
TRANSPORTATION AND TRAFFIC

INTRODUCTION

This chapter summarizes the effects on the near-term and future transportation and circulation system resulting from vehicle trips associated with the proposed West Landing Specific Plan and identifies measures to mitigate significant impacts. The transportation analysis was performed based on the Preferred Concept Plan of the West Landing Specific Plan dated November 2008. The internal roadway network of the Plan Area has been modified slightly since the completion of the transportation analysis. Both plans are provided in Appendix F. The analysis has not been re-run with the modified Plan because it has been assumed that these minor changes would have a negligible effect on the analysis and would not change the conclusions presented in this chapter.

In a response letter to the NOP, the City of Modesto requested review of additional intersections in their jurisdiction. A preliminary review of these intersections was conducted (included in Appendix F) to determine which of the requested intersections could be impacted by the project. Intersections estimated to receive over 100 peak hour trips from the project were included in this analysis.

Additionally, because concerns were raised by the public about traffic being added to existing problems surrounding the El Rematito Flea Market site, a supplementary study of those issues was completed as well (included as Appendix G)

REGULATORY SETTING

Existing transportation policies, plans, laws, and regulations that would apply to the Plan are summarized below. This information provides a context for the impact discussion related to the Plan's consistency with applicable regulatory conditions.

STATE

The California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all state highways. Caltrans' jurisdictional interest extends to improvements to these roadways at the interchange ramps serving area freeways. Any federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

The Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002) provides consistent guidance for Caltrans staff who reviews local development and land use change proposals as well as inform local agencies of the information needed for Caltrans to analyze the traffic impacts to State highway facilities including freeway segments, on- or off-ramps, and signalized intersections.

REGIONAL

The Stanislaus Council of Governments (StanCOG) is the countywide transportation planning agency responsible for the preparation of the Regional Transportation Plan (RTP). RTP is a guiding document for future transportation improvements and investments based on specific goals, objectives, policies and strategies defined by the community and its elected officials. The project prioritization process is based on evaluating each project for need, feasibility, and adherence to federal and state transportation laws and policies requiring comprehensive, cooperative, and continuous transportation, safety and environmental planning. Some of the RTP's objectives include:

- Integrate transportation and land use planning with transportation system carrying-capacity
- Develop a roadway system that supports alternative transportation modes
- Develop a regional transportation system that safely and efficiently moves people and goods between cities and the State Highway System
- Maintain an efficient, reliable and attractive public transit system for the region
- Promote the development of a safe and convenient bicycle and pedestrian network linking neighborhoods to the regional system

LOCAL

The City of Ceres General Plan contains the following goals and policies guiding the development of the City's transportation network.

Street and Roadway System

GOAL 2.A

To provide for the long-range planning and development of the city's roadway system to ensure the safe and efficient movement of people and goods.

POLICIES

2.A.1. The City shall plan, design, and regulate the development of the city's street system in accordance with the functional classification system described in this chapter and reflected in Circulation Diagram and with the City's street standards and specifications.

2.A.2. The City shall develop and manage its roadway system to maintain Level-of-Service of at least C on secondary collectors and local streets and Level-of-Service D on primary collectors, arterials, expressways, and freeways. Exceptions to these level of service standards may be allowed in infill areas where the City finds that the improvements or other measures required to achieve the LOS standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

2.A.3. The City shall strive to meet the level of service standards through a balanced transportation system that provides alternatives to the automobile.

2.A.4. The City shall require an analysis of the effects of traffic from major development Projects (generally those that would generate 100 or more peak-hour trips per day). Each such Project shall construct or fund improvements necessary to mitigate the effects of traffic from the Project. Such improvements may include a fair share of improvements that provide benefits to others.

2.A.5. The City shall pursue financing in a timely manner for all components of the transportation system to achieve and maintain adopted level of service standards.

2.A.6. The City shall assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits (e.g., low income housing, primary wage earner employment) and alternative sources of funding for the improvements can be obtained to offset foregone revenues.

2.A.7. The City shall continue to support development of an expressway system to handle regional traffic in the Modesto-Ceres urban area. In particular, the City will encourage the development of Faith Home Road and Service Road as expressways to relieve truck traffic and through-traffic on Mitchell Road.

2.A.8. The City shall continue to participate in the countywide Congestion Management Plan.

2.A.9. The City shall encourage the provision of capacity-enhancing improvements to SR 99 or improvements to other alternative routes or modes needed to accommodate increased local and regional traffic volumes and to relieve Projected traffic congestion as identified in the Congestion Management Program analysis. To this end, the City will, together with the other affected and responsible agencies, participate in the planning, programming and identification of financing for these improvements.

Major Corridors

GOAL 2.B

To maintain acceptable traffic flow along Ceres' major corridors.

POLICIES

2.B.1. The City shall seek to maintain acceptable traffic flow conditions along Ceres' major corridors while allowing for new development along these corridors. To this end, the City shall require site plans for new development along Hatch Road, Mitchell Road, and Whitmore Avenue. To this end, the City shall:

- Require consolidation of driveway access; if necessary, driveway improvements should include relocation of driveway access points on existing sites
- Require combination of parking lots and access points with joint access and parking agreements where possible
- Require medians where necessary to limit turning movements
- Require site plans to facilitate entrance and exits to avoid cars queuing in street
- Limit or prohibit drive-up windows where peak traffic queues cannot be accommodated on-site.

2.B.2. The City shall allow only limited direct access to industrial, commercial, and high density residential uses along Hatch Road, Service Road, and Faith Home Road as approved through site plan review.

2.B.3. The City shall restrict access from driveways, secondary collectors, and local streets onto Faith Home Road and Service Road and shall allow only right-turn in, right-turn out access movements at select locations.

Residential Streets

GOAL 2.C

To protect residential areas from high-volume and high-speed traffic and its effects and promote bicycling and walking on residential streets.

POLICIES

2.C.1. The City shall consider the effects of new development on local streets in residential areas and require new development to mitigate significant impacts on residential neighborhoods.

2.C.2. The City shall promote connectivity in its residential street patterns. Where cul-de-sacs are permitted, the City shall promote pedestrian and bicycle travel by including pathways as appropriate to connect cul-de-sacs to other streets or community facilities such as parks and schools.

2.C.3. The City shall require sidewalks for all streets in new residential areas.

2.C.4. The City shall promote street, alley, and sidewalk maintenance to encourage safe use for transportation purposes.

2.C.5. The City shall consider future needs for street and sidewalk maintenance in approving new development.

Transit Facilities and Services

GOAL 2.E

To promote provision of safe and efficient transit service to reduce congestion, improve the environment, and provide viable non-automotive means of transportation in and through Ceres.

POLICIES

2.E.1. The City shall continue to plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand. To this end, the City will coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.

2.E.2. The City shall consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles.

2.E.3. The City shall consider the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act.

2.E.4. The City shall continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit.

2.E.5. The City shall require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route.

2.E.6. The City shall strive to ensure that transit routes serve those areas with the greatest need and the largest number of potential users.

2.E.7. The City shall investigate transit possibilities for the use of heavy rail right-of-way if railroads consider abandoning their rights-of-way.

Non-Motorized Transportation

GOAL 2.F

To provide a safe, comprehensive, and integrated system of facilities for nonmotorized transportation.

POLICIES

2.F.1. The City shall promote the development of a comprehensive and safe system of recreational and commuter bicycle routes that provide connections between the city's major employment and housing areas and between its existing and planned bikeways.

2.F.2. The City shall promote bicycling and walking through appropriate facilities, programs, and information.

2.F.3. The City shall pursue alternative sources of funding for the development and improvement of bikeways and pedestrian pathways.

2.F.4. The City shall require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate.

2.F.5. The City shall require new development to provide adequate rights-of-way to accommodate bikeways where needed on new collector, arterials, and expressway streets, and to contribute to the development of needed bikeways.

2.F.6. The City shall encourage the development of adequate, convenient, and secure bicycle parking at employment centers, schools, recreational facilities, transit terminals, commercial businesses, and in other locations where people congregate.

2.F.7. The City shall require new multi-family residential, commercial and industrial developments to include bicycle facilities.

2.F.8. The City shall promote bicycle safety education to children and adults.

2.F.9. The City shall regard commuter bicycle routes as higher priorities than recreational routes.

2.F.10. The City shall consider the needs of bicyclists when new roadways are constructed and existing roadways are upgraded.

2.F.11. The City shall develop safe and pleasant pedestrian ways. To this end, the City shall ensure adequately wide sidewalks to accommodate pedestrian movement.

2. F.12. The City shall encourage separation of sidewalks from streets on arterials and major collector streets.

2.F.13. The City shall ensure that pedestrian access continues to be provided when the Pine Street and Whitmore Avenue overpasses are improved, and shall encourage improved pedestrian and bicycle facilities with these improvements.

ANALYSIS METHODOLOGIES AND LEVEL OF SERVICE CRITERIA

Intersections

The methodology used to analyze intersection levels of service (LOS) is that outlined in the Transportation Research Board's Highway Capacity Manual, 2000. LOS is a qualitative indication of the level of delay and congestion experienced by motorists using an intersection. LOS is designated by the letters A through F, with A being the best condition and F being the worst (high delay and congestion).

