1995 (DWR 1995). According to published literature, the amount of stored groundwater in this subbasin as of 1961 is 37,000,000 af to a depth of < 1,000 feet (Williamson 1989).

Groundwater Basin Management

While groundwater has provided the City a reliable water supply for many years, rapid growth has motivated the City to evaluate its groundwater supply. In 1992, the City and MID entered into a Memorandum of Understanding to develop a long-range water resources plan (City of Merced 2005). In response, the *Merced Water Supply Plan*

was completed in 1995, which included goals for managing groundwater resources and to provide high quality, reliable water supply for cities.

1995 Merced Water Supply Plan

The City of Merced and the MID jointly commissioned a water supply study that would identify urban, agricultural, and environmental water needs through the year 2030. The result of the joint study was the 1995 Merced Water Supply Plan. The goals of the 1995 Plan included the management of groundwater resources, and the provision of high quality, reliable supply of water for the cities within Merced County. Two key water demand and supply conclusions were important in the development of the 1995 Plan and for long-term water management throughout MID's sphere of influence (500,000 acres including the City). (City of Merced and MID 1995.)

- Agricultural water needs, currently met by surface water deliveries and pumped groundwater, will remain the dominant water factor; while the demand is projected to decline by 10% by 2030, nearly two-thirds of water use will be for agricultural uses.

- Urban water demands will increase three to four times by 2030 (100% of the demand supplied from groundwater). Several alternatives and strategies were examined to achieve the goals of the 1995 Plan. To manage the groundwater resources, the recommended strategy was to ensure that groundwater elevations are returned to and stabilized at 1992 levels. The activities/facilities needed to do this were to provide for phased construction of direct recharge facilities throughout the region (focusing first on areas with more serious declines).

In 1996, MID launched a major surface water/groundwater program to help care for and recharge the aquifer as a result of the 1995 Plan. The overall project, called the Surface/Groundwater Optimization Program (SUGWOP), is designed to both improve the in-District delivery systems and encourage surface and groundwater conservation practices. MID committed $10.2 million to be expended through the year 2004. Components of the SUGWOP include increasing water conservation, meeting water quality challenges, improving water accounting, canal automation, eliminating "tail-end" water delivery concerns, incentive funds to assist growers in conversion from groundwater to surface water.

In 1997 as part of the implementation of the Merced Water Supply Plan, MID adopted a Groundwater Management Plan for the District, including a Groundwater Management Program to conjunctively manage the region's surface and groundwater supplies to meet local and regional water needs reliably. The Groundwater Management Program involves a variety of measures, including Monitoring, Water Quality Protection, Conjunctive Use, and Public Involvement and Information. Groundwater monitoring measures include: groundwater production, levels and storage, inflows and outflows, as well as water quality. In particular, the Conjunctive Use Measures include:

- Water Conservation. These measures involve voluntary adoption of on-farm water conservation practices and establishment of flexibility in MID delivery schedules that facilitate efficient on-farm water use.

- Groundwater Recharge and Extraction. Recharge activities may include in-lieu groundwater recharge through strategic use of available surface water, incidental recharge accomplished through use of existing MID facilities, and intentional recharge accomplished through construction and operation of new recharge facilities or modification of existing facilities.

- Cooperation with Sphere-of-Influence Pumpers. Voluntary cooperative relationships with non-MID groundwater users within the MID sphere-of-influence.

- Reduction in Groundwater Outflow. Cooperative relationships to manage groundwater outflows.

- Pumping Restrictions. If necessary, MID may consider imposing pumping restrictions, subject to the approval of a majority of MID landowners.

- Groundwater Extraction Fees. Although not anticipated, if existing revenues are not adequate to implement the Groundwater Management Program, MID would levy groundwater extraction fees or assessments, subject to the approval of a majority of MID landowners.

