4.14 TRAFFIC, CIRCULATION, AND PARKING

This section of the EIR describes the current status of the transportation system in the vicinity of the proposed campus site and describes ways in which the development of the campus and supporting infrastructure could affect the regional circulation system. The section includes the following:

- A discussion of the existing transportation setting, including current circulation patterns and levels of service on nearby roadway facilities;
- A brief presentation of relevant transportation policies of local jurisdictions; and
- An analysis of the potential impacts of the proposed campus development on traffic, pedestrian and bicycle facilities, and transit services.

Several letters regarding the scope of the transportation analysis were received in response to the Notice of Preparation (NOP). These letters addressed the following general topics:

1. Evaluation of impacts on transportation facilities and services in the vicinity of the proposed project (e.g., roadways such as Yosemite Avenue and Bellevue Road, existing transit services)
2. Evaluation of impacts on transportation facilities outside Merced County (e.g., Madera County, Tuolumne County)
3. Evaluation of impacts of transportation infrastructure, both existing and proposed, on biological resources

The subsections of this section titled "Project-Specific Impacts" and "Cumulative Impacts" contain an evaluation of impacts relative to topics No. 1 and No. 2 from the above list. Topic No. 3 is addressed in Section 4.4, Biological Resources.

4.14.1 Summary of Site Selection EIR Impacts and Mitigation

The SSEIR evaluated the potential impacts on transportation facilities of the selection and eventual development of a new campus at the Lake Yosemite site, for the years 2010 and 2035. All impacts identified in the SSEIR that are relevant to the proposed project are presented in the following table. For all impacts, the level of significance before and after application of mitigation measures identified in the SSEIR is also presented. Note that there are a number of differences in the data and analytical methods used in the SSEIR as compared to this EIR. First, the site of the proposed campus has shifted to a more southerly location on the VST property than that analyzed in the SSEIR, which can be expected to cause some differences in the location and scale of impacts identified. The forecasts of background growth in Merced County have been updated since the SSEIR was produced, and new roadway improvements have been identified and new priorities set in the most recent Regional Transportation Plan. In addition, the regional travel model used to evaluate roadway operations and identify project impacts has been updated and recalibrated since the SSEIR analysis was undertaken. All of these items will contribute to differences in analytical results between the SSEIR and the current LRDP EIR.

SITE SELECTION EIR IMPACT	Level of Significance Prior to Mitigation	Level of Significance after/with Mitigation
The site selection, which could result in the development of a campus, would increase traffic on the regional roadway network, resulting in unacceptable service levels on the following roadway segments in Year 2010: • Without construction of new access roads to the Lake Yosemite site, several roads in the vicinity of the site, including Highway 99 and G Street, would operate at service levels ranging from LOS E to F. • Highway 99 from Mission Avenue to Franklin Road would operate at LOS E/F conditions. • Highway 59 from Mission Avenue to Childs Avenue would operate at LOS F conditions. • Highway 140 from the Kibby-Lake Corridor to Arboleda Drive would operate at LOS E conditions. • Santa Fe Drive north of Franklin Road would operate at LOS F conditions.	S	SU_2
Site selection, which could lead to development of a campus, would increase traffic on the regional roadway network, resulting in unacceptable service levels on the following roadway segments in Year 2035: • Highway 99 and G Street, the primary access routes to the campus site, would operate at unacceptable level of service conditions. • Highway 99 through the project study area would operate at LOS E/F conditions. • Highway 59 from Mission Avenue to Childs Avenue would operate at LOS F conditions. • Highway 140 from Santa Fe Drive to east of Arboleda Drive would operate at LOS E conditions. • Santa Fe Drive north of Franklin Road would operate at LOS F conditions.	S	SU_2
Development of a campus would, in conjunction with cumulative development, generate local and regional demands for transit service in areas that have little or no existing transit service.	S	SU_2
Development of a campus would result in growth in population that, in conjunction with cumulative development, would generate increased demands for intercity rail service.	S	SU_2
Development of a campus, in conjunction with cumulative development, would result in high levels of pedestrian and bicycle activity in areas that may not have adequate facilities for these modes of travel, causing an increase in the number of pedestrian/bicycle/auto conflicts both on- and off-campus.	S	SU_2

SITE SELECTION EIR IMPACT	Level of Significance Prior to Mitigation	Level of Significance after/with Mitigation
Development of a campus, in conjunction with cumulative development, would increase demand for airport facilities and would generate a need for additional connector flights from nearby international airports.	LS	N/A

S=Significant; LS=Less than significant; NI=No Impact; N/A=Not Applicable; SU_1= Impacts that cannot be mitigated, or for which it is not certain that mitigation could reduce the impact to a less-than-significant level; SU_2= Impacts that could be reduced to less-than-significant levels but require action by a jurisdiction other than the University; SU_3= Impacts that, even with mitigation, cannot, or might not, be reduced to a less-than-significant level, and for which mitigation would not be under the University's jurisdiction.

The SSEIR year 2035 analysis is most closely comparable to the Future plus Full LRDP Development analysis presented in this EIR. The Full LRDP Development scenario does not assume the presence of the University Community, which is consistent with the assumptions made in the SSEIR. A comparison of the significant impacts identified in the two documents, before any mitigation measures, produces the following results:

Impact	SSEIR	LRDP EIR	Reason for Difference
Highway 99 and G Street operate at unacceptable levels.	Yes	Yes	
Highway 59, Mission to Childs, operates at unacceptable levels.	Yes	No	Updated analysis finds that G Street is more heavily affected by campus traffic than Highway 59; Highway 59 is projected to operate poorly, but does not meet the threshold for a significant project impact.
Highway 140, Santa Fe to Arboleda, operates at unacceptable levels.	Yes	No	Highway 140 benefits from an improvement project programmed in Tier 1 of the 1998 RTP; after implementation, Highway 140 will accommodate projected traffic demand.
Santa Fe Drive, north of Franklin, operates at unacceptable levels.	Yes	No	Updated analysis finds that Santa Fe Drive is most affected in segment from Highway 59 to Beachwood Drive.
Increased demand for transit service.	Yes	Yes	
Increased demand for intercity rail service.	Yes	No	Intercity rail service through Merced has adequate capacity; a significant project impact does not result solely from increased demand.
Increased conflicts between pedestrians/cyclists/autos.	Yes	No	Impact is reduced to less than significant through proposed LRDP policies and Regional Bicycle Plan policies.

The following mitigation measures were identified in the SSEIR for year 2035. To the extent that the traffic analysis conducted for the proposed LRDP EIR supports these mitigation measures, these will be required as part of project implementation. The following list includes a comparison of the 2035 mitigation measures identified in the SSEIR and the Future plus Full LRDP Development mitigation measures identified in this LRDP EIR, and specifies the differences between the measures from the two documents. (Note that SSEIR Mitigation Measures 4.7-1 through 4.7-10 relate to year 2010 analysis; there is no comparable analysis case in this EIR, so those mitigation measures are not listed here.)

- **SSEIR Mitigation Measure 4.7-10 (2035)**—Construct a four-lane Kibby-Lake Corridor expressway from the Mission Avenue/Highway 99 Interchange to the Lake Yosemite site.

  This project is partially included as a Tier 1 project in the 1998 RTP (Campus Parkway from Mission Avenue/Highway 99 to Yosemite Avenue), and partially included in Mitigation Measure 4.14-4(a) in this LRDP EIR (extension of Campus Parkway from Yosemite Avenue to Bellevue Road).

- **SSEIR Mitigation Measure 4.7-11 (2035)**—Construct a two-lane arterial extension of Bellevue Avenue from Lake Road to the Kibby-Lake Corridor.

  Mitigation Measure 4.14-4(a) in this LRDP EIR calls for the extension of Campus Parkway from Yosemite Avenue to Bellevue Road, thus providing a direct connection to Bellevue Road and negating the need for this improvement.

- **SSEIR Mitigation Measure 4.7-12 (2035)**—Construct the four-lane Yosemite Avenue expressway from Highway 99 to Highway 59.

  This project is included as a programmed improvement in Tier 1 of the 1998 RTP.

- **SSEIR Mitigation Measure 4.7-13 (2035)**—Reconstruct Highway 59 (Snelling Highway) to a four-lane Highway 59 expressway from Santa Fe Drive to the Paloma Road Extension.

  The widening of Highway 59 from Santa Fe Drive to Bellevue Road is included in Mitigation Measure 4.14-4(a) in this LRDP EIR. The extension to La Paloma Road is no longer necessary because of the shift in campus location.

- **SSEIR Mitigation Measure 4.7-14 (2035)**—Construct a four-lane La Paloma Road expressway extension from G Street to Highway 59.

  This project is no longer necessary because of the shift in campus location.

- **SSEIR Mitigation Measure 4.7-15 (2035)**—Widen Highway 99 from a four-lane facility to a six-lane facility through the project study area.

  Updated analysis shows no significant project impacts on Highway 99. The segment of Highway 99 from Atwater to V Street is predicted to operate poorly under future no project conditions; an improvement project to widen that segment is included in Tier 2 of the 1998 RTP. The mitigations listed for project impact 4.14-4 provide the indirect benefit of improving operation of Highway 99 from V Street to Childs Avenue to acceptable levels (LOS D).

- **SSEIR Mitigation Measure 4.7-16 (2035)**—Widen Highway 59, a two-lane rural highway, to a four-lane highway from Mission Avenue to Childs Avenue.

This segment of Highway 59 is found to operate poorly in the future, but refined technical analysis finds that the contribution of campus traffic to this facility is very small and does not rise to the level of significance per the standards of significance.

- **SSEIR Mitigation Measure 4.7-17 (2035)**—Widen the two-lane rural Highway 140 to a four-lane arterial from Santa Fe Drive to east of Arbodela Drive.

  Highway 140 is programmed to be widened to four lanes from Santa Fe Drive to Campus Parkway in Tier 1 of the 1998 RTP; this improvement is sufficient for the facility to operate acceptably.

- **SSEIR Mitigation Measure 4.7-18 (2035)**—Widen Santa Fe Drive from a four-lane arterial to a six-lane highway.

  This project is included in Mitigation Measure 4.14-4(a) in this LRDP EIR.

- **SSEIR Mitigation Measure 4.7-29**—The campus shall coordinate public transportation services and will work with the local jurisdiction and other agencies to implement and seek funding for increased transit service in the vicinity of the campus.

  This measure is addressed by LRDP policies.

- **SSEIR Mitigation Measure 4.7-30**—The campus shall promote the use of alternate modes of transit and shall consider the feasibility of implementing a campus-sponsored shuttle system that serves faculty, staff, and students both on-campus and in the area immediately surrounding the campus.

  This measure is addressed by LRDP policies.

- **SSEIR Mitigation Measure 4.7-31**—The circulation elements, congestion management plans, and regional transportation plans of local and regional agencies establish policies encouraging the provision of various types of transit. It is the responsibility of local jurisdictions and local and regional transit and transportation agencies to plan for and ensure the provision of transit alternatives for the population living in their jurisdictions.

  This measure is partially addressed through policies in the LRDP, and is further discussed below. This impact is no longer considered significant.

- **SSEIR Mitigation Measure 4.7-32**—The campus shall keep Amtrak and city officials informed of projected increases in campus demand for rail service to allow Amtrak to provide additional service if it is needed.

  This measure is addressed by LRDP policies.

- **SSEIR Mitigation Measure 4.7-33**—The campus shall support measures to link the intercity rail service with the local transit system and make transit travel a more convenient and feasible alternative for the campus population.

  This measure is addressed by LRDP policies.

- **SSEIR Mitigation Measure 4.7-34**—Implement Measure 4.7-31.

- **SSEIR Mitigation Measure 4.7-35**—As the campus is being designed, campus planners shall provide separate bikeways, pedestrian paths, roadways, and parking facilities wherever possible to minimize on-site conflicts.

This measure is addressed by LRDP policies.

- **SSEIR Mitigation Measure 4.7-36**—It is the responsibility of the respective city agencies to preserve sufficient rights-of-way to provide sidewalks and/or bike paths in areas heavily travelled by pedestrians and bicyclists.

  This measure is addressed through Mitigation Measure 4.14-7 in this LRDP EIR.

4.14.2 Environmental Setting

This section is presented in two parts. The first provides an overview of existing transportation infrastructure and current conditions in the vicinity of the proposed project. The second portion gives a brief description of the transportation goals and policies of local jurisdictions.

4.14.2.1 Existing Transportation Conditions

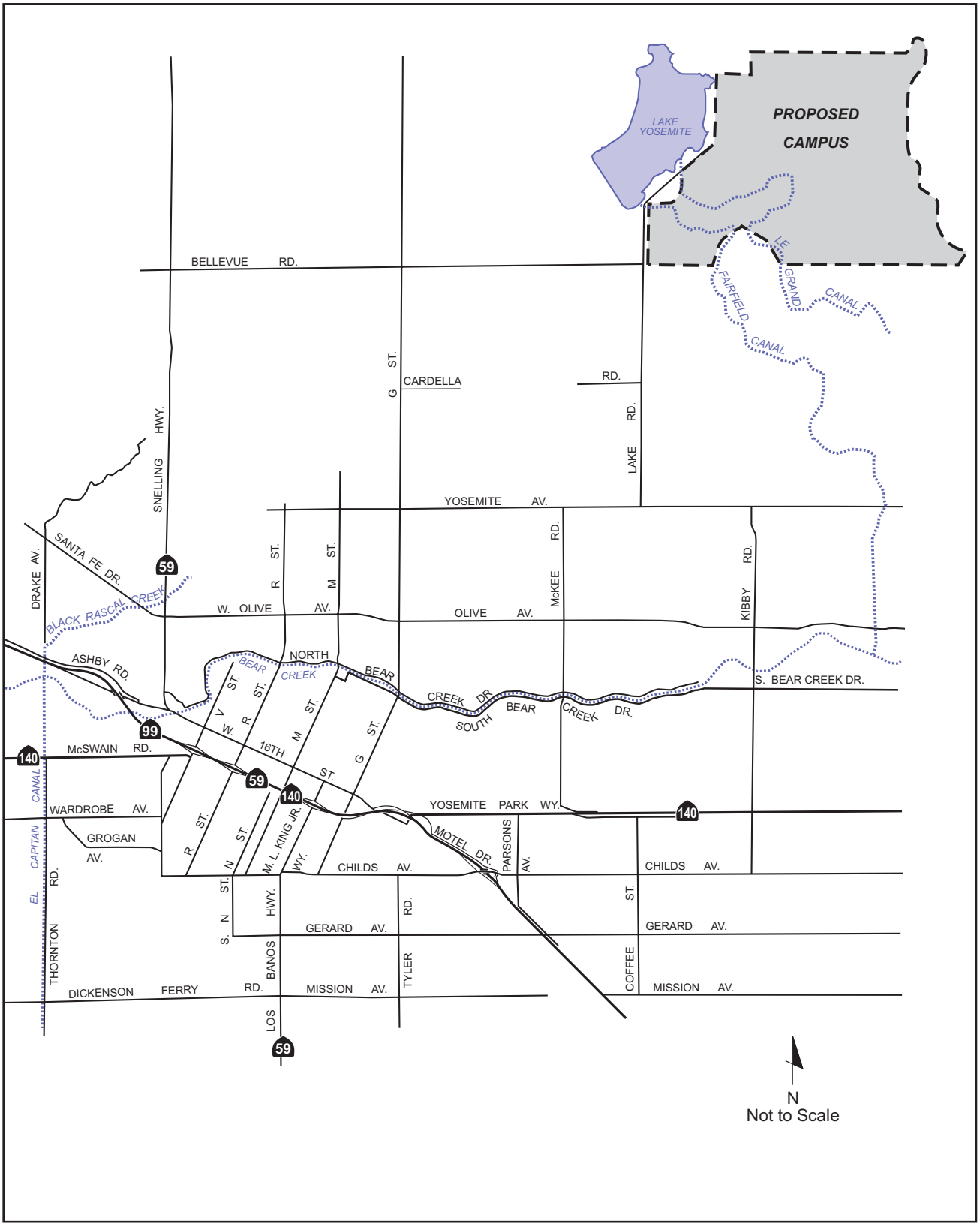
Regional and Local Roadway Network. The proposed project site is largely undeveloped with the exception of the Merced Hills Golf Course, with limited roadway infrastructure in place. The site can be accessed by two-lane rural roads, including Bellevue Road and Lake Road. Descriptions of the most important local and regional roadways in the vicinity of the project are provided below, and the locations of these facilities are shown in Figure 4.14-1.

Regional Highways

- **Highway 99**—Highway 99 is the primary regional facility in the Merced area. Highway 99 provides access to San Francisco and Sacramento to the north, and Fresno and Bakersfield to the south. Through the City of Merced, Highway 99 is a four-lane freeway, with an average traffic volume in the range of 35,000–40,000 vehicles per day.
- **Highway 140**—Highway 140 is a major east-west highway serving recreational and local traffic. Highway 140 is a two-lane rural highway providing regional access to Yosemite National Park to the east, and extending to Highway 99 and Interstate 5 to the west. Average daily volumes on the highway range from about 5,000 west of the city, to 16,000 east of the city.
- **Highway 59**—Highway 59 is a north-south facility extending from Route 152 (near Los Banos) to Snelling, a community located north of the City of Merced on the Merced River. Highway 59 is a two-lane rural highway through Merced, serving between 14,000 and 16,000 vehicles per day.

Major Arterial Streets

- **G Street**—G Street is a north-south roadway extending from Highway 99 to La Paloma Road, where it turns into Snelling Road. G Street is a four-lane roadway south of Yosemite Avenue, narrowing to two lanes north of Yosemite Avenue. G Street carries almost 20,000 vehicles per day within the city, and 6,100 daily vehicles north of the city limits.
- **Olive Avenue**—Olive Avenue is an east-west street providing cross-town travel. West Olive Avenue connects State Route 59 and R, M, and G Streets. It is a six-lane facility west of G Street, primarily serving a commercial corridor. West of Highway 59, Olive Avenue becomes Santa Fe Drive, connecting the northern portions of Merced to the City of Atwater and Castle Air Force Base. The segment of West Olive Avenue between Route 59 and R



UC Merced LRDP EIR

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URS	Project No. 51-00067044.00 University of California at Merced	PROJECT LOCATION	Figure 4.14-1

51-00067044.00-00002/072801/gos

Street is designated as an expressway. East of G Street, East Olive Avenue transitions from four lanes to two lanes and provides access to one of Merced's largest residential areas. Daily traffic volumes range from 37,000 vehicles in the western part of the city to 8,800 vehicles east of G Street.

- **Bellevue Road**—Bellevue Road is a two-lane east-west road extending from Fox Road to its eastern terminus at Lake Road.
- **Yosemite Avenue**—Yosemite Avenue is a two-lane east-west road extending from R Street to its eastern terminus at Arboleda Drive.
- **Lake Road**—Lake Road is a two-lane north-south road extending from Yosemite Avenue to its northern terminus at Lake Yosemite.

Roadway Traffic Conditions. The level of service (LOS) of a roadway or intersection is a measure of the ability of the facility to accommodate typical traffic volumes. Levels of service range from A, which indicates free flow conditions, to F, which indicates forced flow or overloaded conditions.