At signalized intersections and all-way stop intersections, the LOS is determined by the weighted average delay for all vehicles entering the intersection. The methodologies for these types of intersections calculate a single weighted average delay and LOS for the intersection. Average delay criteria used to determine the LOS at signalized intersections, all-way stop intersections, and unsignalized intersections can be found in the traffic study in Appendix F (Tables 1 and 2).

Some of the study intersections are unsignalized, with stop sign control on the minor street approaches. At these types of intersections, most of the main street traffic is undelayed, and by definition have acceptable conditions. The main street left-turn movements and the minor street movements are all susceptible to delay of varying degrees. Generally, the higher the main street traffic volumes, the higher the delay for the minor movements.

The methodology for analysis of unsignalized intersections calculates an average total delay per vehicle for each minor street movement and for the major street left-turn movements, based on the availability of adequate gaps in the main street through traffic. A LOS designation is assigned to individual movements or to combinations of movements (in the case of shared lanes) based upon delay. Unsignalized intersection levels of service reported herein are for each movement (or group of movements) based upon the respective average delay per vehicle.

It is not unusual for some of the minor street movements to have LOS D, E or F condition while the major street movements have LOS A, B or C condition. In such a case, the minor street traffic experiences delays that can be substantial for individual minor street vehicles, but the majority of vehicles using the intersection have very little delay. Usually in such cases, the minor street traffic volumes are relatively low. If the minor street volume is large enough, improvements to reduce the minor street delay may be justified, such as channelization, widening, or signalization.

The potential need for traffic signals at the unsignalized intersections is evaluated in accordance with the 2003 edition of the Manual on Uniform Traffic Control Devices (MUTCD). This analysis did not evaluate all of the warrants for traffic signals, but instead focused on the peak hour warrant (Warrant 3). The peak hour warrant is being used in this impact analysis as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed the peak hour warrant are considered for the purposes of this impact analysis to be likely to meet one or more of the other signal warrants (such as the 4-hour or 8-hour warrants). This peak hour analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction.

Traffic signals tend to reduce the potential for right-angle type collisions but also tend to increase the potential for less severe rear-end collisions. The signal warrant volumes represent the threshold point at which the potential for more rear-end collisions is offset by the potential for fewer more severe right-angle collisions. When the signal warrant volumes are exceeded, an intersection should be considered for signalization; however, the decision to install a traffic signal should not be based solely upon the warrants. Delay, congestion, approach condition, driver confusion, future land use or

other evidence of the need for right of way assignment beyond that provided by stop signs must be demonstrated.

Intersections controlled by roundabouts were analyzed utilizing the methodology outlined in the Roundabouts: An Informational Guide (Federal Highway Administration, Washington, D.C., 2000). The guide recommends that roundabouts should be designed to operate at no more than 85 percent of their estimated capacity as the operation of the roundabout begins to deteriorate when this capacity is exceeded.

Roadways

As with the intersection analysis, LOS for roadways is used as a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of service for roadway links were estimated using a planning methodology that is based on the Highway Capacity Manual (HCM). The capacity of a roadway is based on the number of signalized intersections per mile, number of lanes, presence of left-turn lanes and medians, and other factors from the HCM method. This methodology uses peak hour traffic volumes to determine levels of service for general planning applications. General LOS descriptions and LOS classifications based on peak hour traffic volumes in urban areas can be found in the traffic study in Appendix F (Tables 3 and 4).

Freeway Mainline Segments

Highway Capacity Manual (HCM) procedures were used to calculate average peak hour capacities for each LOS threshold from A to F for freeway segment. The LOS was determined using density given an estimated free-flow speed of 70 miles per hour for all the freeway segments, which is the base free-flow speed for urban areas from the HCM. Density is the number of passenger car per mile per lane for a transportation facility. Freeway mainline density thresholds can be found in the traffic study in Appendix F (Table 5).

Freeway Merge/Diverge Areas

Highway Capacity Manual (HCM) procedures were used to analyze the freeway ramp merge / diverge areas. Freeway ramp operating conditions are dependent upon traffic volumes and the ramp characteristics. These characteristics include the length and type of acceleration / deceleration lanes; free-flow speed of the ramps; number of lanes; grade; and types of facilities that the ramps interconnect. Table 6 contains the density thresholds. Freeway merge/diverge area density thresholds can be found in the traffic study in Appendix F (Table 6). The basic criterion used to determine Freeway Ramp LOS is vehicle density in the merge or diverge area, however, the 2000 Highway Capacity Manual¹ requires that several additional criteria be considered so that LOS F is automatically attained for a ramp if:

At an on-ramp, volume exceeds capacity ($V > C$) in:

- The segment of a freeway downstream, or
- The merge-area defined by the on-ramp and the two adjacent freeway lanes,

At an off-ramp, volume exceeds capacity ($V > C$) in:

- The segment of a freeway upstream OR downstream,

¹ See *Highway Capacity Manual*, Transportation Research Board, Washington, D.C., 2000, pages 13-22, 13-23.

- The off-ramp itself, or
- The diverge-area defined by the two adjacent freeway lanes approaching the ramp

LEVEL OF SERVICE STANDARDS

The City of Ceres' General Plan has established a LOS D or better standard for its major roadways, i.e. expressway and arterial, and LOS C for secondary collector and local roadways. It has classified Service Road as a Class B Expressway, where access is restricted from driveways and local streets. The City of Modesto Final Master Environmental Impact Report for the Urban Area General Plan Update has established LOS D or better as the standard for its roadways and intersections. The Stanislaus County General Plan has established LOS C or better for all County roadways and intersections, however the Plan allows for facilities within the sphere of influence of a city to operate at the standard adopted by the city if it is lower than the county standard. Additionally, the County reserves the option to adopt either a higher or lower LOS standard for roadways and intersections within urban areas, although the standard can be no lower than LOS D.

EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

State Route 99 (SR 99), a north-south facility located approximately 3.4 miles east of the Plan area, provides regional vehicular access to the Project. Access to and from SR 99 from the Specific Plan area is provided via Crows Landing Road, East Whitmore Avenue and Mitchell Road along Service Road. In the vicinity of the Plan area, SR 99 is a six-lane freeway. According to the 2007 counts from the Caltrans website², SR 99 carries an average daily traffic volume (AADT) of 118,000 vehicles per day north of Crows Landing Road and 108,000 vehicles per day south of Mitchell Road.

Local access within the region is provided by a network of expressways, arterial and collector streets and local roads. These roadways are described below.

Service Road is an east-west expressway that spans across Ceres, beginning from just west of Carpenter Road and continues east into Stanislaus County. Crows Landing Road divides the street into East Service Road and West Service Road. Service Road is classified as a Class C Expressway in the Stanislaus County General Plan and a Class B Expressway in the Ceres General Plan, where access is restricted from driveways and local streets. In the Project vicinity, Service Road exists as primarily a two-lane road. Service Road serves as the southern boundary of the Plan area.

Crows Landing Road is a four-lane, north-south arterial connecting the City of Modesto and northWest Landing on the north with areas in the southern part of Stanislaus County. It is classified by the County as a Major roadway north of Service Road and as a Class C Expressway south of Service Road and by the City as an arterial. Crows Landing Road runs north south through the Specific Plan area and provides access to SR 99 from the study area. The segment of Crows Landing Road extending north from the Plan area through the Modesto area is designated on the Modesto Urban Area General Plan as a four-lane arterial. The east side of Crows Landing Road between Whitmore Avenue and Service Road within the project area is fully developed and no further widening on the east side is anticipated with the Plan within this segment other than at intersections as required.

² California Department of Transportation, Traffic Data Branch.
<<http://traffic-counts.dot.ca.gov/2007all/r99i.htm>> May 6, 2009.

Whitmore Avenue is a two-lane east-west arterial that runs from unincorporated Stanislaus County east to Montpellier Road through downtown Ceres. It is classified as an arterial in the General Plan from the eastern edge of the Urban Growth Area to Carpenter Road and as a Major roadway by the County and provides access to SR 99 from the Specific Plan area. Through the Specific Plan area, Whitmore Avenue forms the boundary between the Ceres and Modesto Spheres of Influence and is designated as a four-lane arterial street on the Modesto Urban Area General Plan. Residential developments can be found to the immediate north and east of the Plan area along Whitmore Avenue with the exception of its intersection with Crows Landing Road where a mix of retail and service commercial land uses are located. The portion of Whitmore Avenue east of Crows Landing Road abutting the project is fully developed and no further widening other than at intersections as required is anticipated with development of the Plan.

Ustick Road forms the western boundary of the Specific Plan area. It exists as a two-lane north-south road that connects to Keyes Road on the south and Glenn Avenue on the north. Ustick Road is classified as an arterial in the General Plan.

Hackett Road is a two-lane east-west local roadway that extends approximately one-half mile on either side of Crows Landing Road. It provides the main access for a large County complex on the east side of Crows Landing Road.