Updates to the 1995 Merced Water Supply Plan

The 1995 Plan was updated and a Final Status Report was status report was published in September 2001 (Updated Plan). The planning horizon for the Updated Plan goes through 2040, and the goals of the 1995 plan have not changed. Some of the strategies used in the development of planning scenarios have been revised, including stabilizing the groundwater elevation at 1999 levels (which are similar to the 1992 levels). The study area that the Updated Plan now covers is approximately 582,000 acres, approximately 16% more area than covered in the 1995 Plan.

The projected demand for urban water use in 2040 has declined slightly to approximately 118,000 afy (as compared to 121,000 afy in the 1995 Plan). The projected agricultural demand for 2030 identified in the Updated Plan will increase to 1,042,000 afy, as compared to 788,000 afy projected in the 1995 Plan. Most of the increase is due to agricultural demands outside MID. In part, this increase can be attributed to the increased acreage considered in the Updated Plan area. While trends over the last 30 years indicate that private groundwater pumping has increased in MID's service area, MID is currently offering incentive programs to encourage growers to use MID surface water for irrigation rather than groundwater when surface water is available.

Agricultural and urban uses were estimated to demand a total of approximately 931,000 afy in 1990. The vast majority of this demand comes from agriculture, with urban uses making up only 40,000 afy of the demand. Although groundwater wells within MID are capable of pumping approximately 100,000 afy, and in 1976 the District pumped as much as 186,000 af, before the 1987–1992 drought, MID pumped an average of 27,000 af in "normal" surface water supply years. Since 1993 when MID instituted a series of surface irrigation system improvements, education of the distribution system operators, and better management of the water conveyance system, average groundwater pumping has dropped to 9,350 af, a groundwater savings of 17,650 afy. This reduction in groundwater pumping has been the result of a concerted effort of water supply planning and management undertaken by the District in conjunction with the City, and other participants including Merced County. (CH2M Hill 2001).

Water Code Section 10910(f)(3) requires a description of the volume and geographic distribution of groundwater extractions from the basin for the last five years.

The City has historically been able to meet all water demands with available groundwater supplies. Exhibit 7 shows the geographical distribution of the City's groundwater wells. The City's historical groundwater production from 1978 through 2005 is presented in Table 5.

Table 5
City of Merced Historical Water Production

Year	Average Water Production (afy)
1978	11,500
1979	13,500
1980	14,000
1981	15,500
1982	17,000

Table 5 (continued) City of Merced Historical Water Production	
Year	Average Water Production (afy)
1983	17,000
1984	19,500
1985	17,500
1986	17,000
1987	15,000
1988	16,000
1989	16,500
1990	16,500
1991	14,500
1992	16,000
1993	16,500
1994	18,000
1995	18,494
1996	20,649
1997	22,689
1998	20,990
1999	23,906
2000	21,018
2001	23,633
2002	23,659
2003	22,428
2004	23,779
2005	30,118
Source: City of Merced 2005	

Water Code Section 10910(f)(4) Requires a Description and Analysis of the Amount and Location of Groundwater that is Projected to be Pumped by the Public Water System, or the City or County from the Basin from Which the Proposed Project Will Be Supplied. The Description and Analysis Shall Be Abased on Historical Data and Include a Description of the Projected Volume and Geographic Distribution of Groundwater Extractions from the Basin.

The project water demands of 65.2 afy will be met using groundwater. The City of Merced currently exercises and will continue to exercise its rights as a groundwater appropriator to extract groundwater from the groundwater basin underlying the City for delivery to the Project and its other existing and future customers. This is described in more detail in the City's UWMP which is incorporated herein by reference and attached as Appendix A.

Water Code Section 10910(f)(5) Requires an Analysis of the Sufficiency of the Groundwater from the Basin or Basins from Which the Proposed Project Will Be Supplied to Meet the Projected Water Demand Associated with the Proposed Project.

The City's UWMP concludes that although groundwater levels have declined at a greater rate during drought periods, the annual quantity of groundwater available does not vary significantly in relation to wet or dry years. The reliability of the City's water supply does not change due to seasonal or climatic shortages and groundwater quality is assumed to be generally unaffected by short-term drought conditions. Water quality issues with respect to the groundwater are not anticipated to have significant impact on water supply reliability (City of Merced 2005). Table 6 presents the City's water supply reliability for 2025.