The traffic conditions of roadway segments were analyzed in terms of levels of service using capacities developed by the authors of the USDOT Highway Capacity Manual for Florida Department of Transportation (FDOT). These capacities have been generally accepted nationwide for volume/capacity evaluations of roadway corridors. They have also been accepted by Caltrans and Merced County Association of Governments (MCAG) for long-range traffic studies in Merced County. In addition, traffic observations were conducted at a number of intersections in Merced that might be affected by traffic from the proposed project. The operations of these intersections were also analyzed and assigned levels of service.

Regional Highways. Most of the key highways in the study area presently operate at acceptable service levels of LOS D or better. Highway 99 operates mostly at LOS B through the study area, except between Highway 140 and Highway 59, where it operates at LOS C.

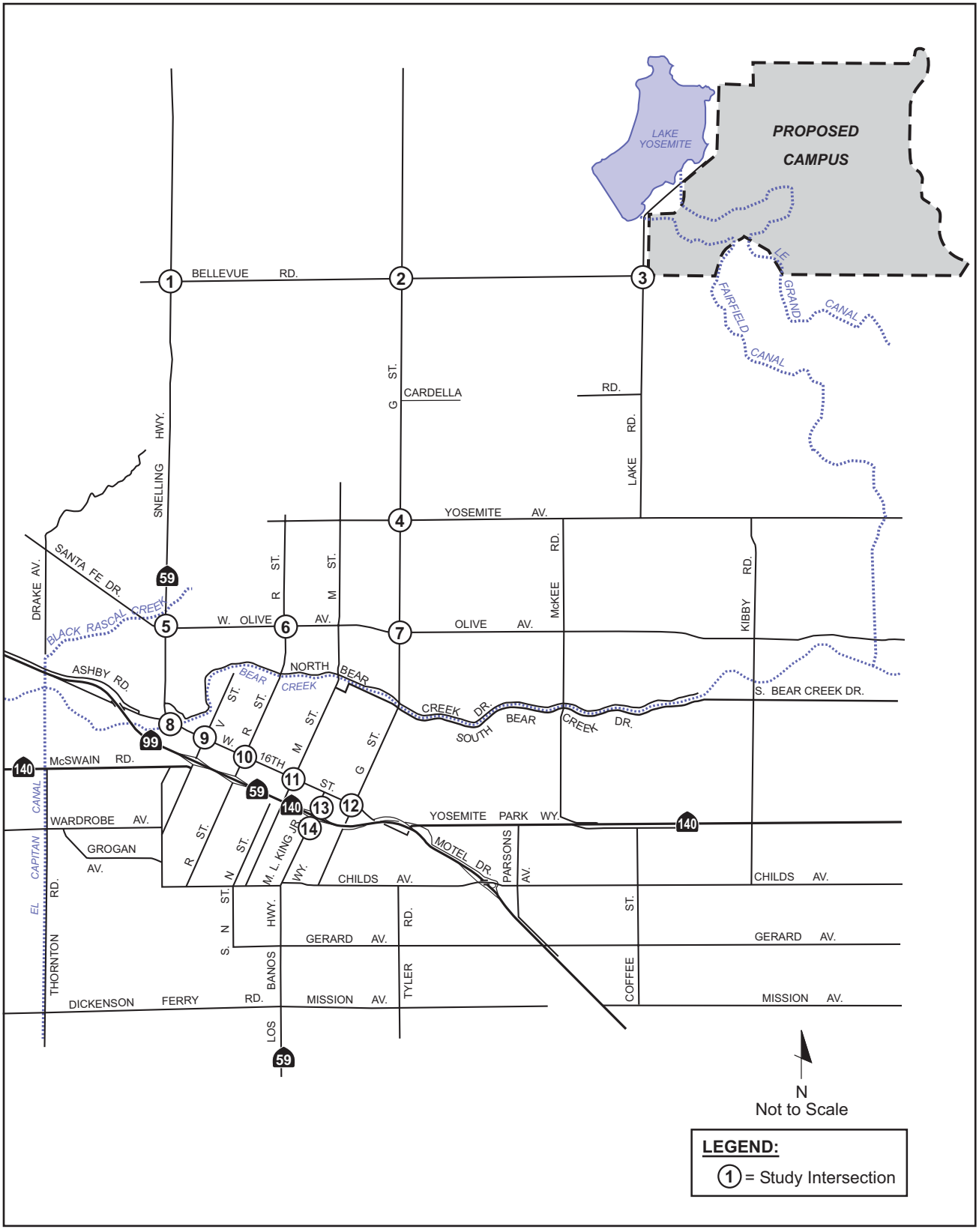
The 1998 Regional Transportation Plan for Merced County indicates that Highway 59 between 16th Street and Olive Avenue is an existing network deficiency, currently operating at LOS F. Elsewhere in the city, Highway 59 operates at an acceptable LOS D. As Highway 59 continues northward, daily traffic volumes decline and the roadway operates at LOS B.

Highway 140 operates at LOS C in the areas west of Highway 99, and LOS D in areas east of the freeway.

Major Arterial Streets. Almost all major arterials in the study area presently operate at LOS C or better. The only road segments operating below LOS C are 1) G Street, between Highway 99 and Olive, which operates at LOS D and E (Merced Vision 2015 General Plan); and, 2) Highway 59, between 16th Street and Santa Fe/Olive, which operates at LOS F (Regional Transportation Plan).

Study Intersections. The intersections selected for observation are shown in Figure 4.14-2 and listed below:

1. Highway 59 / Bellevue Road
2. G Street / Bellevue Road
3. Lake Road / Bellevue Road



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UC Merced LRDP EIR

URS	Project No. 51-00067044.00 University of California at Merced	STUDY INTERSECTIONS	Figure 4.14-2

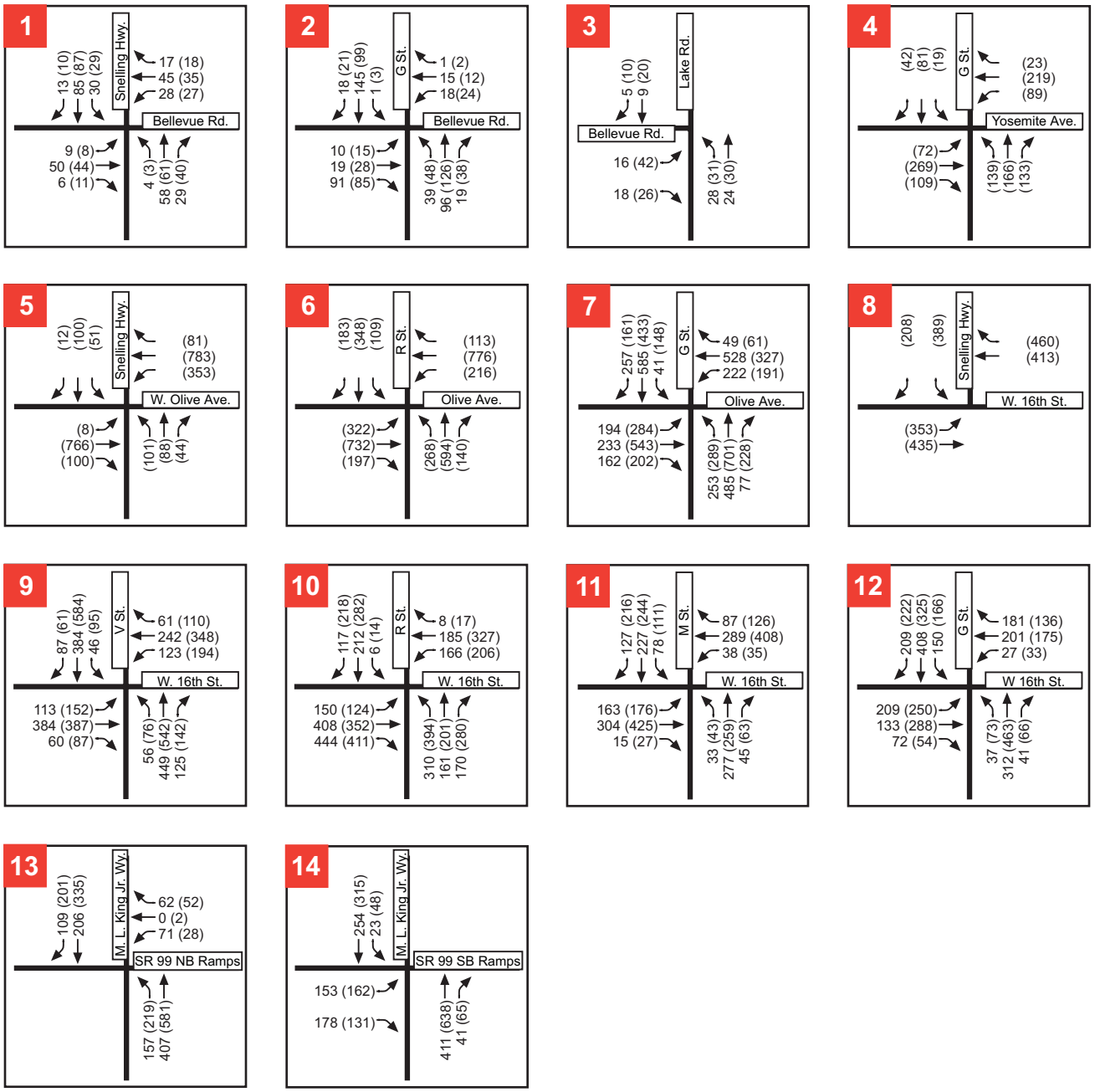
51-00067044.00-00002/072801/gos

4. G Street / Yosemite Avenue
5. Highway 59 / West Olive Avenue
6. R Street / West Olive Avenue
7. G Street / West Olive Avenue
8. Highway 59 / West 16th Street
9. V Street / West 16th Street
10. R Street / West 16th Street
11. M Street / West 16th Street
12. G Street / West 16th Street
13. M. L. King, Jr. Way / Highway 99 Northbound Ramps
14. M. L. King, Jr. Way / Highway 99 Southbound Ramps

Figure 4.14-3 summarizes the peak-hour turning-movement counts that were taken at these intersections. Table 4.14-1 shows the levels of service calculated from the traffic volume observations. Most of the intersections operate at acceptable levels during the peak hours observed. The exception is Highway 59 / West 16th Street, which operates at LOS F during the evening peak. This is consistent with the finding in the RTP that the segment of Highway 59 between West 16th Street and West Olive Avenue is an existing network deficiency.

Table 4.14-1
Existing Levels of Service at Study Intersections

Intersection	Existing Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Highway 59 / Bellevue Rd.	Side-street stop[1]	2 (5 EB)	A (A)	2 (4 EB)	A (A)
2. G St. / Bellevue Rd.	All-way stop[2]	3	A	4	A
3. Lake Rd. / Bellevue Rd.	Side-street stop	2 (3 EB)	A (A)	2 (4 EB)	A (A)
4. G St. / Yosemite Ave.	Signal[3]	N/A	N/A	17	C
5. Highway 59 / West Olive Ave.	Signal	N/A	N/A	20	C
6. R St. / West Olive Ave.	Signal	N/A	N/A	22	C
7. G St. / West Olive Ave.	Signal	20	C	20	C
8. Highway 59 / West 16th St.	All-way stop	N/A	N/A	52	F
9. V St. / West 16th St.	Signal	18	C	20	C
10. R St. / West 16th St.	Signal	20	C	23	C
11. M St. / West 16th St.	Signal	18	C	18	C
12. G St. / West 16th St.	Signal	19	C	19	C
13. M. L. King, Jr. Way / Highway 99 NB Ramps	Side-street stop	2 (10 WB)	A (C)	2 (14 WB)	A (C)



KEY:

XX (YY) = AM (PM)
Peak Hour
Traffic Volumes

NOTE: AM Peak Hour Traffic Volumes not available at some locations

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EXISTING CONDITIONS
PEAK HOUR INTERSECTION VOLUMES

Figure 4.14-3

14. M. L. King, Jr. Way / Highway 99 SB Ramps	Side-street stop	3 (9 EB)	A (B)	8 (32 EB)	B (E)

Notes:
[1] Side-street stop level of service based on intersection average delay and, in parenthesis, the total average delay for critical side street movement, expressed in seconds per vehicle, according to the Highway Capacity Manual, Special Report 209, Transportation Research Board.
[2] All-way stop level of service based on average intersection delay, according to the Highway Capacity Manual, Special Report 209, Transportation Research Board.
[3] Signalized intersection level of service based on weighted average stopped delay per vehicle, according to the Highway Capacity Manual, Special Report 209, Transportation Research Board.
N/A = Not Available; AM conditions are estimated to be similar to, or better than, PM peak hour.

Anecdotal information and direct observations indicate that there are other intersections in downtown Merced that do not operate well during the peak travel periods, particularly the Highway 99 ramp intersections at V and R Streets. An analysis of existing conditions at those locations is not presented here because improvement projects are programmed that would reconfigure the intersections. Therefore, any comparison of future and current operations would be inconsistent.

Other Transportation Modes

Air

Passenger air service to Merced County is provided at Merced Municipal Airport, a basic transportation airport providing commercial air service and freight cargo service. Located south of Highway 99 near the western City of Merced corporate limits, the Merced Airport is the only regionally significant airport in the county, according to criteria from the Civil Aeronautics Board. United Express provides commercial air service between Merced and Los Angeles, with two nonstop flights and one connecting flight each weekday.

Castle Airport, the former Castle Air Force Base, is planned to be a major aviation facility as part of the Base Reuse Plan. At this time, no regularly scheduled passenger or freight air service occurs at Castle Airport.

Bus

Local transit service in and around Merced County is provided by Merced County Transit. Also referred to as "The Bus," Merced County Transit was created in July 1996 after consolidation of three existing public transit systems. The Merced County Transit system is the single countywide provider of public transit service in Merced County and is managed by the transportation division of the Merced County Department of Public Works. Seventeen buses operate Monday through Friday on 12 fixed routes, supplemented by a dial-a-ride service. Urban transit routes connect downtown Merced, adjacent neighborhoods, and major trip generators such as the Merced Civic Center, hospitals, shopping areas, and Merced College. Rural routes connect outlying cities and communities in Merced County. The major transit stop closest to the proposed campus is at Yosemite Avenue and G Street, at the Raley's Shopping Center and near Merced College; most Merced bus routes serve this stop. Route 11 travels approximately one-half mile farther east along Yosemite Avenue, then turns south on Joerg Avenue. The most recent data available show fixed-route bus ridership at almost 530,000 passengers for fiscal year 1998–99; ridership has increased steadily since consolidated transit operations began in 1996.

Transit service linking the City of Merced with other parts of the state is provided by private entities, including Greyhound Lines, which provides daily and weekend service from Merced to numerous California locations.

Nonmotorized Transportation

The City of Merced has the most extensive system of bicycle facilities in Merced County. Merced's bikeway system consists of Class I paths and Class II bicycle lanes along many of the major streets in the city and several of the local creek corridors. Merced County also maintains bike paths along portions of Bear Creek and along Lake Road to Lake Yosemite. Data from the 1990 Census show that approximately 1 percent of Merced County commuters use a bicycle to get to work.

Pedestrian facilities in the form of sidewalks and crosswalks are present in most of the urbanized areas of the City of Merced. Census data estimate that 6 percent of county commuters walk to work.

Passenger Rail

Amtrak provides daily passenger rail service to the San Francisco Bay Area, the San Joaquin Valley, Southern California, and Yosemite National Park. The Merced Amtrak station is located on the Atchison, Topeka, and Santa Fe (ATSF) rail line at 324 West 24th Street, with a large, paved, and lighted parking lot on the north end of the station. The Transpo Center, located on 16th Street between M and P Streets in Merced, was constructed on the Southern Pacific line in 1990 in anticipation of a potential rerouting of passenger service from the ATSF line to the Southern Pacific (now Union Pacific) line.

Freight

Railroads and long-haul trucks provide freight movement in the Merced area. Highway 99 is a significant interregional route of statewide importance and carries most of the truck-transported agricultural goods produced in or transported through the Merced area. There are two freight railroads operating in Merced County and the City of Merced. The Union Pacific Transportation Company (UP) operates a rail line running parallel to and within close proximity of Highway 99. The ATSF railroad operates a rail line running parallel to Santa Fe Drive.

Transportation Systems Management/Transportation Demand Management

In contrast to traditional capital improvement transportation projects, transportation systems management (TSM) and transportation demand management (TDM) focus on identifying strategies to increase the efficiency of the existing transportation system. Typical TSM/TDM measures might include ride-sharing programs, ramp metering, high-occupancy vehicle (HOV) lanes, Park-and-Ride lots, variable work hours, and telecommuting. Merced County has had an active TDM program since 1984. The City of Merced's Merced Vision 2015 General Plan includes policies and implementing actions related to TSM/TDM. Implementation of TSM/TDM projects on the regional road network is the responsibility of the Merced County Association of Governments (MCAG) and Caltrans.

4.14.2.2 Local Goals and Policies

This section summarizes the planning and policy documents that relate to the provision of transportation services in Merced County. These documents include a number of planned improvements that could benefit the project. Some of the key documents include the following:

- 1998 Regional Transportation Plan, Merced County Association of Governments
- Merced County Year 2000 General Plan, Merced County
- Merced Vision 2015 General Plan, City of Merced
- Regional Bicycle Plan, Merced County Association of Governments, 1998
- Short Range Transit Plan, Merced County Transit, 2000
- Atwater General Plan, City of Atwater, 2001

Regional Transportation Plan. The Regional Transportation Plan (RTP) provides a comprehensive long-range view of transportation issues, opportunities and needs for Merced County. It establishes the goals, objectives and policies for future transportation improvements. The plan identifies the actions that should be taken, and the funding needs and options available for successful implementation. For a description of the transportation improvement projects contained in the RTP and the ways in which those projects were incorporated in this analysis, please see the sections on Planned Improvements – Regional and Local Roadway Network and Analytical Methods.

Merced County General Plan. The Merced County General Plan Circulation Element includes policies to ensure that adequate access is provided and maintained for all County land uses. Following are the General Plan Circulation Element policies relevant to transportation systems near the proposed campus.

Goal 1: A road system which provides free movement of vehicles throughout the County.

Objective 1A: All roads are appropriately classified by their existing and future use characteristics to effectively distribute vehicles.

Policy 1: Establish a roadway system consisting of local roads, collector roads, arterial roads, and freeways adequate to serve existing and future land uses.

Objective 1B: Roadways are improved and maintained to provide an adequate level of service "C" for existing and anticipated traffic volumes.

Policy 2: Right-of-way dedication and roadway improvements shall be pursued with the review of land use entitlements to offset circulation impacts.

Policy 3: All methods to achieve cost-effective design, construction, and maintenance of existing and future roadways shall be pursued.

Policy 5: Road rights-of-way and improvements shall be coordinated with incorporated cities and with adjacent counties to ensure compatibility.

Objective 1C: Appropriate levels of roadway access are provided to all existing and future land uses.

Policy 6: In urban areas and in Planned Agricultural Industrial Development areas, newly created lots or parcels shall front upon an improved public road. Exceptions to this policy may be permitted for Planned Unit Developments (PUD).

Goal 2: A circulation system which provides for a variety of transportation modes for the safe and efficient movement of people and goods throughout the County.

Objective 2A: Rail and air transportation systems that provide safe, efficient, and reliable movement of passengers and freight.

Policy 3: Encourage coordination of air and rail passenger services with other public transportation.

Objective 2B: An established bikeway system meeting the existing and future needs.