Carpenter Road is a two- to four-lane north-south road that runs from SR 99 on the north to Crow Landing Road on the south in Stanislaus County. At SR 99, it connects to Briggsmore Avenue. It has been classified in the County General Plan as a 6-lane expressway north of Service Road and a 4-lane Major road south of Service Road. Within the Modesto Urban Area, it is classified as a six-lane Principal Arterial.

Hatch Road extends westward from Geer Road to just west of Carpenter Road. It is designated as a Class C expressway in the City's General Plan between Faith Home Road and Carpenter Road. West of SR 99, it currently has two to four travel lanes. The Modesto Urban Area General Plan designates Hatch Road as a four-lane, Class C expressway.

Morgan Road is a two-lane north-south arterial that links Hatch Road south to Keyes Road in the unincorporated County. North of Hatch Road, the Modesto Urban Area General Plan designates Morgan Road as a four-lane Arterial

Mitchell Road is a four lane roadway that extends from Hwy 99 north to the La Loma area of Modesto. It is designated in the Ceres General Plan as an Arterial road and on the Modesto General Plan as a six-lane Principal Arterial.

El Camino Avenue runs parallel to SR 99 on the east side of the freeway. This frontage road runs from Whitmore Place on the north and East Service Road on the south. El Camino Avenue will be significantly altered as a part of the Whitmore Avenue Interchange Project, which was under construction at the time this report was being drafted.

STUDY LOCATIONS

A set of intersections, street segments, freeway mainline segments and merge/diverge areas were selected for analysis based upon the anticipated volumes and distributional patterns of Project traffic as well as known areas of difficulty. This selection was made in collaboration with the City of Ceres staff and has taken into consideration comments received during the Notice of Preparation process. The study locations lie within the jurisdictions of City of Ceres, City of Modesto, Stanislaus County,

and the California Department of Transportation (Caltrans) as shown in the list below. Some of the County intersections lie within the sphere of influence of either the City of Ceres or the City of Modesto.

Intersections

1. Crows Landing Road / SR99 Northbound Ramps (Caltrans)
2. Crows Landing Road / Hatch Road (Stanislaus County)
3. Carpenter Road / Whitmore Avenue (Stanislaus County)
4. Ustick Avenue / Whitmore Avenue (Stanislaus County)
5. Crows Landing Road / Whitmore Avenue (Stanislaus County)
6. Morgan Road / Whitmore Avenue (Ceres)
7. Blaker Road / Whitmore Avenue (Ceres)
8. Whitmore Place / El Camino Avenue (Ceres)
9. Whitmore Place / Whitmore Avenue (Ceres)
10. Crows Landing Road / Hackett Road (Stanislaus County)
11. Carpenter Road / Service Road (Stanislaus County)
12. Crows Landing Road / Service Road (Ceres)
13. Morgan Road / Service Road (Ceres)
14. Blaker Road / Service Road (Ceres)
15. Central Avenue / Service Road (Ceres)
16. Mitchell Road / Service Road (Ceres)
17. Carpenter Road / Keyes Road (Stanislaus County)
18. Crows Landing Road / Keyes Road (Stanislaus County)
19. Carpenter Road / Maze Boulevard (Modesto)
20. Carpenter Road / Paradise Road (Stanislaus County)
21. Carpenter Road / Hatch Road (Stanislaus County)
22. Morgan Road / Hatch Road (Stanislaus County)
23. Dallas Street / Whitmore Avenue (Modesto)
24. Crows Landing Road / Glenn Avenue (Modesto)

25. Crows Landing Road / El Paso Avenue (Modesto)
26. Crows Landing Road / 7th Street (Modesto)
27. River Road / 9th Street (Modesto)
28. B Street / 7th Street (Modesto)
29. B Street / 9th Street (Modesto)

Roadway Segments

- A. Crows Landing Road north of Hatch Road (Stanislaus County)
- B. Crows Landing Road north of Whitmore Avenue (Modesto)
- C. Crows Landing Road south of Whitmore Avenue (Stanislaus County)
- D. Whitmore Avenue east of Crows Landing Road (Stanislaus County)
- E. Whitmore Avenue east of Blaker Road (Ceres)
- F. Service Road east of Central Avenue (Stanislaus County)

Freeway Mainline Segments (Caltrans)

- G. SR 99 north of Crows Landing Road
- H. SR 99 south of Mitchell Road
- I. SR 99 north of Mitchell Road

Freeway Merge/Diverge Areas (Caltrans)

- Crows Landing Road / SR 99 Southbound off-ramp
- Crows Landing Road / SR 99 Northbound on-ramp
- Whitmore Avenue / SR 99 Northbound off-ramp
- Whitmore Avenue / 2nd Street / SR 99 Southbound on-ramp
- Mitchell Road / SR 99 Northbound off-ramp
- Mitchell Road / SR 99 Southbound on-ramp

With the exception of freeway merge/diverge areas, the study locations are presented in **Figure 18-1** (page 18-21).

EXISTING INTERSECTION OPERATIONS

Existing Traffic Volumes and Lane Configurations

Turning movement volumes for most of the study intersections were collected at the study intersections during the morning (AM) peak period (7:00 am – 9:00 am) and the afternoon (PM) peak period (4:00 pm – 6:00 pm) in the week of February 11th, 2008 and the week of March 30, 2009. Due

to temporary closure resulting from a traffic incident, the intersection of Morgan Road and Hatch Road was recounted during the PM period on April 21, 2009. Turning movement volumes for the Carpenter Road and Maze Boulevard intersection were obtained from the City of Modesto. Turning movement volumes at study intersections can be found in the traffic study in Appendix F (Figure 4).

Intersection Level of Service and Signal Warrants

Using the peak hour volumes, the existing levels of service were estimated. To avoid redundancy of data presentation, the existing LOS results can be found with the discussion of Projected LOS under the impact discussion later in this chapter, in **Table 18.2**.

The analysis shows that the intersections of Whitmore Place/El Camino Avenue, Whitmore Place/Whitmore Avenue, Carpenter Road/Hatch Road and Crows Landing Road/7th Street are currently operating at LOS E or LOS F during the AM and/or the PM peak hour. Further, traffic on the minor legs of three stop-controlled intersections along Crows Landing Road at SR 99, Glenn Avenue and El Paso Avenue, would also experience unacceptable delays even though the overall intersection operations are at LOS A.

The analysis also indicates that volume signal warrant is met at four of the study intersections during the AM and/or the PM peak hour: Whitmore Place/Whitmore Avenue (a traffic signal was being installed during the course of this study), Carpenter Road/Hatch Road, Crows Landing Road/7th Street, and 9th Street/River Road.

EXISTING ROADWAY OPERATIONS

Six roadway segments were selected for analysis. Roadway volumes were derived from intersection turning movement volumes. To avoid redundancy of data presentation, the existing roadway operations can be found with the discussion of Projected roadway operations under the impact discussion later in this chapter, in **Table 18.3**.

The results indicate that the street segment on Whitmore Avenue east of Blaker Road operates at LOS F level during the PM peak hour; while all remaining roadway segments operate at acceptable levels.

EXISTING FREEWAY MAINLINE OPERATIONS

Six mainline segments on SR 99 were evaluated. Existing volumes were obtained from Caltrans as well as compiled from a recent traffic impact study³. To avoid redundancy of data presentation, the existing mainline operations can be found with the discussion of Projected mainline operations under the impact discussion later in this chapter, in **Table 18.4**.

The results indicate that the SR 99 segment north of Crows Landing Road operates at LOS F on the northbound direction in the AM peak hour and on the southbound direction in the PM peak hour. The southbound direction also operates at LOS E in the AM peak hour.

EXISTING FREEWAY INTERCHANGE OPERATIONS

Six freeway interchange locations were selected for evaluation. Existing volumes at the freeway merge and diverge areas were gathered from a variety of sources including from a recent traffic

³ Fehr & Peers Transportation Consultants, *Administrative Draft Mitchell Ranch Center Transportation Impact Study*, December 2007.

impact study⁴ and derived from collected ramp intersection turning movement volumes. The results, shown in Table 10, indicate that the merge area for Crows Landing Road northbound on-ramp experiences LOS F conditions in the AM peak hour and the diverge area for Crows Landing Road southbound off-ramp experiences LOS F conditions in the PM peak hour.

EXISTING TRANSIT SERVICES

Transit services in the Project vicinity are provided by the City of Ceres and by Stanislaus Regional Transit (StaRT).

Ceres Area Transit

The City of Ceres operates a fixed-route bus service called the Ceres Area Transit (CAT) and the Ceres Dial-a-Ride service. CAT Route B runs between the Herndon Road and Hatch Road intersection and the Community Services Agency at Crows Landing Road and Hackett Road. The weekday, hourly service operates between 6 am and 7 pm.

Ceres Dial-a-Ride is an on-demand service available to both residents and visitors of the City and the immediate unincorporated area.