Table 6
City of Merced Water Supply Reliability for 2025

	Normal Year (afy)	Single-dry Year (afy)	Multiple Dry Years (afy)		
			Year 1	Year 2	Year 3
Sustainable Water Supply					
Surface Water	200	200	200	200	200
Groundwater	56,000	56,000	56,000	56,000	56,000
Recycled Water	0	0	0	0	0
Desalinated Water	0	0	0	0	0
Total Supply	**56,200**	**56,200**	**56,200**	**56,200**	**56,200**
2025 Demand	**55,677**	**55,677**	**55,677**	**55,677**	**55,677**
Surplus/ (Deficit)	**523**	**523**	**523**	**523**	**523**

Source: City of Merced 2005

Groundwater is a consistent source, so no replacement plan is needed. However, as discussed above, the City and MID are cooperating on a long-range plan to stabilize groundwater levels and to investigate the potential of recharge with imported surface water from the Merced River. As shown in Table 6, the City has adequate groundwater supply to meet anticipated 2025 demands during single-dry and multiple-dry years. The water shortage contingency plan which was implemented in 1993 in response to the drought in the late 1980s remains in effect. Water demand management measures would reduce water demands and thereby reduce water supply needs.

DETERMINATION OF SUFFICIENCY

The City's total projected water supplies available during normal, single dry and multiple dry water years during a 20-year projection will meet the projected water demand associated with the Project in addition to existing and planned future uses. Based upon the analysis undertaken by the City in its UWMP, and the groundwater management and planning efforts being undertaken by the City and MID, including the implementation of the Surface/Groundwater Optimization Program, the City has concluded that it can continue to provide potable water to future development included in the SUDP, including the Project. In light of this determination, the City is not required to develop plans for acquiring additional supplies pursuant to Water Code Section 10911.

REFERENCES

California Department of Water Resources. 1975 (April). *Bulletin 113-3 Vegetative Water Use in California*, 1974.

———. 1981. *Depth to Top of Corcoran Clay*. 1:253,440 scale map. Cited in Department of Water Resources 2003.

———. 1995. Internal computer spreadsheet for 1990 normal computation of net water demand used in preparation of DWR Bulletin 160-93. Cited in Department of Water Resources 2003.

———. 2000. *Spring 1999, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer*. 1:253,440 scale map sheet. Cited in Department of Water Resources 2003.

———. 2003 (February). *Bulletin 118 California's Groundwater*.

DWR. *See* California Department of Water Resources.

Carter Burgess. 2005 (June 29).*Traffic Impact Analysis for Merced Distribution Center.*

CH2M Hill. 2001 (September). *Merced Water Supply Plan Update – Final Status Report*. Prepared for City of Merced, Merced Irrigation District, and University of California, Merced.

City of Merced. 1997 (April). *Merced 2015 Vision General Plan*.

———. 2005 (December). *2005 Final Urban Water Management Plan*. Prepared by Brown and Caldwell.

City of Merced and Merced Irrigation District. 1995 (August). Mer*ced Water Supply Plan, Phase III Report, Implementation Plan*.

Dalferes, Thomas E. Associate. Carter-Burgess Fort Worth, TX. July 12, 2006—letter to Diane Wagner of EDAW regarding: Wal-Mart Regional Distribution Center No. 7073- Merced, California Domestic Water and Fire Protection Water Requirements.

Merced County Association of Governments. 2004.

Merced Irrigation District. 1996 (October). *Groundwater Management Plan*.

MID. *See* Merced Irrigation District.

Williamson, Alex K, Prudic, David E, and Swain, Lindsay A. 1989. *Groundwater flow in the Central Valley, California*. US Geological Survey Professional Paper 1401-D. 127 p. Cited in Department of Water Resources 2003.