Policy 6: Encourage the construction of Class I, II, or III bike routes as designated in the overall Merced County Bikeway Plan and in Community Specific Plans.

Policy 7: The location and construction of bikeways shall be coordinated with incorporated cities and adjacent counties.

Objective 2C: A public transit system adequate to meet existing and future population needs through the year 2000.

Policy 8: Support efforts by the Merced County Association of Governments (MCAG) and other public entities to improve public transportation.

Policy 9: Encourage and develop programs which promote the use of ridesharing, car-pooling, and van-pooling.

Merced Vision 2015 General Plan. The City's General Plan acknowledges the need to provide connections between the City and the future campus and University Community. Access to the campus is identified in the General Plan as an issue requiring further study within joint City/County planning efforts. Some of the relevant policies contained in the Merced Vision 2015 General Plan include the following:

- Coordinate circulation and transportation planning with pertinent regional, state, and federal agencies.
- Minimize adverse impacts on the environment from existing and proposed road systems.
- Provide for and maintain a major transitway along M Street and possibly Bellevue Road.
- Support a safe and effective public transit system.
- Provide convenient bicycle support facilities to encourage bicycle use.
- Maintain and expand the community's existing bicycle circulation system.

Regional Bicycle Plan. The Regional Bicycle Plan, prepared by MCAG in December of 1998, is intended to improve and enhance bicycle transportation in Merced County. Relevant goals from the plan include the following:

- *Safety*: Provide a safe bicycle system as an alternative to vehicular travel. Establish and maintain routes that are designed to ensure safety. Establish a system that is secure for riders.

- Build and maintain street surfaces to avoid pavement conditions unsafe to bicyclists. As collision events and bicycle injuries and accidents are recorded, a site review is necessary to identify potential remedial design actions.
- *Education*: Encourage bicycling through education. Provide literature and up-to-date bikeway maps for the public. Promote safe bicycle use to bike riders and car drivers.
- Promote safe bicycle use to bike riders and car drivers. Cooperate with other agencies and groups to promote and educate the public regarding bike facilities and safety. Establish helmet programs that educate and encourage safe bicycle use. Support bicycle safety awareness through public information and education programs.
- *Connectivity/Accessibility*: Accommodate bicycling as part of the county's multimodal transportation system. Establish and maintain an integrated network that has the facilities to support the market for which it is intended. Establish and maintain an integrated network that connects to other countries.
- Establish right-of-way requirements, that accommodate the complete bicycle route system, sidewalk, and multiuse pathway system through the countywide thoroughfare program. Maintain a bicycle planning committee to oversee bicycle transportation planning and implementation projects for the purposeful movement of people and goods by the most efficient means available. Plan in coordination with the development of UC Merced. Promote bicycle routes to regional recreational and commuter destinations. Link trip origins and destinations with on-street bikeways designed to serve transportation and recreation purposes. Integrate bicycling into the transit system. Establish nodes of connectivity to encourage tourism and commuting. Devise lane specifications for specific bike riders. Include funding for regular facility evaluation, and maintenance and repair, as well as funding to review development and zoning proposals for impact on bicycle mobility in the annual local operations and maintenance budgets. Maintain a local capital improvement plan that provides regular funding for the bicycle program to acquire right-of-way, to construct new facilities, to retrofit inadequate facilities, and to refurbish older facilities.

Short-Range Transit Plan. The Short-Range Transit Plan, prepared by MCAG in July of 2000, has the following purposes: evaluate current transit services; update system goals, objectives, and performance standards; describe future transit needs; and present a service plan and financial plan. The goals and objectives contained in the Plan are listed below.

Goal 1: Provide increased mobility in Merced County.

Objective 1a: Provide quality and efficient transit service throughout Merced County with The Bus—Merced County Transit.

Objective 1b: Coordinate the fixed-route system with regional service.

Objective 1c: Ensure Dial-A-Ride service meets the special needs of the disabled, seniors, ADA eligible, and those not served by fixed-route service.

Objective 1d: Meet all transit needs that are reasonable to meet within the adopted definition of reasonableness, as set by the MCAG Governing Board.

Goal 2: Provide effective service.

Objective 2a: Provide convenient transit service.

Objective 2b: Provide reliable transit service.

Objective 2c: Provide safe transit service.

Objective 2d: Increase service based on market demand.

Objective 2e: Promote transit use as an alternative mode.

Goal 3: Provide efficient service.

Objective 3a: Minimize operating costs.

Objective 3b: Minimize captial costs for vehicle replacement.

Objective 3c: Maximize use of state and federal funds.

Objective 3d: Provide productive service.

Objective 3e: Minimize subsidy per passenger trip.

Atwater General Plan. The City of Atwater, located adjacent to the City of Merced, will be affected by the development of the campus and University Community. The Atwater General Plan, adopted in July of 2000, establishes the following goals and policies relevant to regional transportation systems:

Goal Circ-3: Support efforts to improve vehicular connections between Atwater and the UC Merced access system.

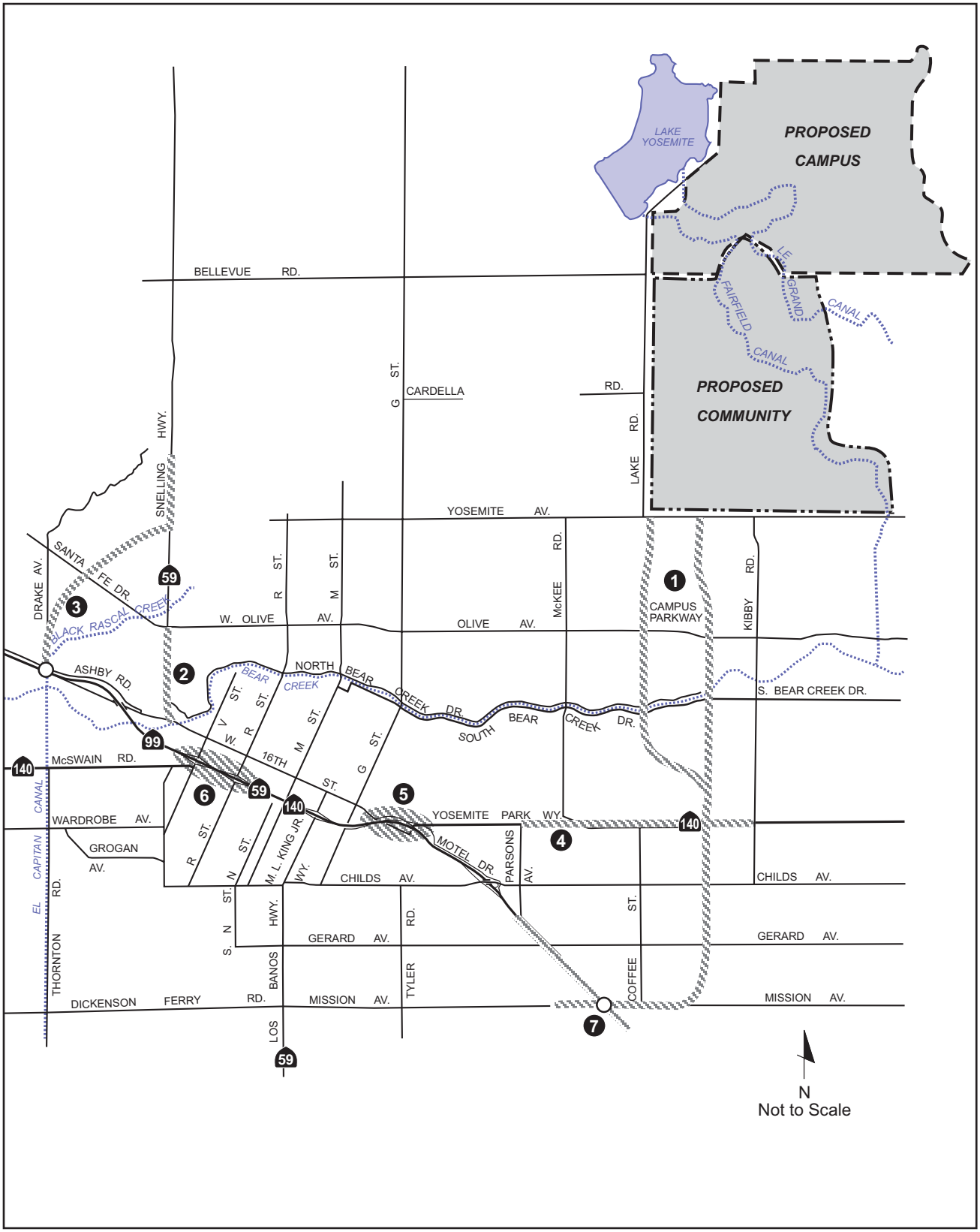
Policy 3.1: Support efforts to obtain funding for the projects proposed in the MIS [the State Route 99 Merced/Atwater Corridor Major Investment Study] and any subsequent documents approved on a regional basis. (The projects proposed in the MIS are incorporated in the project list of the 1998 RTP.)

Policy 3.2: Explore improvements to other roadways connecting the City with UC Merced.

4.14.2.3 Planned Improvements

Regional and Local Roadway Network. The Regional Transportation Plan (RTP) contains a series of transportation improvement projects, a number of which could potentially benefit the proposed project. The improvements are divided into two categories: Tier 1 projects are those for which funding has been identified from an established source, such as state or federal funds; Tier 2 projects are those for which full funding has not been identified. Tier 1 projects have undergone air quality conformity analysis to ensure they contribute to the region's compliance with state and federal air quality rules. For the purposes of this transportation analysis, the Tier 1 projects have been assumed to be in place in the future, while the Tier 2 projects are not assumed. The Tier 1 projects that are most relevant to the proposed project site are shown in Figure 4.14-4 and listed below.

- Campus Parkway, from Highway 99 to Yosemite Avenue (alignment between Highway 140 and Yosemite Avenue to be determined)
- Highway 59, widen to 4 lanes from 16th Street to West Olive Avenue
- Highway 59, new interchange at Thornton Road and expressway from Highway 99 to Belcher Avenue



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UC Merced LRDP EIR

URS	Project No. 51-00067044.00 University of California at Merced	PLANNED IMPROVEMENTS	Figure 4.14-4

- Highway 140, widen to 4 lanes from Parsons Avenue to Kibby Road
- Improve Highway 99/140 interchange, connect 16th Street to Highway 140
- Improve Highway 99 interchanges at V and R Streets, complete 13th and 14th Streets as one-way couplet
- Upgrade Highway 99 to freeway from Merced to Madera County, construct new interchange at Mission Avenue

The proposed Campus Parkway is a Tier 1 project that extends from a new interchange at Highway 99 and Mission Avenue to Yosemite Avenue. Campus Parkway is proposed to be a high-volume expressway that will help to serve the needs of current and future development in northern and eastern Merced. A combination of federal, state, and local funds has been identified to support development of Campus Parkway, and construction is expected to begin in 2005. The provision of a major arterial that will serve as an extension of Campus Parkway from Yosemite Avenue to Bellevue Road to directly serve the campus and University Community is included in the University Community Plan (UCP).

Other Transportation Modes

Air

The primary planning document for aeronautics in Merced County is the Merced County Regional Aviation System Plan. Based on forecasts for airport operations, Merced Municipal Airport is anticipated to operate within available capacity for the next 20 years. Supplementing Merced Municipal Airport is Castle Airport (the former Castle Air Force Base). Included among the possible uses for Castle Airport are conversions of the former military airfield and associated facilities to a civilian airport.

Bus

The Short-Range Transit Plan, adopted in July of 2000, recommends service frequency improvements, two new routes for the fast-growing western portion of the county, and improved dispatch capabilities. Merced County Transit is also planning for service to UC Merced. A proposal has been prepared to purchase 10 buses for service to and from the new UC Merced campus. If successful in securing federal funds, either through the Congestion Mitigation and Air Quality (CMAQ) program or through Federal Transportation Administration Section 5309 funds, Merced County Transit would provide reliable public bus service to the UC Merced area beginning in 2005. The Merced County RTP proposes future operating expenditures for the UC-related service, and Merced County Transit is interested in exploring possible teaming arrangements with the University to support comprehensive transit service. The service would connect the proposed project area with downtown Merced and the Transpo Center, Merced College, Castle AFB/Winton/Stanislaus State, Dos Palos/Los Banos, Atwater/Livingston/Gustine, and Planada/Le Grand. Merced County Transit will operate a fully bicycle-accessible fleet by 2005, and the new buses to serve the campus are expected to be low-emission compressed natural gas vehicles.

The City of Merced has maintained a strong north-south growth pattern for many years, consistent with its proposed expansion areas. This pattern has contributed to a relative clustering of major destinations in proximity to M Street. M Street has been formally designated a "Transitway" or transit corridor. The "Villages" concept for north Merced emphasizes transit-

oriented development, supported by the M Street Transitway. This corridor is a logical location for centralized bus service to run along or closely parallel to M Street throughout the entire north-south length of the city. Light rail has been discussed as a possible mode for service along the M Street corridor, although it is unlikely to occur until the later stages of campus and University Community development. An enhanced M Street transit corridor with connections to Bellevue Road and the University Community could offer convenient nonauto access to nearly every major transit-oriented destination in Merced.

Nonmotorized Transportation

In the future, bicycles have the potential to become an important mode of transportation for the campus and University Community. Merced has favorable climate and terrain to encourage the use of bicycles for both recreational and transportation functions. The City of Merced has a significant number of existing and proposed Class I bicycle paths. Street cross-sections in the Merced Vision 2015 General Plan consistently include Class I or Class II facilities.

The Regional Bicycle Plan identifies a regional bikeway system for Merced County and within each community in the county. The highest-priority projects identified in the plan are a regional bicycle safety and education program, and effective connections to the proposed campus and University Community. A complete system of Class I and II bikeways is proposed for northern Merced, including Bellevue Road, Cardella Road and Yosemite Avenue serving east-west travel, and Lake Road, Parsons/Gardner Avenues, and G Street serving north-south travel. Improvements and extensions are also proposed to the creekside paths along Bear, Rascal, and Fahrens creeks that primarily serve recreational travel. The Merced Vision 2015 General Plan specifically calls for coordinated implementation and planning of bicycle facilities with the County of Merced and the University of California.

Passenger Rail

The Regional Transportation Plan notes the following priorities for improving passenger rail service:

- Establish direct service to Sacramento.
- Extend service from Bakersfield to Los Angeles.
- Reroute the Amtrak San Joaquins onto the Southern Pacific tracks.
- Reroute the Amtrak San Joaquins over the Union Pacific tracks through the Altamont Pass.

In 1993, the Intercity High-Speed Rail Commission was established to develop a framework for implementation of a high-speed rail system in California. The focus of the commission's work was on intercity travel, i.e., trips of between 100 and 500 miles, at speeds in excess of 200 miles per hour. In late 1996, the commission finalized its findings and recommendations, concluding that high-speed rail was financially, technically, environmentally, and politically feasible.

The recommended system is almost 680 miles long and links all of California's major population centers: Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, and San Diego. The Recommended System Map shows an alignment within the Highway 99 corridor that includes Merced as the junction point between LA-to-Sacramento service and LA-to-San Francisco service. Senate Bill 1420 created a High-Speed Rail Authority with the mandate to direct the development and implementation of intercity high-speed rail service in California.

Studies are underway to clarify potential alignments and station locations and perform environmental screening and analysis. Although the UC campus site is not presently under consideration as a potential location for the Merced station, candidate high-speed rail station sites are all within 4 to 12 miles of the UC campus and University Community. Upon completion of environmental analysis, the Authority will submit the High-Speed Rail system concept to the California voters for approval of bonds to support construction of the system.

Freight

The RTP anticipates that rail transport will continue to increase because of its ability to haul large amounts of cargo at relatively low cost. Truck transport may be vulnerable to increasing fuel costs, but its flexibility and speed will continue to make trucking a viable option for many shippers. In general, movement of goods through Merced County will continue to represent a substantial portion of all trips on the circulation system. A balance of freight movement options, including rail and truck, will be important to maintain acceptable roadway levels of service.

TSM/TDM

The City of Merced, Merced County, MCAG, and Caltrans all are anticipated to continue existing TSM/TDM programs and implement additional efforts. Current adopted policies and implementation strategies call for TSM/TDM measures in conjunction with new development and identify such measures as an integral component of addressing future transportation needs.

4.14.2.4 LRDP Circulation Element

The UC Merced LRDP circulation element includes policies and planning concepts related to streets and traffic-ways, parking locations and programs, transit routes and services, bicycle and pedestrian systems, service and delivery routes, and the primary elements of a transportation demand management (TDM) plan to encourage nonautomobile modes. The overarching goal of this circulation element is to ensure that the campus transportation system allows safe and efficient travel by the full variety of modes listed above and promotes the use of alternatives to the automobile. To that end, a primary element of the campus circulation plan is diversity: the accommodation of multiple modes. This can be accomplished directly through circulation policies specifying modal priorities, or indirectly by providing the flexibility to adapt to changing conditions.

Planning for the UC Merced circulation system focuses on integrating land use and transportation to minimize reliance on the automobile and impacts to adjoining land uses, while maintaining high levels of accessibility and personal mobility. There are a number of established policies, trends, and plans that present an opportunity to design and manage the UC Merced campus and adjoining University Community for less automobile travel than would ordinarily occur. However, the success of this theme will derive from transportation planning and programming that establishes a nonmotorized, transit-oriented "culture" from the earliest stages of campus development and preserves that culture throughout the evolution of the campus and University Community. Creating this culture will depend on early investment in bicycle, pedestrian, and transit systems and amenities, as well as land use plans that ensure the levels of diversity, density, and design normally associated with pedestrian- and transit-friendly environments.

The following lists the transportation and circulation policies of the UC Merced LRDP.

Multimodal System

CIRC-1: Designate a functionally classified system of principal transportation facilities that represents the principal circulation system needed to serve the campus at acceptable levels of service.

CIRC-2: Ensure that the transportation infrastructure will adequately serve campus circulation needs and provide appropriate connectivity to adjacent areas while minimizing impacts to those areas.

CIRC-3: Accommodate multiple modes, including walking, cycling, and riding transit, as well as driving.

CIRC-4: Design attractive transportation corridors that are compatible with adjoining land uses and with expected modal usage patterns.

CIRC-5: Develop individual but coordinated master plans to guide design and implementation of the principal circulation infrastructure, including plans that address streets, bikeways, pedestrian ways, transit, and parking.

CIRC-6: Reserve adequate rights-of-way to implement the designated circulation systems and designate access management restrictions for adjoining properties.

CIRC-7: Maintain flexibility by designing early stages of the campus in a way that does not preclude later changes in modal priorities.

CIRC-8: Promote the timely development of the principal circulation system, through phases coordinated with implementation of the land use element.

CIRC-9: Design the secondary campus circulation system in a grid pattern, to disperse traffic and provide multiple connections to most destinations for all travel modes.