Modesto Area Express

Route 42 of the Modesto Area Express provides connections between the Plan area and downtown Modesto. In the Project vicinity, it runs southbound along Crows Landing Road and westbound along Whitmore Avenue. It operates in 30-minute intervals between 6 am and 8 pm on Monday through Saturday and in 60-minute intervals between 8:45 am and 6:40 pm on Sunday.

Stanislaus Regional Transit

StaRT Route 40 is a fixed-route bus service that runs between the cities of Modesto and Patterson. In the Project vicinity, it runs along Crows Landing Road. It operates five round trips on weekdays between 5:25 am and 8:22 pm and four round trips on Saturday between 6:40 am and 7:22 pm.

StaRT also operates a roundabout service that combines the convenience of fixed-route and dial-a-ride services. The Project area is served by the Eastside Shuttle route which operates to Oakdale, Riverbank and Modesto between 6:55 am and 5:30 pm on Monday to Saturday.

Both CAT and StaRT provide connection services to other fixed routes on their systems as well as to the Modesto Area Express (MAX) network.

Existing and Planned Bicycle and Pedestrian Facilities

Given the topography of Ceres, bicycling and walking are viable alternatives to auto use for both recreational and non-recreational trips. Bicycling and pedestrian facilities are an important component of the transportation network in the city.

Bicycle routes and paths are typical examples of bicycle transportation facilities. Bicycle facilities are defined as the following three classes according to Chapter 1000 of the Caltrans Highway Design Manual:

⁴ Fehr & Peers Transportation Consultants, *Administrative Draft Mitchell Ranch Center Transportation Impact Study*, December 2007.

Class I - Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

Class III – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

According to the Stanislaus County Non-Motorized Transportation Plan (adopted September 2008) “Primary Bikeway Network” map, Whitmore Avenue is designated as a Class III on-street bikeway facility and a Class II on-street bike lane is proposed along Crows Landing Road within the Plan area. Additionally, there are several proposed bicycle facilities in the Project vicinity. Class I bicycle paths are proposed along Carpenter Rd, W Hatch Rd, and the canal between Carpenter Road and W Hatch Road north of the Plan area. Class II on-street bicycle lanes are proposed on Crows Landing Road to the north and south of the Plan area; E Service Road to the south of the Plan area; and Morgan Road, Hackett Road, Blaker Road, and Central Avenue to the east of the Plan area. Class III on-street bikeways are proposed along Ustick Road, Dallas Street, Crater Avenue, and Morgan Road to the north of the Plan area.

Sidewalks may be found intermittently in the Project vicinity. In general, sidewalks are only provided on the north side of Whitmore Avenue along the frontage of newer residential developments and on the eastside of Crows Landing Road. No sidewalk exists on Ustick and Service Roads, or along the south side of Whitmore Avenue and the west side of Crows Landing Road immediate adjacent to the Plan area.

The General Plan states a goal of providing a safe, comprehensive, and integrated system of facilities for non-motorized transportation. Specifically, it requires developers to install pedestrian pathways within new development, provide adequate right-of-way to accommodate bikeways, include bicycle facilities, and provide sufficient bicycle parking.

EL REMATITO FLEA MARKET

Problem traffic conditions were observed by community members surrounding the El Rematito Flea Market. While it is not known how long this use may remain, it will likely continue in at least the near future and poor traffic conditions could interfere with the ability of the planned roadway system to support traffic generated by the development under the Specific Plan. However, a focused analysis of the El Rematito Flea Market (included as Appendix G) has found that the issues are primarily a result of insufficient parking capacity in the main parking lots of the Flea Market and inadequate access to the “unofficial” overflow parking area.

Implementation of the feasible measures to accommodate additional parking and facilitate better vehicle and pedestrian circulation would correct traffic problems related to the Flea Market use. At the time of drafting this report, the Flea Market was in the process of applying for approval to create additional parking and it is assumed appropriate mitigation will be incorporated. As the problems have been determined not to be related to adequacy of the roadway system, but rather to site design of an existing use, they would not be anticipated to affect project traffic and no additional evaluation of these issues is included in this document.

IMPACT ANALYSIS

The potential impacts on the roadway system, transit service, bicycle and pedestrian facilities under Existing and Future Year 2030 Cumulative conditions are evaluated to determine if the Project would result in significant impact. The significance criteria used for this analysis, the procedures used to estimate Project generated trips, and the impact analysis are presented in this section.

SIGNIFICANCE CRITERIA

Roadway System

The significance criteria for traffic impacts is based on the standards of the jurisdiction in which the impact occurs, as discussed under the subsection Analysis Methodologies and Level of Service Criteria above and detailed below, broken down by jurisdiction.

For study locations within the sphere of influence of the city of Ceres, the Project's impact would be considered significant if the addition of Project traffic cause any of the following to occur:

- Deterioration of a signalized intersection from LOS D or better to LOS E or F;
- An increase in the service volume of any approach by five percent or more for a signalized intersection operating at LOS E or LOS F under baseline conditions;
- An increase in average delay of five or more seconds for a signalized intersection operation at LOS E or LOS F under baseline conditions;
- Deterioration of a controlled movement at an unsignalized intersection from LOS E (or better) to LOS F; or at intersections where a controlled movement already operates at LOS F, one of the following occurs:
 - Project traffic results in satisfaction of the peak hour volume signal warrant
 - Project traffic increases minor movement delay by more than 30 seconds
 - In the event that the peak hour volume signal warrant is met without the addition of Project traffic and delay cannot be measured, the Project adds 10 or more vehicles per lane on the controlled approach
- Deterioration of a roadway segment from LOS D or better to LOS E or F, or worsening of LOS E or F conditions.

For study intersections within the sphere of influence of the city of Modesto, the Project's impact would be considered significant if the addition of Project traffic cause any of the following to occur:

- Deterioration of a signalized intersection from LOS D or better to LOS E or LOS F;
- An increase in the service volume of any approach by five percent or more for a signalized intersection operating at LOS E or LOS F under baseline conditions;
- An increase in average delay of five or more seconds for a signalized intersection operation at LOS E or LOS F under baseline conditions;
- Deterioration of a controlled movement at an unsignalized intersection to LOS F and the volumes meeting at least one traffic signal warrant;
- An increase in the maximum queue by more than 2 vehicles (50 feet) when the available storage capacity is exceeded.

- Deterioration of a roadway segment from LOS D or better to LOS E or F, or worsening of LOS E or F conditions.

For study intersections within Stanislaus County and not within the sphere of influence of the cities of Ceres or Modesto, the Project's impact would be considered significant if the addition of Project traffic cause any of the following to occur:

- Deterioration of an intersection or a roadway segment from LOS C or better to LOS D, LOS E or LOS F in rural areas;
- Deterioration of an intersection or a roadway segment from LOS D or better to LOS E or LOS F in urban areas;

For freeway locations, the Project's impact would be considered significant if the addition of Project traffic cause any of the following to occur:

- Deterioration of a freeway segment from LOS D or better to LOS E or F; or an increase in traffic volumes of five percent or more for a segment operating at LOS E or F under baseline conditions;
- Deterioration of a freeway merge/diverge area from LOS D or better to LOS E or F; or an increase of merge/diverge area traffic volumes of five percent or more for a merge/diverge area operating at LOS E or F under baseline conditions.

Transit System

The Project impact is considered significant if any of the following occurs:

- The Project disrupts existing transit services or facilities. This includes disruptions cause by proposed Project driveways on transit streets, impacts to transit stops/shelters, and impacts to transit operations from traffic improvement proposed or resulting from the Project;
- The Project interferes with planned transit services or facilities;
- The Project creates demand for public transit services above that which is provided or planned;
- The Project conflicts or creates inconsistencies with adopted transit system plans, guidelines, policies or standards.

Bicycle Facilities

The Project impact is considered significant if any of the following occurs:

- The Project disrupts existing bicycle facilities;
- The Project interferes with planned bicycle facilities such as failure to dedicate right-of-way for planned on- and off-street bicycle facilities included in an adopted bicycle master plan;
- The Project conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies or standards.

Pedestrian Facilities

The Project impact is considered significant if any of the following occurs:

- The Project disrupts existing pedestrian facilities such as adding new vehicular, pedestrian or bicycle traffic to an area experiencing pedestrian safety concerns such as an adjacent crosswalk, school or railroad crossings.
- The Project interferes with planned pedestrian facilities;

- The Project conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies or standards.

Site Access and Internal Circulation

The Project impact is considered significant if any of the following occurs:

- A substantial left-turn demand at an unsignalized intersection from the side street onto a roadway with more than four lanes near the site;
- Lack of or an insufficient ingress left-turn lane length at a driveway, causing the ingress left-turn vehicle queue to spill out onto the street's adjacent through travel lane;
- Lack of or an insufficient ingress right-turn lane length at a driveway, causing the ingress vehicle queue to spill out onto the streets adjacent through travel lane.

PROJECT TRIP GENERATION

The number of trips generated by the proposed Project is estimated using data compiled by the Institute of Transportation Engineers (Trip Generation, 8th Edition, 2008 and Trip Generation Handbook, 2004) as well as derived from information provided by Stanislaus County and G3 Enterprises and other sources. In summary, the Project has the potential to generate about 5,809 new external trips during a weekday AM peak hour and 7,746 trips during a weekday PM peak hour as detailed in **Table 18.1**.