Pedestrian and Bicycle Circulation

CIRC-10: Create a comprehensive, interconnected bicycle and pedestrian circulation system that provides access to major campus destinations. The design of the bicycle and pedestrian system should be consistent with the following principles:

- Design all campus vehicular streets (transit, service, and general traffic) as bike-friendly streets, with calmed traffic speeds, wide curb lanes or adequate bike lanes, no parking or parallel parking only, and roundabouts rather than stop signs at intersections.
- Minimize bike paths paralleling roadways, unless they can be designed in a manner that offers significant safety or circulation directness advantages over bike-friendly streets.
- Separate pedestrians from cyclists, either in different corridors (or block grids) or, when using the same corridor, on a bikeway with a parallel but separate walkway.
- Minimize number of pedestrian/bicycle crossing points. Where bicycle and pedestrian paths cross, emphasize proven safe and efficient design treatments such as roundabouts and pedestrian refuges. Design bike paths and lanes for moderate but safe speeds at pedestrian and vehicular crossings (8 to 10 mph).

- In the most dense areas of the campus core, design the bike grid to be at least two square blocks in scale, to avoid having each building surrounded by bike streets, and promote a more protected pedestrian realm and more efficient bike realm.
- Design integrated and secure bicycle parking at residences, lecture halls, research facilities, and student services buildings.

CIRC-11: Accompany each new building on campus with appropriate additions to the bicycle and pedestrian systems, to ensure that the bicycle/pedestrian system expands to keep pace with campus development.

CIRC-12: Install amenities to serve bicyclists and pedestrians, such as water fountains, campus maps, and showers and changing rooms.

CIRC-13: Link the campus bicycle system with regional bikeways to encourage utilitarian and recreational travel by bicycle. Prime candidates for campus-regional linkages include existing and planned paths along Lake Road and Bellevue Road.

CIRC-14: Work cooperatively with the transit provider to encourage transit-bicycle transfers by installing bike racks on all buses.

CIRC-15: Provide secure bicycle parking within convenient walking distance of all destinations in the campus core.

CIRC-16: Develop a comprehensive public information strategy to publicize bicycle- and pedestrian-related rules, regulations, and helpful hints.

Transit Services

CIRC-17: Provide high-frequency, safe, and convenient transit services that seamlessly connect major activity centers on campus and in the neighboring University Community. Primary transit destinations would include the campus core, the Town Center, outlying commuter parking facilities, and key locations within campus and off-campus housing areas. Each building in the campus core should be within a 6-minute walk of a transit stop.

CIRC-18: Work with local and regional transit providers to coordinate transit service and establish convenient transfers between transit and other modes of travel.

CIRC-19: Contribute to development of a transit hub at the interface between the Town Center and campus core for timed transfers between local and regional transit connections.

CIRC-20: Develop a transit fare policy and transit pass system that provides maximum incentives for transit ridership among university students and employees.

CIRC-21: Ensure that campus transit services are accessible to the disabled. UC Merced shall choose transit technologies that have been tested and proven in similar operating environments.

Vehicular Access and Parking

CIRC-22: Design the secondary campus circulation system in a grid pattern, to disperse traffic and provide multiple connections to most destinations for all travel modes.

CIRC-23: Protect the quality of campus core and residential areas by reducing or controlling traffic routing, volumes, and speeds on local streets.

CIRC-24: Develop major parking reservoirs on the periphery of the campus core, at strategic intercept points along regional access routes.

CIRC-25: Investigate the development of shared parking facilities to minimize the total amount of parking required and encourage walking between nearby activities. Promising locations for shared parking include the interface area between the campus and Town Center, as well as the area between the campus and Lake Yosemite Regional Park, where shared parking resources could take advantage of the different peak demand patterns of the two institutions.

CIRC-26: Provide priority parking for vanpools, carpools, and energy-efficient and low-pollution vehicles, including recharge stations for electric vehicles.

CIRC-27: Install "intelligent parking" technologies, such as message signs indicating parking location and availability, to encourage efficient use of parking resources.

CIRC-28: Charge users the full cost of providing parking facilities. Assign premium prices to the close-in parking and limit the supply of such spaces in order to maximize use of remote parking, limit the amount of traffic in and near the campus core, and encourage intracampus walking and transit use.

CIRC-29: Enforce all parking rules and restrictions and cooperate with community efforts to establish and enforce permit parking and parking time-restrictions in areas surrounding the campus.

CIRC-30: Apply street standards in the campus core that account for service access needs.

Transportation Demand Management

CIRC-31: Actively promote alternatives to solo vehicle travel.

CIRC-32 Develop a system of financial incentives for alternate mode use.

CIRC-33: Establish a joint City/County/University transportation clearinghouse and Website that provide information on local transit services and alternative travel options, including rideshare matching.

CIRC-34 Develop a comprehensive public information strategy to publicize alternative travel options.

CIRC-35: Invest in telecommunications infrastructure to enable alternate work arrangements.

Regional Coordination

CIRC-36: Encourage establishment of a joint City/County/University transportation committee, to suggest and oversee transportation improvement and incentive programs of mutual benefit.

CIRC-37: Coordinate parking development, restrictions, and enforcement with the appropriate community representatives at the interface area between the campus core and the Town Center.

CIRC-38: Work with local and regional transit providers to coordinate transit service and establish convenient transfers between transit and other modes of travel.

CIRC-39: Circulate transportation planning studies and reports to neighboring jurisdictions that may be affected by the proposed changes.

4.14.3 Impacts and Mitigation Measures

4.14.3.1 Standards of Significance

The following standards of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, impacts would be considered significant if the project would

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, a level of service standard established by the regional transportation planning agency (RTPA) for designated roads or highways;
- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

For the purposes of this EIR, the proposed project would be considered to cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system if (1) the addition of project traffic causes a LOS change from acceptable to unacceptable on any study roadway or intersection, and the campus adds at least 5 percent to the volume of the roadway or intersection so affected, or (2) the campus adds at least 5 percent to the volume of a study roadway or intersection that is expected to operate unacceptably without the project. The 5 percent threshold for determining project impacts has been used by the City of Merced in evaluating other large-scale development projects. Within the City of Merced, acceptable LOS are A through D. Within Merced County, LOS A through D are acceptable within urban growth areas and on roadways connecting two urban growth areas, while LOS A through C are acceptable within rural areas. In addition, LOS E or worse may be allowed on a minor component of the circulation system if a major component of the circulation system would be significantly compromised in the process of improving the LOS of the minor component.

4.14.3.2 Analytical Method

Regional Traffic Forecasting Techniques and Assumptions

Regional transportation planning in Merced County is conducted by MCAG. As part of its planning processes, MCAG maintains a regional travel demand model that is used as a tool for evaluating and monitoring impacts of major proposed projects on the regional transportation system. MCAG produces land use forecasts for input to the regional model; these forecasts are consistent with county-level growth projections from the California Department of Finance. The analysis presented in this EIR uses the most recent version of the MCAG model available when

this work was initiated; the model has been used both for this analysis and for the University Community Plan EIR.

The MCAG model forecasts daily traffic volumes on the freeways, arterials, and major collectors in the Merced region. Therefore, the results of the model can be used to determine a project's impacts on those types of facilities, based on the standards of significance listed above. The MCAG model produces forecasts in five-year increments from 2000 to 2025. For the purposes of this document, analyses were conducted for years 2008 (Phase 1 of the University campus) and full LRDP development. The background land use for year 2008 was determined by interpolating between the land use forecasts for years 2005 and 2010. Buildout of the proposed campus is expected to take 35 to 50 years, corresponding to an analysis year ranging from 2035 to 2050. However, because countywide land use forecasts are not available beyond year 2025, the 2025 projections were used as background assumptions for the analysis of full LRDP development.

As noted previously, this analysis assumes that the transportation improvement projects identified in Tier 1 of the 1998 RTP are constructed according to their current schedules, because funding has been identified for them. The RTP establishes that Tier 2 projects are needed in order to accommodate future growth in the county (including the development of the campus and University Community) but does not identify funding for the projects. Therefore, Tier 2 projects have been considered as potential mitigation measures for any project impacts that result from this analysis.

Although specific sources of funding are identified in the RTP project list, including Federal programs such as Congestion Mitigation/Air Quality (CMAQ) and state programs such as the Interregional Improvement Program and the State Transit Assistance Fund, the allocation of specific funds to specific projects remains flexible. If funding becomes available to certain Tier 1 projects from other unanticipated sources, such as sales taxes, some of the funds currently associated with Tier 1 projects could be shifted to projects currently listed under Tier 2. These additional local funds could also make greater levels of outside funding available through matching programs and other special programs directed toward "self-help" (sales tax) counties. The analysis in this EIR takes the conservative approach, assuming that only those funds explicitly identified in the 1998 RTP will be available from Federal, state and existing local sources to be used for Tier 1 projects.

Link-Level and Intersection Capacity Analysis

Project impacts on the regional roadway system are defined in terms of levels of service. As noted in the Environmental Setting section above, the level of service of a roadway is a measure of the ability of the facility to accommodate typical traffic volumes. Levels of service range from A, which indicates free flow conditions, to F, which indicates forced flow or overloaded conditions.

To identify roadway levels of service, appropriate roadway capacities were developed on the basis of facility type and size. These capacities were based on the per-lane capacities used in the MCAG model, which are defined to represent LOS D conditions. Table 4.14-2 describes the average daily volumes associated with each roadway LOS category, and Table 4.14-3 provides the facility type and number of lanes assumed for key roadway segments. Predicted traffic volumes on each roadway segment were then compared against the capacity of the segment to determine the roadway's level of service. LOS results were compared before and after the

addition of project traffic to determine locations where project traffic caused a significant impact by degrading the level of service to unacceptable levels. In addition, modeling techniques were used in which traffic generated by a particular development project could be tracked throughout the network, to determine what proportion of the traffic on each roadway is attributable to the project under study. These techniques were applied in order to identify road segments where the campus contributed at least 5 percent of the volume, to aid in application of the standards of significance listed above.

Table 4.14-2
Roadway Level of Service Thresholds

Facility Type	Maximum Daily Volume per Lane at LOS C+	Maximum Daily Volume per Lane at LOS D[1]
Freeway	20,400	24,000
Highway	18,400	21,600
County Road	9,200	10,800
Arterial	7,650	9,000
Collector	5,100	6,000
Ramp (Merced)	5,100	6,000

Notes:
These volume thresholds are based on peak hour per lane volumes in the MCAG travel demand model, representing LOS D capacities. Daily capacities were calculated by multiplying the hourly capacities by 12. LOS C+ (meaning LOS C or better) capacities were calculated by multiplying the LOS D thresholds by 0.85.
[1] Daily lane volumes greater than these thresholds would be classified as LOS E/F.

Table 4.14-3
Facility Type and Number of Lanes,
Existing Conditions and Future (Year 2025) Conditions

Roadway Segment	Existing Conditions		Future Conditions	
	Type	Lanes	Type	Lanes
Bellevue Road				
Highway 59 to G Street	Collector	2	Collector	2
G Street to Lake Road	Collector	2	Collector	2
Lake Road				
Bellevue Road to Yosemite Avenue	Collector	2	Collector	2
Yosemite Avenue				
Lake Road to McKee Road	Collector	2	Collector	2
McKee Road to Paulson Road	Arterial	2	Arterial	2
Paulson Road to G Street	Arterial	2	Arterial	2
G Street				
Bellevue Road to Cardella Road	Arterial	2	Arterial	2
Cardella Road to Yosemite Avenue	Arterial	2	Arterial	2
Yosemite Avenue to Olive Avenue	Arterial	4	Arterial	4
Olive Avenue to Bear Creek	Arterial	4	Arterial	4
Bear Creek to 16th Street	Arterial	4	Arterial	4
Highway 99 to Childs Avenue	Collector	2	Collector	2
M Street				
Bear Creek to 16th Street	Arterial	4	Arterial	4
R Street				
Bear Creek to 16th Street	Arterial	4	Arterial	4
Olive Avenue				
Highway 59 to Austin Avenue	Arterial	6	Arterial	6
R Street to M Street	Arterial	6	Arterial	6
G Street to McKee Road	Arterial	6	Arterial	6
McKee Road to Campus Parkway	Collector	2	Collector	2
Santa Fe Drive				
Olive Avenue to Highway 59 Expwy	Arterial	4	Arterial	4
Highway 59 Expwy to Beachwood Drive	Arterial	4	Arterial	4
Highway 59				
Bellevue Road to Yosemite Avenue	Highway	2	Highway	2
Yosemite Avenue to Olive Avenue	Highway	2	Highway	4
Olive Avenue to 16th Street	Arterial	2	Arterial	4
Campus Parkway				
Yosemite Avenue to Olive Avenue	N/A	N/A	Arterial	4
Olive Avenue to Highway 140	N/A	N/A	Arterial	4
Highway 140 to Highway 99	N/A	N/A	Arterial	4
Highway 140				
Kibby Road to Campus Parkway	Highway	2	Highway	2
Coffee Street to McKee Road	Highway	2	Highway	4
McKee Road to 16th Street	Arterial	4	Arterial	4
Highway 99				
Franklin Road to Highway 59 Expwy	Freeway	4	Freeway	4
R Street to Martin Luther King Way	Freeway	4	Freeway	4
Highway 140 to Childs Avenue	Freeway	4	Freeway	4
Childs Avenue to Mission Avenue	Highway	4	Freeway	4
South of Mission Avenue	Highway	4	Freeway	4

Notes:
N/A = Not Applicable

To identify intersection levels of service, all study intersections were analyzed in accordance with procedures specified in *Highway Capacity Manual, Special Report 209,* 3rd Edition, Transportation Research Board. This method estimates LOS based on the average delay experienced by motorists traveling through the intersection. Tables 4.14-4 and 4.14-5 describe the average delay associated with each LOS category for signalized and unsignalized intersections, respectively.

Table 4.14-4
Signalized Intersection Level of Service Definitions

Level of Service	Description	Control Delay (sec/veh)
A	Operations with very low control delay. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 – 5
B	Operations with minimal control delay. Generally occurs with short cycle lengths, good progression, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	5.1 – 15
C	Operations with moderate control delay. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	15.1 – 25
D	At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	25.1 – 40
E	Operations with high control delay. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	40.1 – 60
F	Operation with control delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to delay levels.	> 60
Sources: *Highway Capacity Manual, Special Report 209, 3rd Edition,* Transportation Research Board.		

Table 4.14-5
Unsignalized Intersection Level of Service Definitions

Level of Service	Description	Average Stopped Delay (sec/vehicle)
A	Little or no delay.	0 – 5
B	Short traffic delays.	5.1 – 10
C	Average traffic delays.	10.1 – 20
D	Long traffic delays.	20.1 – 30
E	Very long traffic delays.	30.1 – 45
F	Extreme traffic delays with intersection capacity exceeded.	> 45

Source: *Highway Capacity Manual, Special Report 209*, 3rd Edition, Transportation Research Board.

Project Trip Generation and Distribution

As discussed above, the analysis scenarios for this document include years 2008 and full development of the LRDP. The expected daily trip generation for the campus was estimated by using average daily trip generation rates of university campuses that are similar in character and composition to the proposed UC Merced campus. Comparable campuses that were used to estimate campus trip-generation characteristics include UC Davis and UC Santa Cruz.

In order to assess cumulative impacts, this EIR also presents an analysis of combined campus- and University Community-generated traffic. The amount of daily traffic expected to be generated by the development of the University Community was estimated using trip-generation rates contained in the MCAG model. MCAG has validated these rates as consistent with the trip generation of comparable existing land uses in the region. Tables 4.14-6 and 4.14-7 summarize the UC Merced campus and University Community development levels and trip generation for the 2008 and full LRDP development, respectively. The development assumptions for the University Community were provided by the University Community Plan development team, and enrollment assumptions for the campus were provided by UC. At full development, the proposed University Community will consist of a Town Center/Business Center with a mix of retail/commercial uses and 1,000 multifamily residential units, plus four residential community villages. A secondary community commercial center is also envisioned as part of the University Community Plan. For trip generation and traffic modeling purposes, the community commercial was included in the Village 3 land use totals.

Table 4.14-6
Average Weekday Trip Generation
UC Merced Campus
Phase 1 Campus (2008)

		Trip Rate	Trip Generation	Regional		Local	
				Prod*	Attr*	Prod*	Attr*
UC Campus	**3,480 Students**	2.00/Student	**6,960**	**3,480**	**3,480**	-	-

*"Prod" refers to trip productions, and "Attr" to trip attractions. For traffic analysis purposes, trips are considered to be produced by residences, and attracted to employment, shopping, and other destinations.

Table 4.14-7
Average Weekday Trip Generation
UC Merced Campus and University Community Plan
Full Development

	Acres	Dwelling Units	S.F	Empl	Trip Rate		Trip Generation	Regional Prod*	Regional Attr*	Local Prod	Local Attr
Town Center / Business Center											
Retail	13		366,000	915	19.90	/Empl	18,209		3,642		14,567
BP - Office/Industrial	52		1,127,000	3,220	3.35	/Empl	10,787		4,315		6,472
Multi-Family Units	22	1,000			4.65	/Du	4,650	1,628		3,023	
Sub-Total Town Center	**87**	**1,000**	**1,493,000.00**	**4,135**			**33,646**	**1,628**	**7,957**	**3,023**	**21,039**
Village 1											
Schools	24						758		-		758
Parks	24				1.59	/Acre	38		-		38
Local Retail	4		50,000	125	19.90	/Empl	2,488		-		2,488
Office	2		20,000	57	3.80	/Empl	217		87		130
Single Family Units	375	1,742			7.40	/Du	12,891	5,285		7,606	
Multi-Family Units	48	912			4.65	/Du	4,241	1,739		2,502	
Sub-Total Village 1	**476**	**2,654**	**70,000**	**182**			**20,632**	**7,024**	**87**	**10,108**	**3,414**
Village 2											
Schools	12						379		-		379
Parks	24				1.59	/Acre	38		-		38
Local Retail	4		50,000	125	19.90	/Empl	2,488		-		2,488
Office	2		20,000	57	3.80	/Empl	217		87		130
Single Family Units	375	1,742			7.40	/Du	12,891	5,285		7,606	
Multi-Family Units	48	912			4.65	/Du	4,241	1,739		2,502	
Sub-Total Village 2	**464**	**2,654**	**70,000**	**182**			**20,253**	**7,024**	**87**	**10,108**	**3,035**
Village 3											
Schools	60						3,603		-		3,603
Parks	24				1.59	/Acre	38		-		38
Local Retail	4		50,000	125	19.90	/Empl	2,488		-		2,488
Community Retail	12		150,000	375	19.90	/Empl	7,463		1,866		5,597
Office	10		120,000	343	3.80	/Empl	1,303		521		782
Single Family Units	375	1,742			7.40	/Du	12,891	5,285		7,606	
Multi-Family Units	48	912			4.65	/Du	4,241	1,739		2,502	
Sub-Total Village 3	**532**	**2,654**	**320,000**	**843**			**32,026**	**7,024**	**2,387**	**10,108**	**12,508**
Village 4											
Schools	24						758		-		758
Parks	24				1.59	/Acre	38		-		38
Retail	4		50,000	125	19.90	/Empl	2,488		-		2,488

	Acres	Dwelling Units	S.F	Empl	Trip Rate		Trip Generation	Regional Prod*	Regional Attr*	Local Prod	Local Attr
Office	2		20,000	57	3.80	/Empl	217		87		130
Single Family Units	375	1,742			7.40	/Du	12,891	5,285		7,606	
Multi-Family Units	48	912			4.65	/Du	4,241	1,739		2,502	
Sub-Total Village 4	**476**	**2,654**	**70,000**	**182**			**20,632**	**7,024**	**87**	**10,108**	**3,414**
Community Total	**2,036**	**11,616**	**2,023,000**	**5,524**			**127,188**	**29,723**	**10,603**	**43,453**	**43,408**
UC Campus	**25,000**	**Students**			2.08	/Student	**52,000**	**9,100**	**9,100**	**16,900**	**16,900**
Total Trip Generation, Campus + Community							**179,188**	**38,823**	**19,703**	**60,353**	**60,308**

* "Prod" refers to trip productions, and "Attr" to trip attractions. For traffic analysis purposes, trips are considered to be produced by residences, and attracted to employment, shopping and other destinations.

The full development of the campus is expected to generate approximately 52,000 daily vehicle trips (not including intracampus travel), while the University Community is expected to generate approximately 127,200 daily vehicle trips at full development. In the cumulative scenario, a portion of the trips generated from the campus and University Community are expected to remain within the campus/Community area, because of the relative proximity of the University Community to the new campus, as well as the likely tendency of the University Community to attract campus-related residents.

Assumptions about travel within the campus/Community area are based on the relative number of residential trips versus nonresidential trips generated by the two projects, and the specific types of trip generators within each project. Overall, approximately 67 percent of the daily trips generated by the University Community and the campus are expected to remain within the immediate campus/community area, and 33 percent of the daily trips are expected to travel to other parts of the region. For the University Community, this translates into approximately 85,000 daily vehicle trips remaining within the campus/Community area, and 42,000 trips traveling to the rest of the region. Of those 85,000 local trips generated by the University Community, approximately 40 percent of them (or 34,000) travel between the campus and the University Community. The remaining 51,000 trips remain internal to the University Community, traveling from village to village or from village to town center, for example.

The campus trip-generation rate for the Full LRDP Development case is slightly higher than for the year 2008 (Phase 1) analysis. At full development, the LRDP anticipates a substantial amount of faculty housing on campus. Faculty members are likely to have families living with them, and those family members may need to travel off-campus for many of their daily shopping, educational, and employment needs. The higher trip-generation rate applied to the Full LRDP Development case is intended to account for this increase in overall trip-making across the campus boundaries.

Treatment of the University Community in Analysis Scenarios

In Section 4.14.3.4, Cumulative Impacts, traffic conditions are analyzed using the assumption that both the campus and the University Community are fully developed consistent with their respective plans. A set of mitigation measures necessary to treat all of the cumulative impacts is developed; because both the campus and the University Community would benefit from each of the improvements identified as a mitigation, it is assumed that each entity would contribute its fair share toward the construction of those improvements.

Throughout this traffic discussion, "fair share" is defined to mean that the University has agreed to negotiate for a contribution to the roadway or intersection improvement pursuant to procedures similar to those described in Government Code Sections 54999 et seq. for contributions to utilities. In addition, in each case a fair-share payment is agreed upon, the University will pay its fair share only if the applicable jurisdiction has established and implemented a mechanism for collecting funds from any other developers and entities contributing to traffic impacts, and the jurisdiction builds the relevant roadway or intersection improvement.

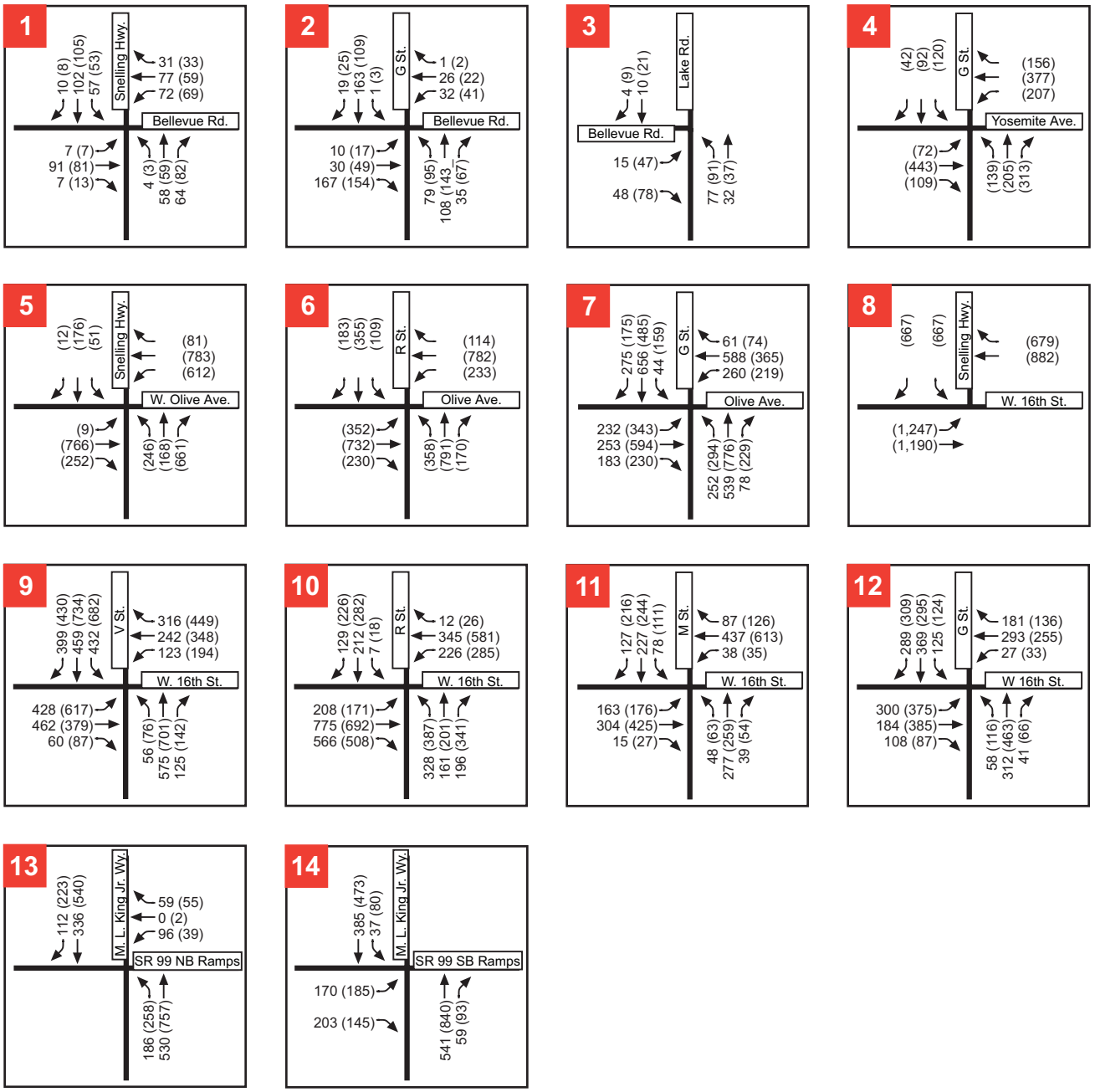
In Section 4.14.3.3, Project Impacts and Mitigation, the effects of the campus are analyzed using the assumption that the University Community is not built. For the year 2008 (Phase 1) analysis, the campus is analyzed alone because the County does not anticipate completing a substantial amount of the proposed University Community by that date. At full LRDP development, an analysis of the campus without the University Community presents a worst-case scenario. If the campus were to develop without the adjacent University Community, the analysis assumes that additional residential and commercial growth would occur elsewhere in Merced County to support the campus. For the purposes of the transportation analysis, a land use scenario has been developed in which an amount of growth equivalent to what would have been contained within the University Community is distributed to other parts of Merced County. This growth is allocated throughout the county on the basis of current development trends. This land use scenario serves as the basis for the Future plus Full LRDP Development and the Existing plus Full LRDP Development analyses.

4.14.3.3 Project Impacts and Mitigation

Two sets of analyses were performed to identify project impacts: “future plus project” analysis, and “existing plus project” analysis. For the “future” analysis, transportation conditions were analyzed based upon a scenario that includes campus traffic combined with projected contemporaneous background conditions on local and regional roadways. This type of analysis was performed for two forecast periods: year 2008 (corresponding to Phase 1 of campus development), and full LRDP development. For the “existing” analysis, the evaluation consists of campus traffic combined with existing (year 2000) conditions on local and regional roadways. This was also performed for two forecast periods: year 2008 (Phase 1) campus, and full LRDP development. In all of these project-only cases, the land use assumptions do not include the proposed University Community, for reasons discussed above. The combined effects of the campus and University Community at full development are addressed in Section 4.14.3.4, Cumulative Impacts and Mitigation Measures. In all cases, the amount of campus-related traffic on roads outside Merced County would not meet the threshold for significant project impacts, and so those roads were not included in the analysis.

4.14-1 Implementation of Phase 1 of the LRDP would result in exceedance of the intersection LOS threshold at the Lake/Bellevue intersection. This is considered a *significant* impact.

Figures 4.14-5 and 4.14-6 display the estimated turning movement volumes for the 2008 Without Project and 2008 With Project scenarios, for the study intersections identified above. Table 4.14-8 presents the results of traffic capacity analyses for these intersections.



KEY:

XX (YY) = AM (PM)
Peak Hour
Traffic Volumes

NOTE: AM Peak Hour Traffic Volumes not available at some locations

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UC Merced LRDP EIR

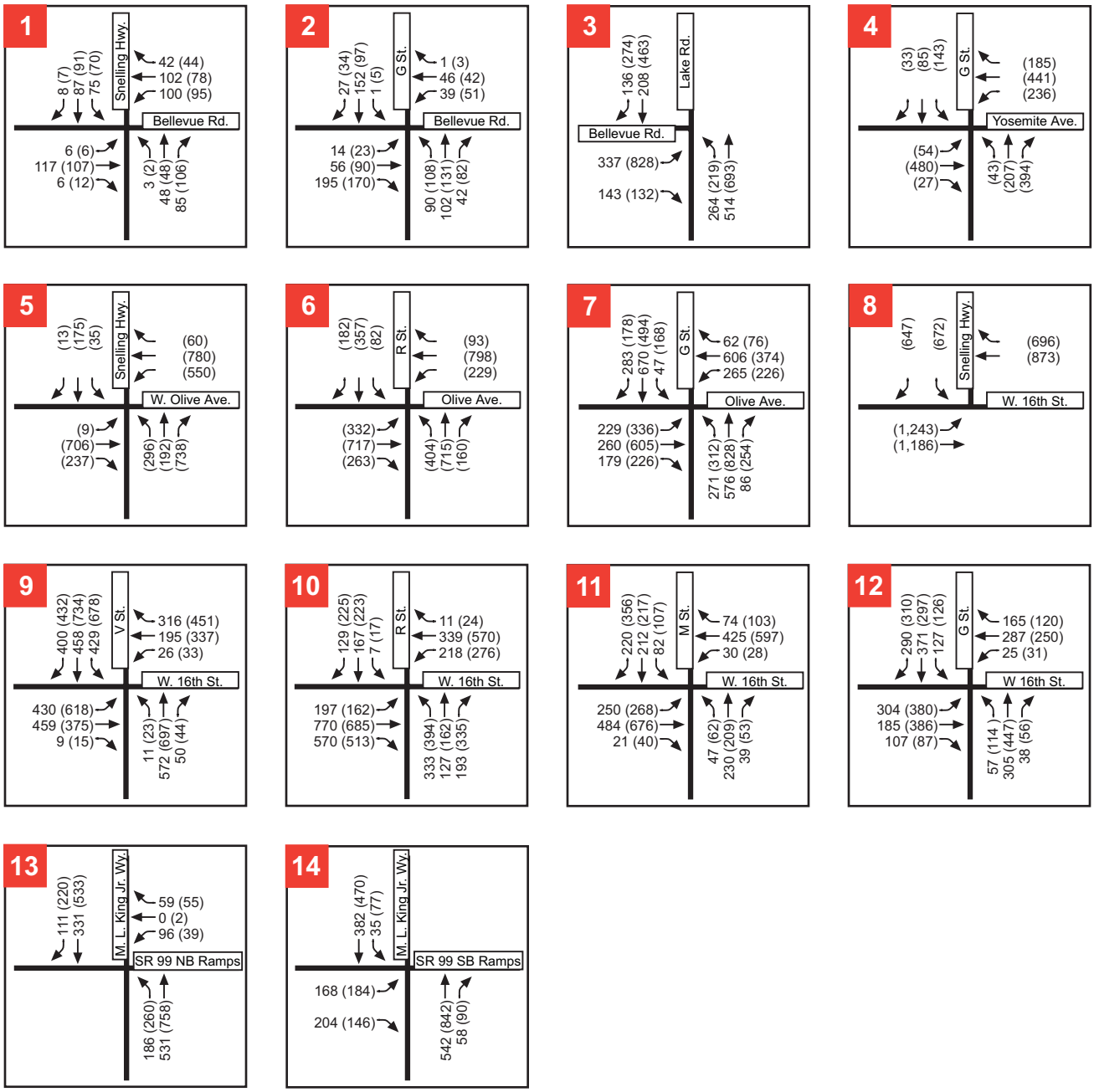
URS

Project No. 51-00067044.00

University of California at Merced

2008 NO PROJECT
PEAK HOUR INTERSECTION VOLUMES

Figure 4.14-5



KEY:

XX (YY) = AM (PM)
Peak Hour
Traffic Volumes

NOTE: AM Peak Hour Traffic Volumes not available at some locations

UC Merced LRDP EIR

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Transportation Consultants

URS

Project No. 51-00067044.00

University of California at Merced

2008 WITH PROJECT
PEAK HOUR INTERSECTION VOLUMES

Figure 4.14-6

As shown in Table 4.14-8, the addition of traffic from the Phase 1 Campus causes the operation of the Lake/Bellevue intersection to deteriorate from LOS A to LOS F during both the a.m. and p.m. peak periods.

Table 4.14-8
Year 2008 Levels of Service at Study Intersections

Intersection	Existing Control	2008 Without Project		2008 With Project	
		AM LOS[1]	PM LOS	AM LOS	PM LOS
1. Highway 59 / Bellevue Rd.	Side-street stop	3/A	3/A	4/A	3/A
2. G St. / Bellevue Rd.	All-way stop	7/B	9/B	7/B	9/B
3. Lake Rd. / Bellevue Rd.	Side-street stop	2/A	2/A	**>45/F**	**>45/F**
4. G St. / Yosemite Ave.	Signal	N/A	21/C	N/A	24/C
5. Highway 59 / West Olive Ave.	Signal	N/A	>60/F	N/A	>60/F[2]
6. R St. / West Olive Ave.	Signal	N/A	24/C	N/A	23/C
7. G St. / West Olive Ave.	Signal	20/C	21/C	21/C	22/C
8. Highway 59 / West 16th St.	All-way stop	N/A	>45/F	N/A	>45/F[2]
9. V St. / West 16th St.	Signal	54/E	>60/F	52/E	>60/F[2]
10. R St. / West 16th St.	Signal	22/C	26/D	21/C	26/D
11. M St. / West 16th St.	Signal	18/C	19/C	18/C	19/C
12. G St. / West 16th St.	Signal	20/C	20/C	20/C	20/C
13. M. L. King, Jr. Way / Highway 99 NB Ramps	Side-street stop	4/A	5/B	4/A	5/B
14. M. L. King, Jr. Way / Highway 99 SB Ramps	Side-street stop	7/B	>45/F	7/B	>45/F[2]

Notes:
[1] Analysis results presented as "average delay (in seconds)/level of service." Please see notes to Table 4.14-1 for a description of level of service analysis methods.
[2] The campus would not contribute at least 5 percent to the volume of this study intersection.
Entries in **bold** represent significant project impacts.
N/A = Not Available

Mitigation Measures

Implementation of the following mitigation measure would reduce the identified impact to a *less-than-significant* level:

4.14-1 *Install a traffic signal at the intersection of Lake Road and Bellevue Road and widen the intersection to provide a left-turn lane on the northbound and eastbound approaches. (Applicability—project level)*

After implementation of the proposed mitigation, the Lake/Bellevue intersection would operate at acceptable levels of service during both peak periods.

The widening recommended in the mitigation measure above could be accomplished without impacts to sensitive resources in the immediate area. The northbound approach would be expanded along the east side of Lake Road; the pavement would be widened by approximately 12 feet for a length of approximately 250 feet south from the Lake/Bellevue intersection. The eastbound approach would be expanded along the south side of Bellevue Road; the pavement would be widened by approximately 12 feet for a length of approximately 250 feet west of the Lake/Bellevue intersection. The widening of Bellevue Road would not affect the crossing of the Yosemite Lateral. Further discussion of the effect of this mitigation measure can be found in the traffic analysis for the Phase 1 Campus in Volume 2 of this EIR.

4.14-2 Implementation of Phase 1 of the LRDP may result in operational deficiencies at the Lake/Yosemite intersection. This is considered a *potentially significant* impact.

With the addition of campus traffic and the construction of Campus Parkway from Highway 99 to Yosemite Avenue, Lake Road is expected to carry approximately 5,000 vehicles per day in year 2008. This represents an increase over current volumes on Lake Road but is within the theoretical capacity of the roadway. However, the intersection of Lake Road and Yosemite Avenue may require modifications to accommodate the increased turning movements. The need for modifications and the preferred configuration of the intersection would partially depend on the alignment that is eventually selected for Campus Parkway; therefore, intersection improvements needed to ensure an acceptable level of service cannot be predicted at this time.

Mitigation Measures

Implementation of the following mitigation measure would reduce the identified impact to a *less-than-significant* level:

4.14-2 The County can and should analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) on determination of the conceptual alignment for Campus Parkway, (2) on preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the University will contribute its fair share (as described in Section 4.14.3.2) toward the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection will end upon completion of the Campus Parkway extension from Yosemite Avenue to Bellevue Road; monitoring of other approach routes to campus will continue as described in Mitigation Measure 4.14-5. (Applicability—program level)

The mitigation measure described above requires re-analysis of the conditions at the Lake/Yosemite intersection at key points in the development of the Campus Parkway project. In addition, traffic counts taken each October, combined with data on current campus enrollment and projections of enrollment for the following academic year, can guide decisions on the appropriate timing and design of intersection improvements, before the academic year in which they will be needed.

As shown in Table 4.14-8, there are other intersections that are expected to operate poorly in year 2008, even without the Phase 1 Campus. These intersections include Highway 59/West

Olive Avenue, Highway 59/West 16th Street, V Street/West 16th Street, and M. L. King, Jr. Way/Highway 99 Southbound Ramps. In all cases, the addition of campus traffic does not cause the intersection to deteriorate significantly beyond its "Without Project" condition, per the standards of significance stated above. Therefore, these do not represent significant project impacts. Previous traffic studies for other proposed projects in the vicinity have identified improvements for the Highway 59/West Olive Avenue and Highway 59/West 16th Street intersections; if implemented by 2008, those improvements would result in acceptable service levels of LOS D or better at those two intersections.

4.14-3 Construction of Phase 1 of the LRDP may result in excessive deterioration of County roads leading to campus and the need for physical expansion at the Lake/Yosemite intersection. This is considered a *potentially significant* impact.

Construction of the initial buildings for the Phase 1 campus will result in daily automobile and truck traffic generation from approximately March 2002 to June 2004. Peak construction activity will occur from January 2003 through April 2004. During that peak period, all three of the Phase 1 campus academic buildings will be under construction as well as associated housing and infrastructure. Peak period construction traffic is projected to equal approximately 222 round trips a day, seven days a week. By comparison, this number would be considerably lower than traffic levels during the normal class days once the Phase 1 campus is open at full enrollment. By 2008, the campus will generate about 1,720 vehicle round-trips daily.