Adjustments to the number of trips generated by the Project were made to account for trips generated by existing land use, internal trips, and pass-by trips. A trucking operation occupied a portion of the G3 Enterprises area at the time the traffic counts were collected. This operation has been terminated and the area would house one or more of the warehouses proposed as a part of the Project. No other adjustment was made for trips associated with the remaining existing land uses in the Plan area that are assumed to be replaced by the proposed land uses for the purpose of this study. This includes the El Rematito Market, which does not operate during the study periods, a small light industrial business off Crows Landing Road just north of Hackett Road, orchards, and a few residential units.

Adjustments were also made to account for internal trips between different types of land uses within the Plan area. With the exception of school trips, the internal trip adjustments were performed using procedures recommended by the Institute of Transportation Engineers for multi-use developments (Trip Generation Handbook). It is assumed that the student body of the elementary schools is made up exclusively of residents of the Plan area and ninety percent of the vehicle trips traveling from the residences to the schools in the morning would depart the Plan area afterwards rather than returning home. Similar assumptions were made for the PM peak hour.

After the internal trip adjustments, adjustments were made to account for pass-by trips to the retail commercial land uses. Pass-by trips are trips that are already in the existing traffic stream that passes by the site and that would be attracted to the Project when it is completed. These trips are included in the total count of traffic generated by the Project and are included in the Project driveway volumes, but are not included as new trips at intersections outside of the influence of the Project driveways. The pass-by trip adjustment rate of five percent was determined upon consideration of surrounding land uses and guidance from the ITE's Trip Generation Handbook and Caltrans' Traffic Impact Study guidelines.

TABLE 18.1: PROJECT TRIP GENERATION

Trip Generation Land Use Category	Amount	Source	AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Core Area									
Retail ¹	884.2	ksf	ITE 820	340	217	557	1,343	1,397	2,740
Office	383.91	ksf	ITE 710	484	66	550	87	422	509
Business Park	802.10	ksf	ITE 770	924	176	1,100	236	789	1,025
Elementary School	1870	stu	ITE 520	460	376	836	138	143	281
Multi-Family Residential ²	1433	units	ITE 220 ¹	141	565	706	524	282	806
Single-Family Residential ²	2299	units	ITE 210	405	1,214	1,619	1,113	653	1,766
G3 Enterprise³									
Grocery	14.0	ksf	ITE 850	31	20	50	133	127	260
Warehouse	357.0	ksf	ITE 150	131	35	166	34	101	135
Business Park	17.34	acres	ITE 770	258	45	303	58	234	292
County Public Safety Center⁴									
Adult Detention Facility	1892	beds	ITE 571	102	87	189	10	86	95
Coroners Facility	30	emp	ITE 733	16	2	18	7	17	24
Sheriff's Operation Center	68	emp	ITE 733	36	5	41	17	37	54
Animal Shelter ⁵	44	emp	El Dorado	37	38	75	26	27	53
Government Complex ⁶	381.15	ksf	ITE 733	749	93	842	337	749	1,086
Park/Open Space	70	acres	ITE 411	5	5	9	5	5	9
Total Project Trips				4,119	2,944	7,061	4,068	5,069	9,135
Adjustments									
Existing Land Use									
G3 Enterprise - Trucking Operations ⁷				-8	-30	-38	-30	-8	-38
Internal Trips⁸									
Elementary School ⁹				-386	-39	-425	-9	-94	-103
Residential to/from school				-39	-386	-425	-94	-9	-103
Retail				-41	-36	-76	-162	-229	-391
Office/Business Park				-77	-26	-103	-82	-107	-188
Residential (other than to/from schools)				-47	-103	-150	-260	-169	-429
Park/Open Space				-4	-4	-8	-3	-3	-6
Pass-by Trips (5% net retail & grocery trips)				-17	-10	-27	-66	-65	-130
New External Trips				3,500	2,310	5,809	3,362	4,386	7,746

¹Retail encompasses regional commercial, community commercial and neighborhood commercial land uses

² The traffic analysis was conducted for an earlier version of the plan which assumed 97 more residential units, as reflected here, and no other changes to the overall development assumptions. As a result, impacts discussed in this section would be similar, though marginally greater than anticipated impacts under the current Plan.

³ Data for land uses within the G3 Enterprise parcels are provided by G3 Enterprise

⁴ Data for land uses within the County parcels are derived by information provided by Stanislaus County

⁵ Animal Shelter trips are based on manual driveway counts at an Animal Control facility in El Dorado County

⁶ Square footage for the Government Complex is calculated based on existing buildings in buffer area

⁷ Existing land use on G3 Enterprise parcel is derived based on info from G3 Enterprise and data from other trucking operations in the Central Valley

⁸ Internal trips are derived from data and procedures from the ITE Trip Generation Handbook except where noted.

⁹ Internal capture rates for elementary school are derived from teacher-student ratios of elementary schools in the Ceres Unified School District and non-teacher related trip assumptions.

PROJECT TRIP DISTRIBUTION AND ACCESS

The distribution pattern of Project generated trips was derived from the Transportation Planning Partnership Group (TPPG) Countywide Travel Demand Model, existing travel patterns and proposed access locations associated with the Plan area. The model zones within which the Plan area are isolated and its peak hour trips were assigned to the network. From this selected zone assignment, the distribution of inbound and outbound trips was estimated. Trip distribution percentages can be found in the traffic study in Appendix F (Figure 5).

New access to and from the Plan area are proposed along Whitmore Avenue, Crows Landing Road, Service Road and Ustick Road. In accordance to City of Ceres standards, only right-in-right-out access is provided along Service Road, a Class B Expressway, except at its intersection with arterial streets, including Crows Landing Road and Ustick Road, where full turning movements are allowed. Along arterial streets such as Whitmore Avenue, Crows Landing Road and Ustick Road, full turning movements are provided at their intersections with arterial streets and collector roads, such as the proposed Knox Road and “A” to H” Streets access points; while right-in-right-out movements are provided at other access locations. Note that the traffic study was completed for a previous version of the Plan, as shown in **Figure 18.1**. The current Plan includes some changes to the internal on-site circulation. The analysis has not been re-run with the modified Plan because it has been assumed that these minor changes would have a negligible effect on the analysis and would not change the conclusions presented in this report. The number of vehicles added by the proposed Project at the study intersections can be found in the traffic study in Appendix F (Figure 6).

FEE PROGRAMS AND IMPROVEMENTS

The West Landing Specific Plan (WCSP) project is located immediately adjacent to the cities of Ceres on the east and Modesto on the north. The westerly and southerly boundaries of the WCSP are adjacent to the unincorporated County of Stanislaus. Access to the Plan area is provided by roadways in all or part of each of these jurisdictions.

AB1600 Fee Programs have been adopted by all three of these jurisdictions. The existing fee programs are as follows:

1. The Stanislaus County Public Facilities Fee (County PFF) program;
2. The City of Modesto Capital Facilities Fee (Modesto CFF) program; and,
3. The Ceres Public Facilities Fee (Ceres PFF) program.

Each of these fee programs includes a traffic fee component, collected for the purpose of funding roadway improvements to mitigate the impacts of development on City or County roadways. These programs have been prepared using traffic models which generally analyze projected growth over the next 20 years or so. The City of Modesto requires payment of both the Modesto CFF and a portion of the County PFF. The City of Ceres requires payment of the Ceres PFF and a portion of the County PFF.

The traffic for the Project has been analyzed considering the appropriate levels of service consistent with standards of the appropriate jurisdictions. If improvements are required at any of the studied intersections to maintain acceptable service levels, these will be identified. For identified improvements, the analysis includes a determination whether the improvement is included in the fee program of the responsible jurisdiction (either Ceres, Modesto or the County). For example, the Modesto CFF program was consulted to determine if it includes funding for an intersection located in the City of Modesto or its sphere of influence. If identified improvements fit within those included in the applicable fee program, then this impact is considered mitigated and no additional project mitigation is considered. Regardless of the fact that the required improvements are funded through

another jurisdiction's fee program, since the City of Ceres does not control the timing of the construction of the improvement, the impact as to the timing of implementation is considered significant and unavoidable and a statement of overriding consideration would be required in conjunction with EIR adoption.

If the traffic analysis identified improvements that are not fully included in a relevant fee program, the improvements are identified. Although the identified improvement would mitigate the impact, contribution to its implementation without a program in place to provide recognition that the improvements will be implemented and identify sources for the remaining funding does not provide adequate assurance that the improvement will be implemented. Additionally, if the improvements are located in another jurisdiction, the timing of the construction can also not be assumed. Therefore, the impact will be considered significant and unavoidable, requiring a statement of overriding consideration.

If identified improvements are not fully included in the relevant fee program of an adjacent jurisdiction, and that jurisdiction has already considered the improvement, but has determined that the improvements are not feasible, then this analysis assumes that the City of Ceres will follow that example and determine that the improvement is not feasible and will find the impact significant and unavoidable and adopt a statement of overriding consideration for that improvement.