All parking for construction workers, delivery trucks and equipment will be provided on site. As a result, no off-site parking impacts would occur during the construction period.

Of the 222 daily construction-related vehicles during the peak construction period, about 190 would be autos and light trucks used by construction workers to reach the site, and about 32 would be larger trucks hauling equipment, construction material, and grading material. About 10 of the large trucks would be 30- to 40-ton construction material and equipment haulers and the remaining 22 would be 16- to 20-cubic-yard grading material carriers. Most of the truck traffic will enter and leave the site via Bellevue Road to/from locations on north G (Snelling Road), north on Highway 59, and south on Highway 59 to Route 99 north. A smaller number of trucks, roughly 5 to 10 per day, may travel south on Lake Road to reach Highway 99 south via Yosemite Avenue east and Arboleda Drive.

Peak construction traffic (even accounting for the higher mix of trucks) would consume less than 15 percent as much traffic capacity as the operation of the Phase 1 Campus in 2008. Therefore, the construction impacts on nearby intersections would be less than 15 percent as large as the incremental "project" impacts presented in Table 4.14-8. None of these would meet the significance thresholds related to traffic Level of Service.

However, the additional travel by large, heavy trucks could create excessive wear on County roads along haul routes. As this pavement wear could create additional hazards and excessive maintenance costs, this is considered a potentially significant impact. In addition, any large trucks (such as single-unit cement trucks or semi-trailers) attempting to turn left- or right at the intersection of Lake Road and Yosemite Avenue would be limited by the minimal pavement area available for maneuvers at that location. This could cause obstructions to other traffic attempting to use the intersection, and/or hazards, wear or breakage associated with trucks leaving the pavement. To create the needed vehicle turn paths around the intersection, approximately 1 to 2

feet of additional pavement would need to be added at the edges around the northeast and northwest corners for single-unit trucks, or 8 to 9 feet to accommodate large trailer-trucks. Although the area around the intersection is constrained, adequate space is available to create sufficient turn-radii for single-unit trucks without encroaching on known wetlands or sensitive conservation areas, and without affecting existing homes, mature trees, utility poles, drainage pipes or canals. The same appears to be true for the required trailer-truck turn radii. If sufficient radii are not available, trailer-trucks may need to be restricted from using Lake Road to access the site. All-way stop signs should be used to control traffic movements at the intersection.

Mitigation Measures

Implementation of the following mitigation measures would reduce the identified impact to pavements condition along haul routes to a *less-than-significant* level and would reduce the identified impact at the Lake/ Yosemite intersection to *a less-than significant* level:

4.14-3 (a) *The University will create a visual record of pavement surface condition along Bellevue Road (from Lake to Highway 59), and Lake Road (from the University entrance to Yosemite Avenue), and any other routes on which final haul plans indicate large truck traffic generated by campus construction would exceed 5 percent of existing traffic levels. The University will re-inventory pavement condition along these routes within two months following completion of Phase 1 construction, and either restore pavement to pre-construction condition or reimburse County to perform restoration (less a reasonable allowance for deterioration caused by other traffic). (Applicability—Project level)*

4.14-3 (b) *The University will either: (1) if deemed necessary by County Public Works Department restrict truck routing to/from the site to prohibit large trailer-trucks from travel via Lake Road, and (2) pay the County to design and construct improvements to the intersection to accommodate the turn-radius of the largest permitted construction vehicle. (Applicability—Project level).*

4.14-4 Implementation of the LRDP, in conjunction with regional growth in Merced County, would result in increased traffic levels in the vicinity of the campus site, and exceedances of the roadway LOS thresholds. This is considered to be a *significant* impact.

Existing plus Project Analyses

Analysis scenarios that combine a large-scale project with existing conditions present an artificial view of the impacts of the project. In reality, the campus would develop over a long period of time, in conjunction with other growth in Merced County and with accompanying improvements to the regional transportation system. However, the existing-plus-project analysis can provide some useful information by showing the effects of the proposed project in relation to currently experienced traffic conditions. Table 4.14-9 provides traffic volume and LOS information for the major roadway segments studied and identifies the project impact locations, for the Existing plus Full LRDP Development scenario. All roadway segments that are significantly affected in comparison to existing conditions also are identified as significantly affected in the Future Plus Project Analysis below and/or the cumulative campus and community analysis. Accordingly, mitigation measures have been identified for each of these roadway segments in the appropriate analysis scenarios below.

Table 4.14-9
Daily Traffic Volumes and Levels of Service,
Existing Conditions and Existing plus Full LRDP Development

Roadway Segment	Existing Conditions		Existing With Campus	
	ADT	LOS	ADT	LOS
Bellevue Road				
Highway 59 to G Street	1,700	C+	**14,600**	**E/F**
G Street to Lake Road	1,000	C+	**34,600**	**E/F**
Lake Road				
Bellevue Road to Yosemite Avenue	400	C+	**18,200**	**E/F**
Yosemite Avenue				
Lake Road to McKee Road	1,300	C+	**14,900**	**E/F**
McKee Road to Paulson Road	2,500	C+	7,800	C+
Paulson Road to G Street	4,200	C+	8,600	C+
G Street				
Bellevue Road to Cardella Road	5,800	C+	**23,200**	**E/F**
Cardella Road to Yosemite Avenue	7,000	C+	**23,600**	**E/F**
Yosemite Avenue to Olive Avenue	17,400	C+	26,600	C+
Olive Avenue to Bear Creek	27,400	C+	27,400	C+
Bear Creek to 16th Street	32,200	D	32,200	D
Highway 99 to Childs Avenue	9,400	C+	9,400	C+
M Street				
Bear Creek to 16th Street	33,000	D	33,000	D
R Street				
Bear Creek to 16th Street	31,600	D	35,500	D
Olive Avenue				
Highway 59 to Austin Avenue	33,300	C+	33,800	C+
R Street to M Street	36,200	C+	36,200	C+
G Street to McKee Road	8,500	C+	9,300	C+
McKee Road to Campus Parkway	1,900	C+	1,900	C+
Santa Fe Drive				
Olive Avenue to Highway 59 Expwy	28,900	C+	28,900	C+
Highway 59 Expwy to Beachwood Drive	26,100	C+	26,100	C+
Highway 59				
Bellevue Road to Yosemite Avenue	5,700	C+	13,700	C+
Yosemite Avenue to Olive Avenue	12,300	C+	19,500	C+
Olive Avenue to 16th Street	18,700	E/F	**23,700**	**E/F**
Campus Parkway				
Yosemite Avenue to Olive Avenue	N/A	N/A	N/A	N/A
Olive Avenue to Highway 140	N/A	N/A	N/A	N/A
Highway 140 to Highway 99	N/A	N/A	N/A	N/A
Highway 140				
Kibby Road to Campus Parkway	7,900	C+	7,900	C+
Coffee Street to McKee Road	8,300	C+	9,700	C+
McKee Road to 16th Street	10,900	C+	11,500	C+
Highway 99				
Franklin Road to Highway 59 Expwy	57,800	C+	57,800	C+
R Street to Martin Luther King Way	48,400	C+	52,000	C+
Highway 140 to Childs Avenue	56,200	C+	56,200	C+
Childs Avenue to Mission Avenue	47,700	C+	47,700	C+
South of Mission Avenue	40,500	C+	40,500	C+

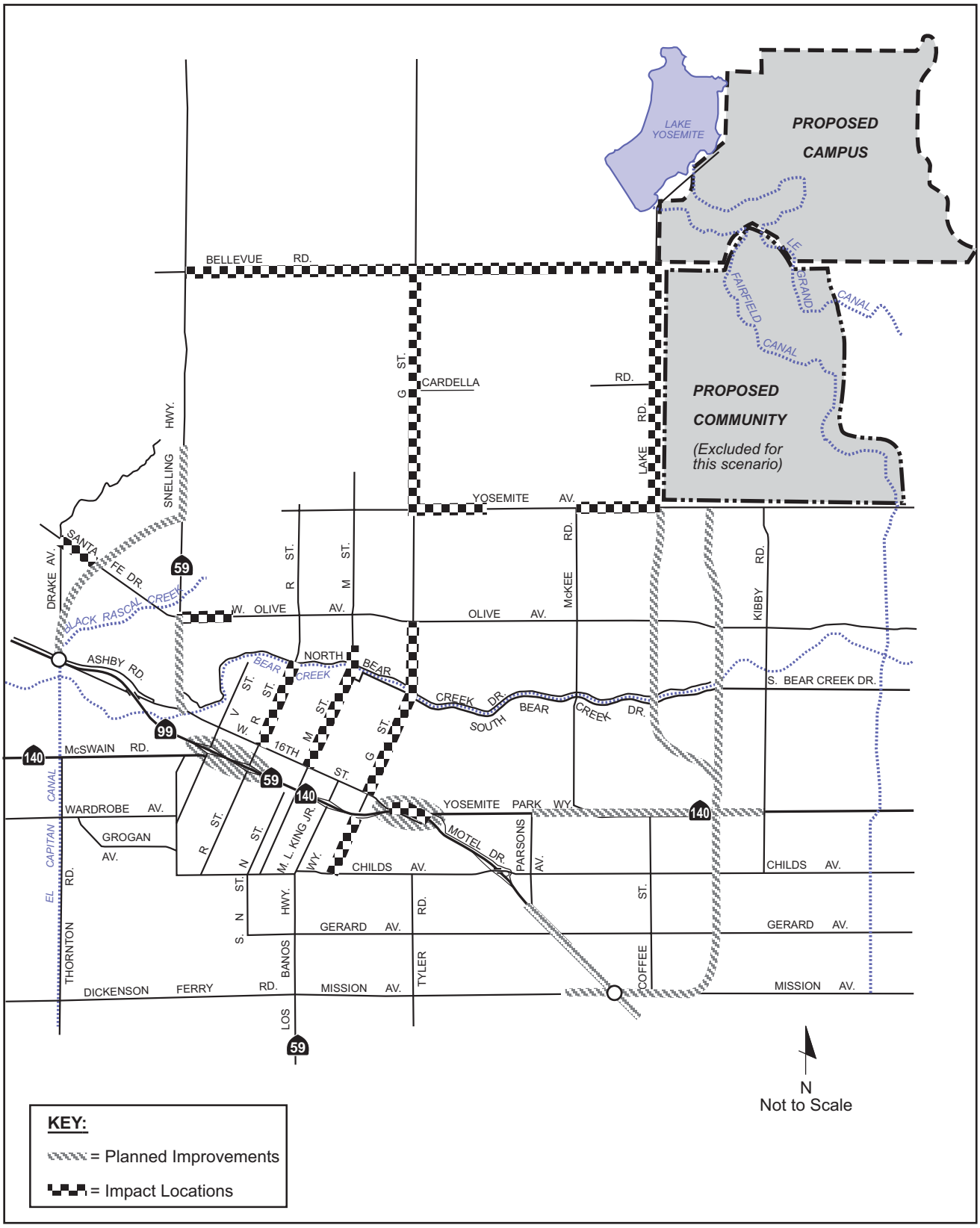
Notes:
ADT = Average Daily Traffic; N/A = Not Applicable
"C+" represents roadway LOS of C or better.
Results in **bold** represent significant project impacts.

Future plus Project Analysis

Under Future plus Full LRDP Development conditions, the campus would contribute to exceedances of the roadway LOS thresholds on the Tier 1 roadway system, as described above. The locations of the impacts are shown in Figure 4.14-7. Table 4.14-10 provides traffic volume and LOS information for the major roadway segments studied and identifies the roadway segments where significant impacts were identified.

Table 4.14-10
Daily Traffic Volumes and Levels of Service,
Future Without Project and Future plus Full LRDP Development

Roadway Segment	Without Project		With Campus	
	ADT	LOS	ADT	LOS
Bellevue Road				
Highway 59 to G Street	11,200	D	**23,500**	**E/F**
G Street to Lake Road	7800	C+	**40,700**	**E/F**
Lake Road				
Bellevue Road to Yosemite Avenue	6400	C+	**20,100**	**E/F**
Yosemite Avenue				
Lake Road to McKee Road	8700	C+	**14,600**	**E/F**
McKee Road to Paulson Road	8800	C+	15,100	C+
Paulson Road to G Street	13,500	C+	**18,800**	**E/F**
G Street				
Bellevue Road to Cardella Road	15,000	C+	**33,800**	**E/F**
Cardella Road to Yosemite Avenue	19,600	E/F	**38,800**	**E/F**
Yosemite Avenue to Olive Avenue	27,800	C+	34,300	D
Olive Avenue to Bear Creek	31,700	D	**37,000**	**E/F**
Bear Creek to 16th Street	35,600	E/F	**44,700**	**E/F**
Highway 99 to Childs Avenue	17,100	E/F	**17,100**	**E/F**
M Street				
Bear Creek to 16th Street	37,400	D	**38,400**	**E/F**
R Street				
Bear Creek to 16th Street	34,200	D	**36,500**	**E/F**
Olive Avenue				
Highway 59 to Austin Avenue	53,500	E/F	**62,300**	**E/F**
R Street to M Street	40,500	C+	44,800	C+
G Street to McKee Road	13,800	C+	16,400	D
McKee Road to Campus Parkway	5700	C+	7800	C+
Santa Fe Drive				
Olive Avenue to Highway 59 Expwy	42,300	E/F	42,600	E/F[1]
Highway 59 Expwy to Beachwood Drive	38,500	E/F	**39,200**	**E/F**
Highway 59				
Bellevue Road to Yosemite Avenue	20,200	C+	42,500	D
Yosemite Avenue to Olive Avenue	33,200	C+	47,100	C+
Olive Avenue to 16th Street	35,200	D	38,100	E/F[1]
Campus Parkway				
Yosemite Avenue to Olive Avenue	8700	C+	14,700	C+
Olive Avenue to Highway 140	13,900	C+	20,900	C+
Highway 140 to Highway 99	12,200	C+	16,400	C+
Highway 140				
Kibby Road to Campus Parkway	14,700	C+	18,800	C+
Coffee Street to McKee Road	15,200	C+	22,300	C+
McKee Road to 16th Street	16,000	C+	22,400	C+
Highway 99				
Franklin Road to Highway 59 Expwy	110,600	E/F	119,600	E/F[1]
R Street to Martin Luther King Way	94,800	E/F	101,900	E/F[1]
Highway 140 to Childs Avenue	81,200	C+	88,600	D



UC Merced LRDP EIR

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URS	Project No. 51-00067044.00 University of California at Merced	CUMULATIVE IMPACT LOCATIONS FUTURE PLUS CAMPUS BUILDOUT	Figure 4.14-7

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Roadway Segment	Without Project		With Campus	
	ADT	LOS	ADT	LOS
Childs Avenue to Mission Avenue	67,500	C+	73,000	C+
South of Mission Avenue	64,900	C+	64,900	C+

Notes:
ADT = Average Daily Traffic
"C+" represents roadway LOS of C or better.
Results in **bold** represent significant project impacts.
[1] Campus traffic does not represent 5% of future volume, so not a significant project impact.

Mitigation Measures

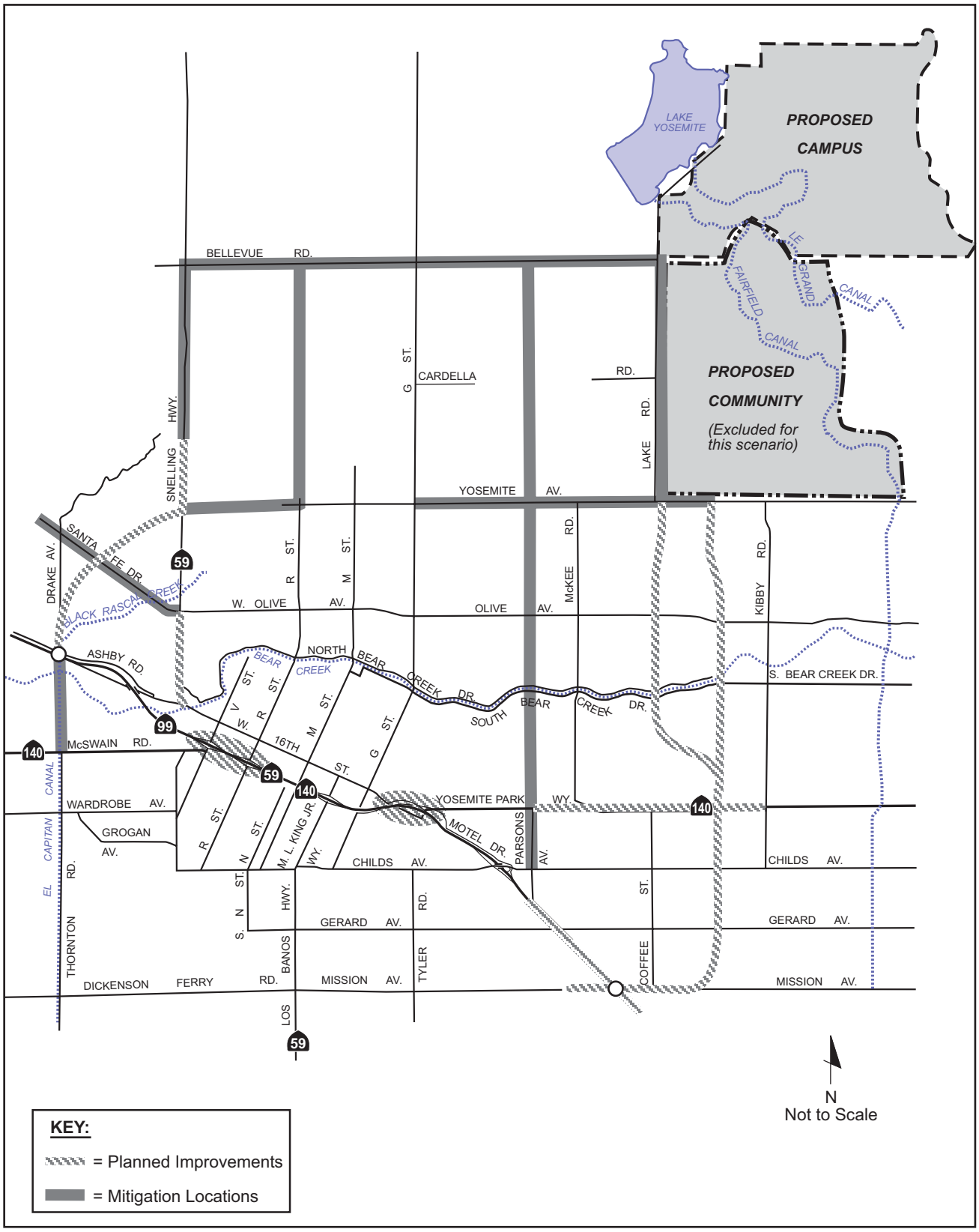
Implementation of the following RTP Tier 2 roadway projects would reduce most of the identified impacts to *less-than-significant* levels; the general locations of these mitigation measures are shown in Figure 4.14-8.