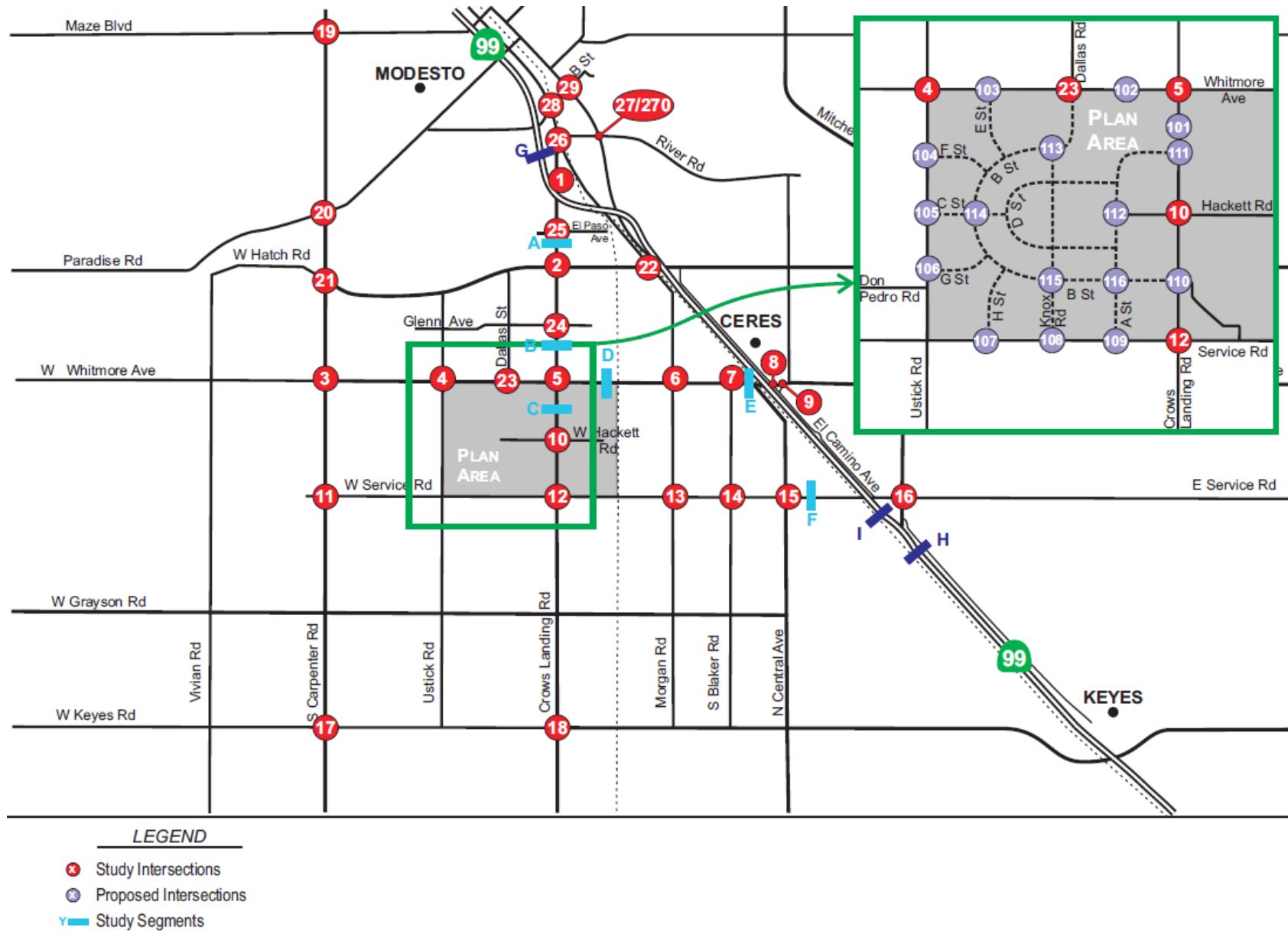


Figure 18.1: Traffic Study Locations

Source: Dowling Associates

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PROJECT-SPECIFIC IMPACTS

Existing plus Project Conditions

For the Existing plus Project conditions, full development of the proposed Project is assumed to occur “instantaneously”. In this manner, the traffic and impacts associated with the Project can be directly compared to known and measurable conditions.

The analysis of Existing plus Project conditions was performed using the TRAFFIX traffic impact analysis software package. No changes to the existing transportation network were assumed. Traffic volumes generated by the proposed Project were added to the existing traffic volumes based on the trip generation and distribution procedures described above. Project traffic was assigned to the transportation network based on traffic model assignment and/or the shortest paths. The resulting traffic volumes were used to analyze intersection, roadway, and freeway levels of service.

Intersection Operations

The results of the intersection LOS analysis are summarized in **Table 18.2** and the corresponding level of service calculation worksheets can be found in Appendix F.

Under Existing plus Project conditions, a number of intersections or one of the approaches to the intersections would operate at unacceptable peak hour levels of service. At some of these locations within Modesto, including the Crows Landing Road intersections with SR 99 ramps, Glenn Avenue and El Paso Avenue, the Project impacts are not considered significant because the signal warrant would not be met. The proposed Project is projected to have significant impacts on 15 study intersections. These intersections and potential mitigation measures to lessen the impacts of the Project are discussed below (and graphically shown in Appendix F).

Impact Traf-1: Crows Landing Road/Hatch Road (#2). The proposed Project would cause this intersection to degrade from LOS C to LOS F during the PM peak hour. This intersection is under the jurisdiction of Stanislaus County and within Modesto’s Sphere of Influence.

The City of Modesto’s CFF program has identified plans and funds to improve Crows Landing Road to a six-lane Principal Arterial and Hatch Road to a four-lane Class C Expressway. It is projected that these improvements would modify the intersection to provide two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches and two left-turn lanes, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected signal phasing on all approaches.

With the installation of improvements identified in Modesto’s CFF program, the intersection would operate at LOS C in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project’s impact would be reduced to less than significant. However, the intersection is outside the City of Ceres’ jurisdiction, and the certainty and timing of the installation is not within the City of Ceres’ control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-2: Carpenter Road/Whitmore Avenue (#3). The proposed Project would cause at least one of the controlled movements to experience LOS F and the volumes would meet the peak hour signal warrant during both AM and PM peak hours. This intersection is under the jurisdiction of Stanislaus County; the north and east sides of the intersection are within Modesto’s Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve Carpenter Road to a six-lane Principal Arterial/Expressway and Whitmore Avenue to a four-lane Minor Arterial. It is projected that these improvements would install a traffic signal and modify the intersection to provide two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches and two left-turn lanes, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected signal phasing on all approaches.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS C in both AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-3: Crows Landing Road/Whitmore Avenue (#5). The proposed Project would cause the intersection operation to degrade from LOS C and LOS D in the AM and PM peak hours, respectively, to LOS F during both peak hours. This intersection is under the jurisdiction of Stanislaus County and Modesto and within Modesto's and Ceres' Sphere of Influence. The southern portion would be annexed by the City of Ceres as a part of the Project.

The City of Modesto's CFF program has identified plans and funds to improve Crows Landing Road north of the intersection to a six-lane Principal Arterial/Expressway; whereas Stanislaus County's PFF program has identified plans and funds to improve Crows Landing Road south of the intersection to a six-lane Principal Arterial/Expressway. Modesto's CFF program and the City of Ceres' PFF program have also identified plans and funds to improve Whitmore Avenue to a four-lane Minor Arterial. It is projected that these improvements would modify the intersection to provide two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches and two left-turn lanes, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected signal phasing on all approaches. As this intersection is within/adjacent to the Plan area, improvements on the adjacent side will be required as development proceeds.

Mitigation Measure

Traf-3: Implement Crows Landing Road/Whitmore Avenue Intersection PFF Improvements. The Project shall implement the improvements identified in the Ceres PFF program for the portion of the intersection in Ceres jurisdiction (southern), potentially with reimbursement through the program as appropriate.

With the installation of improvements identified in Ceres' PFF program, as required by mitigation measure Traf-3, the Project's impact in the City of Ceres would be reduced to less than significant.