4.14-4(a) The University will contribute its fair share (as described in Section 4.14.3.2) toward the following RTP Tier 2 roadway improvements:

- *Campus Parkway, extend from Yosemite Avenue to Bellevue Road*
- *Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road*
- *Highway 59, new segment between Highways 99 and 140*
- *Yosemite Avenue, extend from R Street to Highway 59*
- *Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street*
- *Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway*
- *R Street, extend from Yosemite Avenue to Bellevue Road*
- *Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road*
- *Santa Fe Drive, widen to 6 lanes, Buhach Road to Highway 59*
- *Intersection improvements along G Street between Highway 99 and Childs Avenue (Applicability—program level)*

Note that the intersection improvements along G Street between Highway 99 and Childs Avenue listed above may include limited roadway widening at intersections, and/or signal installation and timing. The minor cross-streets along this segment of G Street generally carry much lower volumes than G Street itself, and thus it should be possible to improve the flow on the major street through targeted improvements at the intersections.

The combined effect of the mitigation measures above is to address the combined effects of the impacts identified. After implementation of the improvements listed above, the following impact locations would still operate at unacceptable levels of service: G Street between Bear Creek and 16th Street, and M Street between Bear Creek and 16th Street. The segment of G Street is expected to operate at LOS E/F even without the addition of campus traffic, while the segment of M Street is predicted to operate at LOS D in the Without Project case. No Tier 2 projects have been identified that improve operations at these locations to acceptable levels.



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UC Merced LRDP EIR

URS	Project No. 51-00067044.00 University of California at Merced	MITIGATION LOCATIONS FUTURE PLUS CAMPUS BUILDOUT	Figure 4.14-8

51-00067044.00-00002/072801/gos

The segments of G and M Streets between Bear Creek and Highway 99 are expected to operate at LOS E/F conditions even before the addition of campus traffic. The Merced Vision 2015 General Plan shows that these roadway segments will operate at unacceptable levels in the year 2015. The Merced Vision 2015 General Plan EIR acknowledges that these segments will experience congestion and notes that they "are limited with respect to improvement options due to the highly developed nature of the downtown area." In addition, the EIR states, "In evaluating alternative approaches to improved transportation and circulation in this [downtown] area, it was recognized in the General Plan that the vitality of the downtown area is dependent upon high traffic volumes" (p. 4.8.13). Therefore, the City's General Plan acknowledges that there are no feasible improvements to bring the operations of these segments up to acceptable levels. However, it should be noted that the proposed project is not the sole cause of these impacts; in general, the campus is expected to contribute between 3 percent and 8 percent of the traffic volume on these streets after the mitigation measures listed above are implemented. Cumulative growth in and around Merced is also responsible for the predicted levels of service on these facilities. Because some roadway segments cannot be mitigated to a less-than-significant level and because the Tier 2 improvements are not yet fully programmed, this impact is considered *significant and unavoidable*.

4.14-4(b) Merced County, City of Merced, Caltrans, and MCAG can and should move expeditiously through project development processes to establish rights-of-way and access management requirements along key routes affected by campus traffic. (Applicability—program level)

Before actual construction of roadway improvements and mitigations listed above, critical steps will need to be undertaken to delineate and protect the needed rights-of-way and access restrictions. While all of the expected projects and mitigation measures identified above are included in the current MCAG RTP, many roadway improvements will not be built until 2015, 2025, or beyond. Responsible agencies, including Merced County, City of Merced, and Caltrans will need to prepare corridor concept plans, route alignment studies, precise-plan-line documents, and project study reports to ensure that rights-of-way are preserved and property access needs are anticipated and accommodated in an acceptable manner before and after construction of the improved facilities. County and City Planning Departments will also need to adopt General Plan circulation element updates, development-review, and entitlement-granting procedures that establish and protect setback standards, driveway consolidation, and management standards.

Campus Parkway Evaluation for Project Scenario

The construction of Campus Parkway is included in Tier 1 of the 1998 RTP. The current project definition calls for a 4- to 6-lane expressway between Highway 99 and Yosemite Avenue. Funds have been programmed for the development of Campus Parkway, and construction of the initial 4-lane segment is due to begin in 2005. However, because the Parkway is not a fully approved project, and in the interests of presenting a thorough and conservative analysis, the impacts of the proposed campus were also evaluated based on a network that does not include Campus Parkway.

If the Parkway were not constructed between Highway 99 and Yosemite Avenue, high volumes of campus-related traffic would travel on eastern Yosemite Avenue and Arboleda Drive in order to access Highway 99. As a result of traffic from the campus and other sources, volumes on

these roads are predicted to range between 3,500 and 6,000 vehicles per day, as compared to current daily volumes of 1,000-2,500. Because these roads primarily serve agricultural uses, volumes of the magnitude predicted without the construction of Campus Parkway raise concerns about safety and access to and from abutting properties. There may be considerable speed differentials between agricultural vehicles and traffic from other sources. Frequent widenings would be necessary to allow safe turns to and from intersecting streets and driveways along both Yosemite Avenue and Arboleda Drive. In addition, there would be increased levels of campus traffic on Yosemite Avenue, McKee Road, G Street, and Highway 59, with the corresponding potential for adverse effects on access to adjacent properties. The impact locations identified in Figure 4.14-7 above would remain, although the magnitude of project impacts would be higher at some locations, possibly requiring more extensive mitigation measures. Additional impact locations would include Highway 59 between Bellevue Road and Yosemite Avenue, and Glen Avenue between Bear Creek and the Highway 99/140 interchange.

The initial construction of the Parkway from Highway 99 to Yosemite Avenue will be 4 lanes. The report titled "Analysis of Travel Characteristics Traffic Report for the Campus Parkway Project," Merced County Department of Public Works, November 30, 2000, finds that, independent of campus development, a 4-lane facility would provide needed benefits to important regional roads such as R Street, M Street, and 16th Street. In the analysis presented in this section, it was determined that a 4-lane facility would be necessary to serve the traffic demand under both the Future Without Project and Future plus Full LRDP Development scenarios. As described earlier, the Future Without Project scenario represents expected year 2025 conditions in Merced County, without either the campus or the University Community. The Campus Parkway report cited above presents an extended analysis, in which year 2025 conditions are supplemented with projections of full buildout of the City of Merced General Plan. That report concludes that a 6-lane facility may be needed to support City buildout, independent of campus development. The current Campus Parkway project definition includes sufficient right-of-way to accommodate eventual widening to 6 lanes. Any widening beyond the initial 4-lane segment would be funded by the development causing the need for the widening.

4.14-5 In the case where full LRDP development occurs without the University Community, access routes to the campus through the University Community may not be constructed, resulting in significant level of service and emergency access impacts. This is considered to be a *potentially significant* impact.

Access routes to campus from the existing Lake Road and Bellevue Road alignments are part of the University Community Plan circulation system, but may not be constructed unless the Community Plan is adopted and implemented. The principal elements are the Campus Parkway extension north of Yosemite Avenue, and the connections through the University Community from the Campus Parkway extension to the campus, known as University Drive (or Meadow Drive) and Commerce Drive. Absence of any or all of these facilities would result in unacceptable traffic LOS at the Lake/Bellevue intersection and along adjacent sections of Lake Road and Bellevue Road. Protection of on-campus pedestrian and bicycle zones from through-traffic would also be compromised, creating traffic conflicts and related hazards. Establishing the extension of Campus Parkway from Yosemite Avenue to Bellevue Road, as well as connections to the campus via University Drive and Commerce Drive, or comparable connections (even if the University Community is not developed), would mitigate this impact.

4.14-5 *Merced County can and should and the University will establish rights-of-way and build campus access routes comparable to the extension of Campus Parkway from Yosemite Avenue to Bellevue Road, University Drive, and Commerce Drive, even if the University Community is not developed. (Applicability—program level)*

This measure would reduce the impact to a *less-than-significant* level.

4.14-6 Improper phasing or programming of roadway mitigation projects during the development of the University could result in hazardous traffic conditions along approach routes. This is considered to be a *potentially significant* impact.

Along existing high-speed rural roads such as Bellevue Road, Lake Road, Highway 59, and portions of Yosemite Avenue and G Street, annual monitoring of traffic conditions should be undertaken to assess the precise timing of required capacity and safety improvements. Monitoring would include traffic counts, speed measurements, intersection and driveway delay measurements, and accident data reviews. The monitoring report should be used, in conjunction with campus enrollment forecasts (and University Community building permit projections, if applicable) to determine whether remedial capacity and/or safety upgrades will be needed within the next one to three years, supported by a certified engineer's recommendation. The report should also contain a cost/benefit analysis of whether interim improvement measures (such as turn lanes, acceleration/deceleration lanes, shoulder widening, median refuges, stop or yield signs, traffic calming, or increased traffic enforcement) would be advantageous compared with constructing the parallel or co-aligned RTP facility. The report should be used to determine whether to move expeditiously to correct any deficiencies on an interim basis, or move to final design and construction of the ultimate RTP facility (or initial phases of that facility). Monitoring of Lake Road would continue until completion of the extension of Campus Parkway from Yosemite Avenue to Bellevue Road. Monitoring of other campus access routes would continue until completion of the Tier 1 improvement or the project mitigation measure (as listed in Mitigation Measure 4.14-3(a)) that represents the final configuration of that road.

4.14-6 *The University will contribute its fair share (as described in Section 4.14.3.2) toward the annual monitoring of traffic conditions along major approach routes to the campus and will contribute its fair share toward implementation of interim improvements, if warranted. (Applicability—program level)*

This measure will reduce the impact to a *less-than-significant* level.

4.14-7 Implementation of the LRDP would place additional demand on regional and local transit services and would depend on high levels of transit service being deployed to connect the campus with major destinations within Merced County. This is considered a *less-than-significant* impact.

Implementation of LRDP Policies provide for a campus street system designed to meet the travel-time and maneuvering requirements of transit vehicles, including appropriately sized travel lanes, bus stops and pull-outs, and connectivity to key destination points. LRDP Policies provide for high transit levels of service and operating efficiency, integration of regional and campus transit services, and a broad-based user-fee program for the campus that has been demonstrated effective in other university environments. In addition, transit service to the campus and University Community is envisioned in the most recent Short-Range Transit Plan by

Merced County Transit. Merced County Transit has already applied for funds to acquire the buses needed to provide service to the campus for the early stages of campus development and anticipates continuing to pursue funds to serve the campus as it grows. The LRDP Policies combined with the County's commitment to support transit service to the campus and University Community reduce this impact to a *less-than-significant* level.

4.14-8 Implementation of the LRDP would generate pedestrian and bicycle travel in higher concentrations and amounts than found in many other parts of the county. This is considered a *less-than-significant* impact.

Access to the campus for pedestrians and cyclists is presently limited to travel on shoulders along high-speed rural roads such as Bellevue Road and Lake Road and to the off-street path along the east side of Lake Road. The current condition of the Lake Road path is less than ideal, because of deferred maintenance of the surface material and the surrounding landscaping. These conditions raise concerns about potential increases in hazards due to design features and relative speeds of motorized and nonmotorized uses, and conflicts with adopted policies supporting alternative transportation modes.

LRDP Policies provide for ongoing coordination with neighboring jurisdictions and regional agencies to manage traffic growth and coordinate timely implementation of bicycle and pedestrian systems and services. The policies contained in the County's Regional Bicycle Plan, presented in the Regulatory Setting section of this chapter, also support the improvement of regional bikeway connections to the University Community and campus. The implementation of policies in the LRDP and the Regional Bicycle Plan should reduce this impact to a *less-than-significant* level.

Mitigation Measures

Implementation of the following mitigation measure would further reduce the identified *less-than-significant* impact.

4.14-8 Merced County and the City of Merced can and should ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed campus. (Applicability—program level)

4.14-9 It is possible that the campus may generate spillover parking that affects nearby parking areas of Lake Yosemite Regional Park and/or existing county roads in the area (such as Lake Road and Bellevue Road). This is considered a *potentially significant* impact.

In the short term (the Phase 1 Campus), some parking may be allowed at Lake Yosemite Regional Park. In the long term, the planned parking supply at the campus would be sufficient to meet typical daily demands. Based on parking demand rates at comparable campuses such as UC Davis, UC Merced could be expected to experience peak demand of approximately 14,000 parking spaces. The campus is planning to provide about 15,500 spaces, which translates to a peak parking occupancy rate of approximately 90 percent, a standard target for large developments. However, because the LRDP places commuter parking at relatively long distances from the high-activity campus core, and because the University plans to charge for

parking, some campus users may attempt to park at Lake Yosemite Regional Park or on existing county roads, such as Lake Road and Bellevue Road.

LRDP Policies provide for development of a parking supply/demand master plan for the campus and provide for effective management of parking supply to meet changing demand. Other LRDP Policies define parking enforcement to prevent unacceptable impacts of major generators on sensitive adjoining uses and define parking demand management measures. Policies also offer alternative-mode incentives and provide options to reduce driving and parking. However, because enforcement of parking restrictions in off-campus areas is the responsibility of another agency, this impact remains *potentially significant* when LRDP policies are considered the only mitigations.

Mitigation Measures

4.14-9 *The County can and should implement parking restrictions in sensitive areas around campus, such as recreational and residential parking permits and parking time restrictions, and should provide aggressive enforcement of these restrictions. (Applicability—program level)*

This mitigation measure would reduce this impact to a *less-than-significant* level.

4.14.3.4 Cumulative Impacts

For two of the project impact sub-categories, 4.14-7 (Transit) and 4.14-8 (Bicycle/Pedestrian Facilities), the project impacts and project role in cumulative impacts would be the same. For Transit, similar amounts of regional transit service would need to be provided to/from the campus both with and without cumulative development. Cumulative activity would make service through the intervening area between the campus and central Merced more productive and cost-effective than under Without Project conditions. Cumulative development would bring greater amounts of residential and commercial activity within closer proximity of the campus resulting in a greater number of short, direct, no-transfer trips, a greater potential ridership pool for the transit provider, and better opportunities for local transit services to operate cost-effectively at high frequencies on routes approaching and serving the campus and University Community. Higher development densities along corridors such as M Street and Bellevue Road would also make it possible to operate larger, more cost-efficient buses, or even light-rail transit, along the key transit corridors connecting the campus to central Merced. All of the potentialities established by cumulative development make it easier to meet the regional transit goals and objectives of the Short-Range Transit Plan and the RTP.

For Regional Bicycle and Pedestrian travel, similar connections would need to be provided to/from the campus both with and without cumulative development. In the Without Project case, these connections would need to be four to five miles long with few potential users within the first two to three miles off-campus. Cumulative development of the intervening areas make it possible to create bike connections to the campus at lower cost to the County, and to create opprotunities to maintain and secure bike and pedestrian routes through north Merced. Cumulative development of north Merced also places a much greater number of potential bike users and walkers within reasonable distance of the campus to encourage increased use of these alternative modes and reduced automobile reliance. All of these factors are consistent with the

goals and policies of the UCP, UC Merced LRDP, Merced City and County General Plans, and RTP and Regional Bicycle Plan.

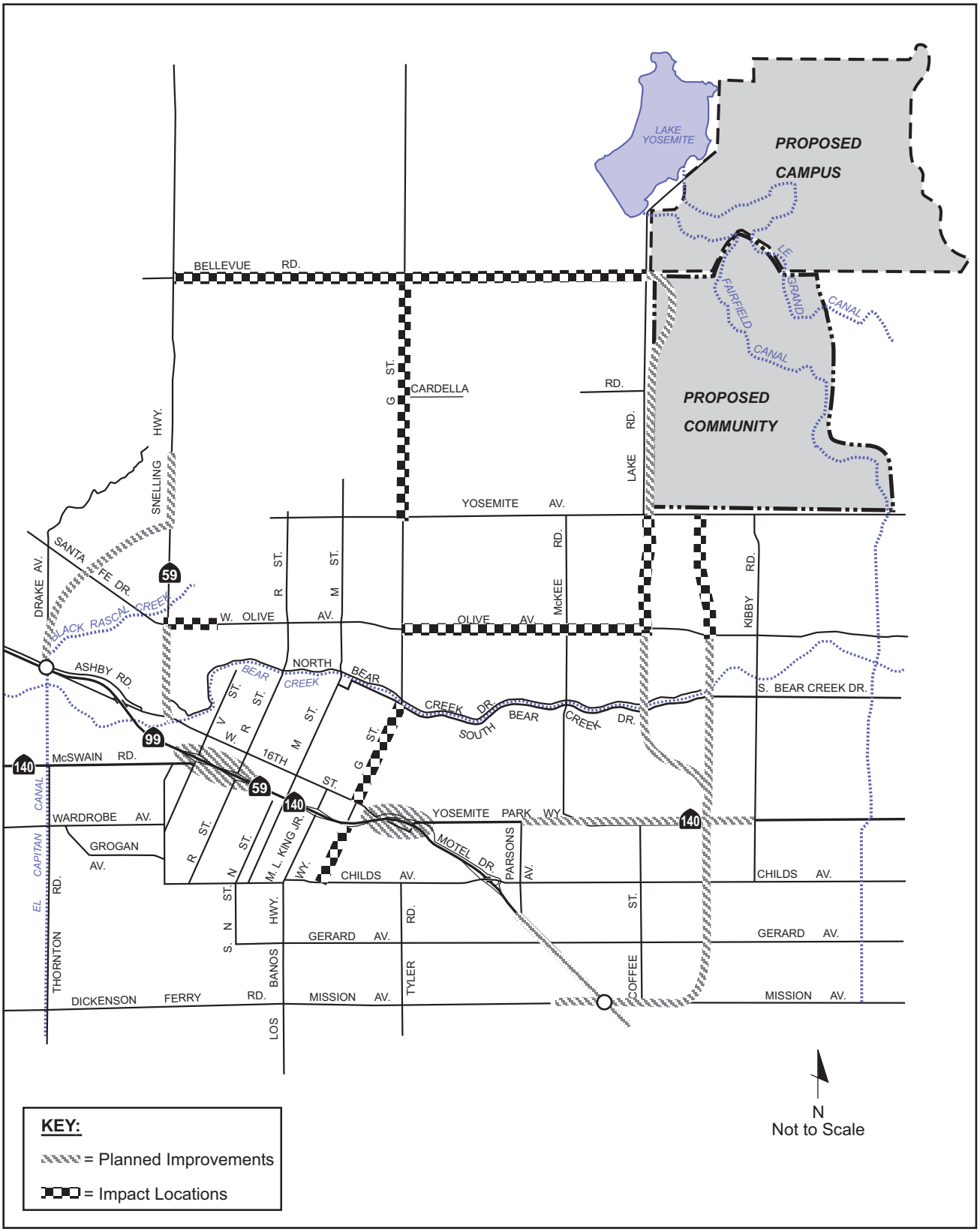
4.14-10 Implementation of the LRDP, in combination with the proposed University Community and regional growth in Merced County, would result in increased traffic levels in the vicinity of the campus site, and exceedances of the roadway LOS thresholds. This is considered to be a *significant impact.*

Campus, University Community, and Campus Parkway. To identify cumulative impacts, the effects of the University Community were combined with the Future plus Full LRDP Development analysis performed above. Transportation conditions were analyzed based upon a scenario that includes the proposed campus and University Community combined with projected contemporaneous background conditions on local and regional roadways. To assess the combined effects of the campus and the University Community, a roadway impact was considered significant if the combined traffic from the two projects contributed at least 5 percent to a roadway that declined to an unacceptable LOS, or that was already operating unacceptably before the addition of campus and University Community traffic.

Under Future plus Full LRDP Development and University Community Development conditions, the cumulative effects of the campus and University Community would contribute to exceedances of the roadway LOS thresholds on the Tier 1 roadway system. The locations of the cumulative impacts are shown in Figure 4.14-9. Table 4.14-11 provides traffic volume and LOS information for the major roadway segments studied and identifies the roadway segments where significant impacts were identified.

Table 4.14-11
Daily Traffic Volumes and Levels of Service,
Future Without Project and Future plus Full Campus
and University Community Development

Roadway Segment	Without Project		With Campus + Community	
	ADT	LOS	ADT	LOS
Bellevue Road				
Highway 59 to G Street	11,200	D	**15,100**	**E/F**
G Street to Lake Road	7800	C+	**27,000**	**E/F**
Lake Road				
Bellevue Road to Yosemite Avenue	6400	C+	900	C+
Yosemite Avenue				
Lake Road to McKee Road	8700	C+	11,600	D
McKee Road to Paulson Road	8800	C+	14,000	C+
Paulson Road to G Street	13,500	C+	16,000	D
G Street				
Bellevue Road to Cardella Road	15,000	C+	**21,800**	**E/F**
Cardella Road to Yosemite Avenue	19,600	E/F	**24,000**	**E/F**
Yosemite Avenue to Olive Avenue	27,800	C+	29,500	C+
Olive Avenue to Bear Creek	31,700	D	31,700	D
Bear Creek to 16th Street	35,600	E/F	**39,800**	**E/F**
Highway 99 to Childs Avenue	17,100	E/F	**17,100**	**E/F**
M Street				
Bear Creek to 16th Street	37,400	D	37,400	D
R Street				
Bear Creek to 16th Street	34,200	D	34,200	D



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UC Merced LRDP EIR

URS	Project No. 51-00067044.00 University of California at Merced	CUMULATIVE IMPACT LOCATIONS FUTURE PLUS CAMPUS AND COMMUNITY BUILDOUT	Figure 4.14-9

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Olive Avenue				
Highway 59 to Austin Avenue	53,500	E/F	**59,700**	E/F
R Street to M Street	40,500	C+	47,000	D
G Street to McKee Road	13,800	C+	**19,000**	**E/F**
McKee Road to Campus Parkway	5700	C+	**17,500**	**E/F**
Santa Fe Drive				
Olive Avenue to Highway 59 Expwy	42,300	E/F	43,100	E/F[1]
Highway 59 Expwy to Beachwood Drive	38,500	E/F	38,500	E/F[1]
Highway 59				
Bellevue Road to Yosemite Avenue	20,200	C+	26,900	C+
Yosemite Avenue to Olive Avenue	33,200	C+	37,700	C+
Olive Avenue to 16th Street	35,200	D	35,200	D
Campus Parkway				
Yosemite Avenue to Olive Avenue	8700	C+	**40,000**	**E/F**
Olive Avenue to Highway 140	13,900	C+	28,700	C+
Highway 140 to Highway 99	12,200	C+	17,800	C+
Highway 140				
Kibby Road to Campus Parkway	14,700	C+	17,400	C+
Coffee Street to McKee Road	15,200	C+	27,900	C+
McKee Road to 16th Street	16,000	C+	25,400	C+
Highway 99				
Franklin Road to Highway 59 Expwy	110,600	E/F	114,300	E/F[1]
R Street to Martin Luther King Way	94,800	E/F	97,500	E/F[1]
Highway 140 to Childs Avenue	81,200	C+	87,600	D
Childs Avenue to Mission Avenue	67,500	C+	74,300	C+
South of Mission Avenue	64,900	C+	78,000	C+

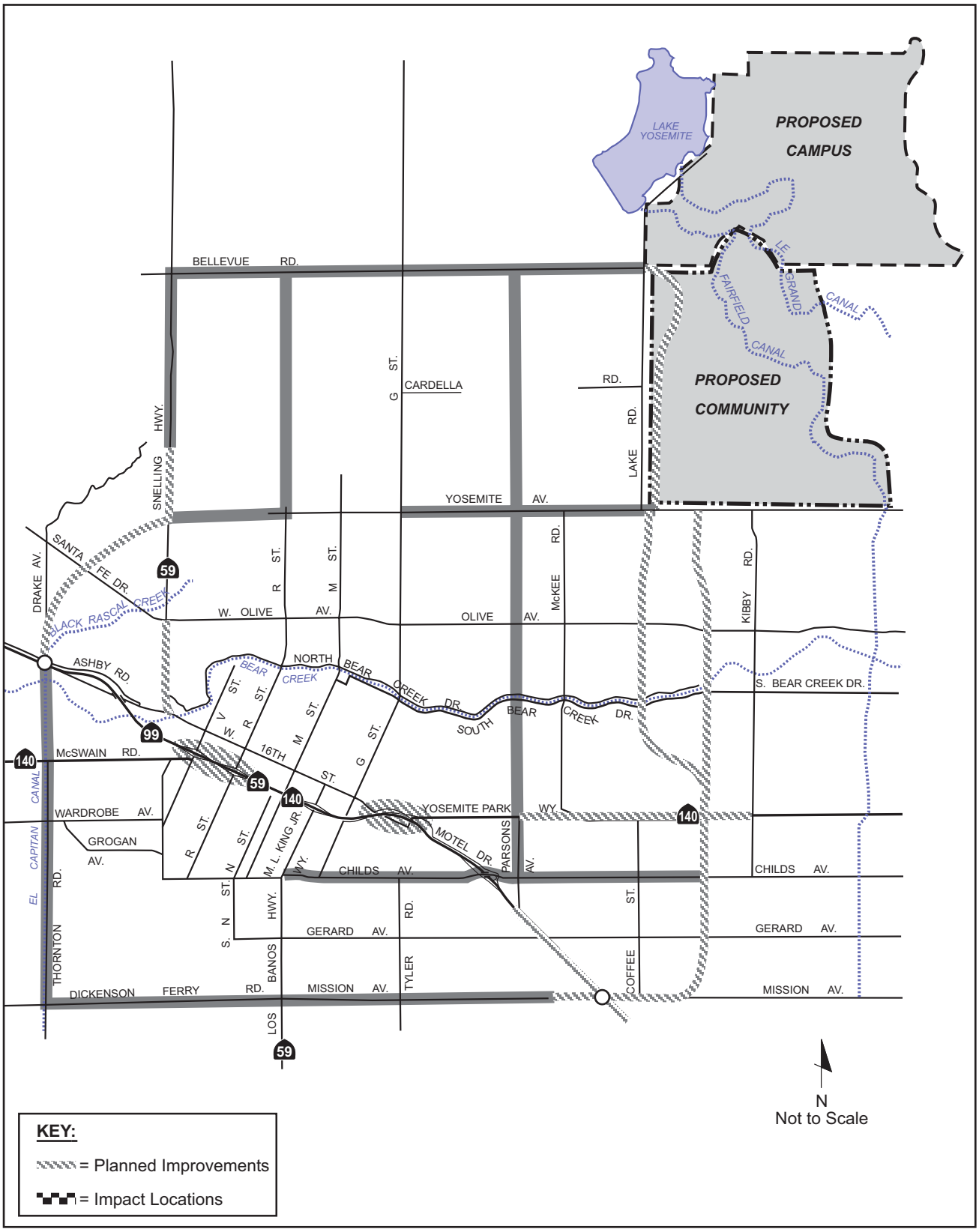
Notes:
ADT = Average Daily Traffic
"C+" represents roadway LOS of C or better.
Results in **bold** represent significant project impacts.
[1] Combined campus and Community traffic does not represent 5% of future volume, so not a significant cumulative impact.

Mitigation Measures

Implementation of the following Tier 2 roadway projects would reduce most of the identified impacts to less-than-significant levels; the general locations of these mitigation measures are shown in Figure 4.14-10. This list reflects all of the roadway improvements necessary to support full development of both the campus and the University Community; since both entities will benefit from these improvements, both should contribute their fair share to the implementation of these measures. Table 4.14-12 presents the projected level of service on roadways that experience a significant impact, before and after implementation of these mitigation measures.

Table 4.14-12
Mitigated Levels of Service,
Future plus Full Campus and University Community Development

Roadway Segment	Impact LOS	Mitigated LOS
Bellevue Road		
Highway 59 to G Street	E/F	C+
G Street to Lake Road	E/F	C+
G Street		
Bellevue Road to Cardella Road	E/F	C+
Cardella Road to Yosemite Avenue	E/F	C+



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URS	Project No. 51-00067044.00 University of California at Merced	MITIGATION LOCATIONS FUTURE PLUS CAMPUS AND COMMUNITY BUILDOUT	Figure 4.14-10

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Roadway Segment	Impact LOS	Mitigated LOS
Bear Creek to 16th Street	E/F	E/F
Highway 99 to Childs Avenue	E/F	E/F
Olive Avenue		
Highway 59 to Austin Avenue	E/F	C+
G Street to McKee Road	E/F	C+
McKee Road to Campus Parkway	E/F	D
Campus Parkway		
Yosemite Avenue to Olive Avenue	E/F	C+
Notes: "C+" represents roadway LOS of C or better.		

4.14-10(a) The University will contribute its fair share (as described in Section 4.14.3.2) toward the following RTP Tier 2 roadway improvements:

- *Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road*
- *Highway 59, new segment between Highways 99 and 140*
- *Yosemite Avenue, extend from R Street to Highway 59*
- *Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street*
- *Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway*
- *R Street, extend from Yosemite Avenue to Bellevue Road*
- *Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road*
- *Highway 59, new alignment along Mission Avenue*
- *Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59*
- *Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59 (Applicability—program level)*

After implementation of the improvements listed above, the following cumulative impact location would still operate at unacceptable levels of service: G Street between Bear Creek and 16th Street. The segment of G Street is expected to operate at LOS E/F even without the addition of campus and University Community traffic. No Tier 2 projects have been identified that improve operations on this segment to acceptable levels. As described in the discussion following mitigation measure 4.14-4(a) above, because the impacts along these segments of G Street cannot be mitigated to a less-than-significant level and because the Tier 2 improvements are not fully programmed, cumulative traffic impacts are considered *significant and unavoidable*.

4.14-10(b) Merced County, City of Merced, Caltrans, and MCAG can and should move expeditiously through project development processes to establish rights-of-way and access management requirements along key routes affected by campus traffic. (Applicability—program level)

The discussion related to this mitigation measure can be found under Mitigation Measure 4.14-4(b).

It should be noted that the roadway improvements listed above as Mitigation Measure 4.14-10(a) have the indirect effect of improving operations along other roads that are expected to operate poorly in the future, but that do not meet the standards of significance for determining impacts in this EIR. As shown in Table 4.14-11, segments of Santa Fe Drive between Olive Avenue and Beachwood Drive operate at LOS E/F both with and without project traffic; the combined traffic from the campus and University Community does not represent 5% of the volume on those segments, so a significant cumulative impact is not identified. However, service levels on these segments improve to acceptable levels (LOS D or better) after implementation of the mitigation measures described above. A similar effect occurs along Highway 99 between R Street and Martin Luther King Jr. Way. Projected to operate at LOS E/F under Future Without Project and Future With Project conditions, that segment is expected to operate at LOS D after implementation of the mitigation measures. This is because the mitigation measures provide efficient routes to bypass the downtown Merced portion of the freeway, particularly through the improvement of Mission Avenue and the realignment and extension of Highway 59 to a new interchange with Highway 99.

The segment of Highway 99 between Franklin Road and the Highway 59 Expressway is expected to operate at LOS E/F both with and without project traffic. The proposed cumulative mitigation measures described above do not provide relief for this condition. However, the RTP does contain a Tier 2 project to widen this portion of the freeway, which would produce an acceptable LOS along this segment.

Campus Parkway Evaluation for Cumulative Scenario

The construction of Campus Parkway is included in Tier 1 of the 1998 RTP. The current project definition calls for 4- to 6-lane expressway between Highway 99 and Yosemite Avenue. Funds have been programmed for the development of Campus Parkway, and construction of the initial 4-lane segment is due to begin in 2005. However, because the Parkway is not a fully approved project, and in the interests of presenting a thorough and conservative analysis, the impacts of the proposed campus were also evaluated based on a network that does not include Campus Parkway.

If the Parkway were not constructed between Highway 99 and Yosemite Avenue, high volumes of campus- and Community-related traffic would travel on eastern Yosemite Avenue and Arboleda Drive in order to access Highway 99. As a result of traffic from the campus, University Community, and other sources, volumes on these roads are predicted to range between 6,500 and 9,500 vehicles per day, as compared to current daily volumes of 1,000-2,500. Because these roads primarily serve agricultural uses, volumes of the magnitude predicted without the construction of Campus Parkway raise concerns about safety and access to and from abutting properties. There may be considerable speed differentials between agricultural vehicles and traffic from other sources. Frequent widenings would be necessary to allow safe turns to and from intersecting streets and driveways along both Yosemite Avenue and Arboleda Drive. In addition, there would be increased levels of campus and University Community traffic on Yosemite Avenue, McKee Road, and G Street, with the corresponding potential for adverse affects on access to adjacent properties. In general, the impact locations identified in Figure 4.14-9 above would remain the same, although the magnitude of project impacts would be higher at some locations, possibly requiring more extensive mitigation measures.

The initial construction of the Parkway from Highway 99 to Yosemite Avenue will be 4 lanes. The report titled "Analysis of Travel Characteristics Traffic Report for the Campus Parkway Project," Merced County Department of Public Works, November 30, 2000, finds that, independent of campus or Community development, a 4-lane facility would provide needed benefits to important regional roads such as R Street, M Street, and 16th Street. In the analysis presented in this section, it was determined that a 4-lane facility would be necessary to serve the traffic demand under both the Future Without Project and Future plus Campus and Community Development scenarios. As described earlier, the Future Without Project scenario represents expected year 2025 conditions in Merced County, without either the campus or the University Community. The Campus Parkway report cited above presents an extended analysis, in which year 2025 conditions are supplemented with projections of full buildout of the City of Merced General Plan. That report concludes that a 6-lane facility may be needed to support City buildout, independent of campus or University Community development. The current Campus Parkway project definition includes sufficient right-of-way to accommodate eventual widening to 6 lanes. Any widening beyond the initial 4-lane segment would be funded by the development causing the need for the widening.

Other Cumulative Development. The traffic model used for the future-condition scenarios includes traffic generated by other development expected to occur in the region. The model is based upon a summary of projections published by MCAG. Therefore, except for the "Existing plus Project" analyses, the traffic analysis is a regional cumulative impact analysis.

Effect of Recently Adopted RTP

The analysis in this section has been consistent with the 1998 RTP, which was the regional plan in effect when this EIR was initiated. The MCAG Governing Board adopted an updated RTP in July 2001, as this section was in the final stages of preparation. The total 20-year funding available from Federal, state and existing local sources in the 2001 RTP is approximately $190 million greater than included in the 1998 RTP. The transportation improvement projects included in the 2001 RTP are very similar to those in the 1998 RTP, but there are a few differences. To summarize those differences, Table 4.14-13 lists the improvement projects that were assumed in the future baseline network or proposed as cumulative mitigation measures in this EIR, and describes the funding category of each project in the 1998 and 2001 RTPs.

Table 4.14-13
Comparison of RTP Funding Categories for Major Improvement Projects Included in EIR Analysis

Improvement Project	1998 RTP	2001 RTP
Included in Future Baseline Network		
Campus Parkway, 99 to Yosemite	Tier 1	Funded
New interchange at Mission	Tier 1	Funded
Highway 59, 4 lanes, 16th to Olive	Tier 1	Tier 1
Highway 59, interchange at Thornton and expressway from 99 to Belcher	Tier 1	Tier 1 (99 to Bellevue + new interchange)
Highway 140, 4 lanes, Parsons to Kibby	Tier 1	Tier 1 (Parsons to Santa Fe) & Tier 2 (Santa

Improvement Project	1998 RTP	2001 RTP
		Fe to Parkway)
Improve 99/140 interchange	Tier 1	Other Funding (SHOPP)
Improve 99 interchanges at V and R	Tier 1	Under construction
Upgrade 99, Merced to Madera County	Tier 1	Funded
Cumulative Mitigation Measures		
Highway 59, widen to 4 lanes, Yosemite to Bellevue	Tier 2	Tier 2 (Olive to Yosemite or Bellevue)
Highway 59, new segment, 99 to 140	Tier 2	Tier 2
Highway 59, new alignment along Mission	Tier 2	Tier 2
Yosemite Ave. extension, R Street to 59	Tier 2	Other Funding (Devmt/Local)
Yosemite Ave., widen to 4 lanes, Parkway to G	Tier 2	Tier 2
Bellevue Rd., widen to 6 lanes, 59 to Parkway	Tier 2	Tier 2
R Street extension, Yosemite to Bellevue	Tier 2	Other Funding (Devmt/Local)
Parsons/Gardner extension, Childs to Bellevue	Tier 2	Other Funding (Devmt/Local)
Mission Ave., widen to 4 lanes, 59 to 99	Tier 2	Tier 1
Childs Ave., widen to 4 lanes, Parkway to 59	Tier 2	Not included

The funding categories in the 2001 RTP include the following: Funded, Other Funding, Tier 1 and Tier 2. As in the 1998 RTP, the Tier 1 projects are constrained to the estimate of revenues available in the Financial Element of the RTP. Tier 2 projects will be added to Tier 1 as additional funding is identified. The Other Funding category, which did not appear in the 1998 RTP, includes those projects assumed to be funded through non-regional sources, such as the state Interregional Improvement Program, contributions from developers, or other locally discretionary transportation funding.

The primary differences in the projects summarized in Table 4.14-13 are described below:

1. Highway 59, interchange at Thornton and new expressway from Highway 99 to Belcher. This was a Tier 1 project in the 1998 RTP, and remains a Tier 1 project in the 2001 RTP. However, the project definition has changed; the 2001 RTP includes several potential alignments for the new Highway 59 expressway, such that the new connection with Highway 99 may not occur at Thornton Road. In addition, the expressway is assumed to extend northward to Bellevue Road, rather than terminating at Belcher Avenue. A Project Study Report (PSR) is currently being prepared by MCAG and Caltrans to evaluate the alternatives and select a preferred alignment.
2. Highway 140, widen to 4 lanes, Parsons Avenue to Kibby Road. This was a Tier 1 project in the 1998 RTP. In the 2001 RTP, the project has been divided into two parts: the segment from Parsons Avenue to Santa Fe Drive is included in Tier 1, while the segment from Santa

Fe Drive to Campus Parkway is in Tier 2. (The short segment from Campus Parkway to Kibby Road is not included in the 2001 RTP project description.)

3. Mission Avenue, widen to 4 lanes, Highway 59 to Highway 99. This was a Tier 2 project in the 1998 RTP, and was specified as a cumulative mitigation measure in this EIR. In the 2001 RTP, this project appears in Tier 1.
4. Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 99. This was a Tier 2 project in the 1998 RTP, and was specified as a cumulative mitigation measure in this EIR. In the 2001 RTP, this project does not appear on the regional improvement list.

The estimated combined effect of changes 2, 3, and 4 above are that Tier 1 projects as defined in the 2001 RTP provide similar measures of east/west capacity expansion in the southeastern area of Merced as do the 1998 RTP Tier 1 projects. Therefore, the resulting traffic service levels along the east/west facilities in the area would be acceptable after application of Tier 1 improvements (as defined in either the 1998 or 2001 RTP) and the cumulative mitigation measures defined above.