With additional installation of Modesto's CFF program and the County's PFF program, the intersection would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant in all jurisdictions. However, the northern portion of this intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-4: Morgan Road/Whitmore Avenue (#6). With the addition of Project generated trips, vehicles at this intersection would experience excessive delays and the

Table 18.2: Existing plus Project Peak Hour Intersection Level of Service

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			EXISTING		EXISTING PLUS PROJECT		EXISTING PLUS PROJECT (MITIGATED) ⁶	
1 Crows Landing Rd / SR 99 NB Ramps	Stop	AM	A / E	1.4 / 39.4	A / F	2.8 / 210.2		
		PM	A / F	2.2 / 57.5	B / F	11.8 / >300		
2 Crows Landing Road / Hatch Road	Signal	AM	C	28.1	D	35.2	C	24.5
		PM	C	33.9	F	94.9	C	26.6
3 Carpenter Road / Whitmore Avenue	All-way Stop	AM	B / B	12.5 / 13.5	F / F	81.7 / 124.2	C	29.9
		PM	C / C	17.6 / 23.8	F / F	157.5 / >300	D	30.5
4 Ustick Avenue / Whitmore Avenue	Signal	AM	A / B	2.3 / 11.7	B	18.0		
		PM	A / B	2.4 / 13.6	B	13.7		
5 Crows Landing Road / Whitmore Avenue	Signal	AM	C	30.8	F	218.4	C	34.6
		PM	D	43.9	F	222.4	D	42.2
6 Morgan Road / Whitmore Avenue	Signal	AM	C	24.3	C	27.7	C	25.8
		PM	C	33.3	F	104.3	C	27.6
7 Blaker Road / Whitmore Avenue	Signal	AM	B	19.9	C	20.1	B	19.2
		PM	D	36.2	F	102.5	C	25.1
8 Whitmore Place / El Camino Avenue ⁴	All-way Stop	AM	E / E	41.4 / 72.5	F / F	57 / 104.7	N/A	N/A
		PM	E / E	39.5 / 64.9	F / F	89 / 168.9	N/A	N/A
9 Whitmore Place / Whitmore Avenue ⁵	Stop	AM	A / E	6.5 / 48.6	F / F	76.8 / >300	N/A	N/A
		PM	E / F	42.2 / >300	F / F	>300 / >300	N/A	N/A
10 Crows Landing Road / Hackett Road	Signal	AM	C	25.9	E	56.1	D	45.5
		PM	C	27.1	E	67.0	D	46.3
11 Carpenter Road / Service Road	All-way Stop	AM	A / A	2.8 / 3.6	B / B	10.6 / 11.5		
		PM	A / A	4.1 / 4.4	B / B	12.5 / 12.8		
12 Crows Landing Road / Service Road	Signal	AM	C	28.1	F	132.1	D	46.6
		PM	C	27.1	F	216.4	C	34.0
13 Morgan Road / Service Road	All-way Stop	AM	B / B	10.2 / 11.1	F / F	>300 / >300	C	25.8
		PM	B / B	11.9 / 10.7	F / F	>300 / >300	B	16.2
14 Blaker Road / Service Road	All-way Stop	AM	B / B	11.4 / 12.5	F / F	>300 / >300	B	11.3
		PM	C / C	18.7 / 21.8	F / F	>300 / >300	A	9.6

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			EXISTING		EXISTING PLUS PROJECT		EXISTING PLUS PROJECT (MITIGATED) ⁶	
15 Central Avenue / Service Road	Signal	AM	C	24.9	D	38.8		
		PM	C	25.4	D	48.8		
16 Mitchell Road / Service Road	Signal	AM	C	33	F	123.9	D	45.2
		PM	C	34.2	F	133.3	D	44.2
17 Carpenter Road / Keyes Road	All-way Stop	AM	A / A	8.8 / 9.1	A / A	9.9 / 10.7		
		PM	A / A	9.7 / 10.4	B / B	12 / 13.6		
18 Crows Landing Road / Keyes Road	All-way Stop	AM	B / B	10.6 / 11.8	F / F	95.8 / 166.7	C	23.4
		PM	B / B	11.6 / 12.7	F / F	198.1 / >300	C	24.4
19 Carpenter Road / Maze Boulevard	Signal	AM	C	20.5	C	20.0		
		PM	C	24.7	C	25.6		
20 Carpenter Road / Paradise Road	Signal	AM	C	28	C	29.0		
		PM	D	35.1	D	36.6		
21 Carpenter Road / Hatch Road	All-way Stop	AM	D / D	26 / 41.8	F / F	69.5 / 141.6	C	25.8
		PM	E / E	43.6 / 53.9	F / F	116 / 146.6	C	27.0
22 Morgan Road / Hatch Road	Signal	AM	B	11	B	12.5		
		PM	B	12.8	B	16.3		
23 Dallas Street -B Street / Whitmore Avenue	Stop/Signal ²	AM	A / B	3.3 / 13.5	D	42.0		
		PM	A / C	2.9 / 15.1	D	40.7		
24 Crows Landing Road / Glenn Avenue	Stop	AM	A / E	1.4 / 40.8	F / F	>300 / >300		
		PM	A / F	4.9 / 180.5	F / F	>300 / >300		
25 Crows Landing Road / El Paso Avenue	Stop	AM	A / F	2.6 / 82	F / F	98 / >300		
		PM	A / F	1.2 / 91	F / F	78 / >300		
26 Crows Landing Road / 7th Street	Stop	AM	C / F	17.9 / 69.8	F / F	164.8 / >300	B	10.6
		PM	F / F	152.1 / >300	F / F	>300 / >300	B	11.8
27 River Road / 9th Street (northbound ³)	Stop	AM	A / C	5.6 / 20.2	B / D	10.5 / 32.6		
		PM	A / B	3.4 / 13.7	A / C	5.8 / 18.6		
270 River Road / 9th Street (southbound ³)	Stop	AM	A / C	0.7 / 10.1	A / B	0.6 / 10.3		
		PM	A / C	0.8 / 13.5	A / B	0.7 / 13.8		

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			EXISTING		EXISTING PLUS PROJECT		EXISTING PLUS PROJECT (MITIGATED) ⁶	
28 B Street / 7th Street	Signal	AM	C	29.2	C	29.8	D	35.4
		PM	C	31.4	E	55.2	D	40.4
29 B Street / 9th Street	Signal	AM	C	25.3	C	29.9		
		PM	C	29.7	C	34.0		
101 Crows Landing Rd/Retail Drwy ²	Stop	AM	Proposed Intersections		A / C	0.1 / 17.7		
		PM			A / C	0.4 / 17.8		
102 Retail Drwy1/Whitmore Av	Stop	AM			A / B	0.5 / 13		
		PM			A / C	4 / 16.8		
103 E St/Whitmore Av	Stop	AM			A / B	3.7 / 12.1		
		PM			A / B	2.6 / 12.1		
104 Ustick Rd/F St	Stop	AM			A / A	3.2 / 9.6		
		PM			A / A	2.9 / 9.3		
105 Ustick Rd/C St	Stop	AM			A / B	6 / 10.6		
		PM			A / B	5.1 / 10.3		
106 Ustick Rd/G St	Stop	AM			A / B	4.1 / 10.2		
		PM			A / B	2.7 / 10.3		
107 H St/Service Rd	Stop	AM			A / A	0.3 / 8.8		
		PM			A / A	0.1 / 9.3		
108 Knox Rd/Service Rd	Stop	AM			A / A	0.2 / 9		
		PM			A / A	0.6 / 9.5		
109 A St/Service St	Stop	AM	A / B	0 / 10.4				
		PM	A / A	0.2 / 9.8				
110 Crows Landing Rd/B St-Cornucopia	Signal	AM	B	15.8				
		PM	D	36.9				
111 Crows Landing Rd/A St	Signal	AM	A / A	9.2 / 0				
		PM	C / C	22.7 / 0				
112 A St/Hackett Rd	Roundabout	AM	A / A	3.9 / 4				
		PM	A / A	4.5 / 4.7				

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			EXISTING		EXISTING PLUS PROJECT		EXISTING PLUS PROJECT (MITIGATED) ⁶	
113 Knox Rd/B St North	Roundabout	AM	A / A	5.1 / 5.9	A / A	5.1 / 5.9		
		PM		5.6 / 6.1				
114 B St/CSt	Roundabout	AM		3.5 / 3.6				
		PM		3.6 / 3.7				
115 Knox Rd/B St South	Roundabout	AM		4.6 / 5.1				
		PM		4.2 / 4.5				
116 A St/B St	Roundabout	AM		5.5 / 7				
		PM		4.9 / 5.5				

Note:

¹ LOS and delay at signalized and all-way stop intersections are based on weighted average delay of all intersection approaches. LOS and delay at side-street stop-controlled intersections are calculated for the approach delay of the intersection leg with the worst LOS and the weighted average delay of all approaches; this table displays both values as "all legs/worst leg" for LOS and delay.

² Intersection has one-way stop-controlled under Existing conditions and is signalized under Existing plus Project conditions.

³ The River Road/9th Street intersection is analyzed as two separate intersections due to the raised median.

⁴ This intersection is being removed in early 2010 as part of the Whitmore/SR 99 Interchange reconstruction.

⁵ This intersection is being replaced by a SR 99 northbound ramp signalized intersection in early 2010 as part of the Whitmore/SR 99 Interchange reconstruction.

⁶ The Mitigated LOS and delay assume fee program improvements from all jurisdictions as well as any additional improvements are implemented.

Shaded/Bold area denotes intersections with significant Project impacts

operations would deteriorate from LOS C to LOS F during the PM peak hour. The northwest portion of this intersection is under the jurisdiction of Modesto and the remaining portions are under the jurisdiction of Ceres.

The City of Modesto's CFF program and the City of Ceres' PFF program have identified plans and funds to improve both Morgan Road and Whitmore Avenue to four-lane Minor Arterials. It is projected that these improvements would modify the intersection to provide one left-turn lane, two through lanes and one right-turn lane on the northbound approach, two left-turn lanes, two through lanes and one right-turn lane on the southbound approach, and two left-turn lanes, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected signal phasing on all approaches.

With the installation of improvements identified in Modesto's CFF program and Ceres' PFF program, the intersection would operate at LOS C in the PM peak hour with the addition of Project-generated traffic. Therefore, the Project's impact within Ceres would be reduced to less than significant as the City of Ceres would install the PFF improvements in the timely manner as they are warranted.

However, a portion of the intersection is outside the City of Ceres' jurisdiction; therefore, the certainty and timing of the installation of Modesto's CFF improvements is not within the City of Ceres' control. As such, the City of Ceres cannot guarantee the certainty and timing of these improvements and the Project impact on the portion of the intersection outside the City of Ceres' jurisdiction would be considered *significant and unavoidable*.

Impact Traf-5: Blaker Road/Whitmore Avenue (#7). With the addition of Project generated trips, vehicles at this intersection would experience excessive delays and the operations would deteriorate from LOS D to LOS F during the PM peak hour. This intersection is under the jurisdiction of the City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Whitmore Avenue to a four-lane Minor Arterial. It is projected that these improvements would modify the intersection to provide one left-turn lane, one through lane and one shared through-right lane protected signal phasing on the eastbound and westbound approaches.

With the installation of improvements identified in Ceres' PFF program, the intersection would operate at LOS C in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to *less than significant*.

Impact Traf-6: Whitmore Place/El Camino Avenue (#8). This all-way stop intersection currently experiences LOS E conditions in both peak hours. The Project's added traffic will degrade these conditions to LOS F in both peak hours. This intersection is under the jurisdiction of Caltrans.

As a part of the SR 99 Whitmore Avenue interchange Project under construction during the generation of this report, the Whitmore Place/El Camino Avenue intersection has been eliminated and Whitmore Place has been removed, thus avoiding impact Traf-6. Both SR 99 northbound on-ramp and off-ramp now have direct access onto Whitmore Avenue. With the implementation of the interchange improvement, the Project impact is *less than significant*.

Impact Traf-7: Whitmore Place/Whitmore Avenue (#9). The proposed Project would degrade the northbound controlled approach from LOS E to LOS F during the AM peak hour. It would also cause the southbound controlled approach to deteriorate from

LOS D to LOS F and would add more than ten vehicles per lane on the northbound approach, which operates at LOS F with or without the addition of Project trips, during the PM peak hour. The intersection would also meet the peak hour signal warrant with and without the proposed Project. This intersection is under the jurisdiction of Caltrans.

This intersection will be replaced by a SR 99 northbound ramp signalized intersection as a part of the SR 99 Whitmore Avenue interchange Project currently under construction. A traffic signal was recently constructed by Caltrans at this intersection, subsequent to the traffic analysis for the Project. Whitmore Place and its connection to Whitmore Avenue has been removed.

This intersection would be replaced by a SR 99 northbound ramp signalized intersection as a part of the SR 99 Whitmore Avenue interchange Project. With the implementation of the interchange improvement, the Project impact will be *less than significant*.

Impact Traf-8: Crows Landing Road/Hackett Road (#10). The proposed Project would cause the intersection operations to deteriorate from LOS C to LOS E and LOS F during the AM and PM peak hour respectively. This intersection is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. This intersection lies within the annexation area proposed as a part of the Project.

The Stanislaus County's PFF program has identified plans and funds to improve Crows Landing Road to a four-to-six-lane Arterial. However, the segment of Crows Landing Road adjacent to the Hackett Road intersection would remain a four-lane roadway. As this intersection is within/adjacent to the Plan area, necessary improvements will be required as development proceeds.

Mitigation Measure

Traf-8: Crows Landing Road/Hackett Road Intersection Improvements. The Project shall construct the following improvements to achieve acceptable traffic operations at this intersection. These improvements are not currently included in an improvement program: Add one northbound through lane and one southbound through lane to provide one left-turn lane, three through lanes and one right-turn lane on both the northbound and southbound approaches. Allow the transition of the receiving lanes from three lanes to two lanes.

Implementation of mitigation measure Traf-8 would improve the intersection operations to LOS D in both the AM and PM peak hours and reduce the Project impacts to *less than significant*.

Impact Traf-9: Crows Landing Road/Service Road (#12). Project traffic would cause the intersection operations to deteriorate from LOS C to LOS F during both peak hours. This intersection is under the jurisdiction of Stanislaus County and the City of Ceres.

The Stanislaus County's PFF program and the City of Ceres' PFF program have identified plans and funds to improve Crows Landing Road to a four- to six-lane Arterial/Expressway. Four lanes are to be provided north of the intersection and six lanes south of the intersection. Ceres' PFF program has also identified plans and funds to improve Service Road to a four-lane Expressway. It is projected that these improvements would modify the intersection to provide one left-turn lane, two through lanes and one right-turn lane with protected signal phasing on all four approaches. As this intersection is within/adjacent to the Plan area, improvements on the adjacent side will be required to be constructed by the Project.

Mitigation Measure

Traf-9a: Implement Crows Landing Road/Service Road Intersection PFF Improvements. The Project shall implement the improvements identified in the Ceres PFF program, potentially with reimbursement through the program as appropriate.

Installation of the improvements would partially reduce the Project impact; however, the intersection operations would continue to operate at LOS F during both peak hours with the addition of Project generated traffic. As this intersection is within/adjacent to the Plan area, additional improvements will be required of the Project.

Mitigation Measure

Traf-9b: Crows Landing Road/Service Road Intersection Improvements. The Project shall construct the following improvements on the adjacent portions in the City of Ceres jurisdiction to achieve acceptable traffic operations at this intersection. These improvements are not currently included in an improvement program: Restripe the southbound approach lanes to provide two left-turn lanes, one through lane and one shared through-right lane. Modify the traffic signal to allow for the provision of right-turn overlap phasing on the westbound approach with prohibition of U-turn movement on the southbound approach.

With installation of improvements identified in the City of Ceres' PFF program, as required by mitigation Traf-9a, and implementation of additional improvements in mitigation measure Traf-9b, the intersection would operate at LOS D in the AM peak hour and LOS C in the PM peak hour with the addition of Project-generated traffic. However, the southern portion of this intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-10: Morgan Road/Service Road (#13). Project generated traffic would cause at least one controlled movement at this intersection to degrade from LOS B to LOS F during both peak periods. This intersection is under the jurisdiction of the City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Morgan Road to a four-lane Arterial and Service Road to a four-lane Expressway and provide signalization at this intersection. It is projected that the improvements would modify the intersection to provide one left-turn lane, one through lane and one shared through-right lane on all four approaches with protected signal phasing on the eastbound and westbound approaches and permitted signal phasing on the northbound and southbound approaches.

With the installation of improvements identified in Ceres's PFF program, the intersection would operate at LOS C in the AM peak hour and LOS B in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to *less than significant*.

Impact Traf-11: Blaker Road/Service Road (#14). Project generated traffic would cause at least one controlled movement at this intersection to degrade to LOS F during both peak periods. This intersection is under the jurisdiction of the City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Service Road to a four-lane Expressway and provide signalization at this intersection. It is projected that these improvements would modify the intersection to provide one left-turn lane, one through lane and one shared through-

right lane on the eastbound and westbound approaches with protected signal phasing on the eastbound and westbound approaches and permitted signal phasing on the northbound and southbound approaches.

With the installation of improvements identified in Ceres's PFF program, the intersection would operate at LOS B in the AM peak hour and LOS A in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to *less than significant*.

Impact Traf-12: Mitchell Road/Service Road (#16). Project traffic would cause the intersection operations to deteriorate from LOS C to LOS F during both peak hours. This intersection is under the jurisdiction of the City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Service Road to a four-lane Expressway. It is projected that the improvements would modify the intersection to provide one left-turn lane, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected signal phasing on all four approaches.

Per the City of Ceres, the following improvements are specified here but assumed to be part of the PFF improvements: Modify the traffic signal to allow for the provision of right-turn overlap phasing on the westbound approach with prohibition of U-turn movement on the southbound approach.

With installation of improvements identified in the City of Ceres' PFF program, the intersection would operate at LOS D in the AM and PM peak hours with the addition of Project-generated traffic and the Project impact would be *less than significant*.

Impact Traf-13: Crows Landing Road/Keyes Road (#18). Project generated traffic would cause at least one controlled movement at this intersection to degrade from LOS B to LOS F during both peak periods and the signal warrant would be met in the PM peak hour. This intersection is under the jurisdiction of the Stanislaus County.

The Stanislaus County's PFF program has identified plans and funds to improve Crows Landing Road to a six-lane Expressway and to provide signalization at this intersection. It is projected that the improvements would modify the intersection to provide one left-turn lane, two through lanes and one shared through-right lane on the northbound and southbound with protected left-turn signal phasing on the northbound and southbound approaches and permitted phasing on the eastbound and westbound approaches.

With the installation of improvements identified in the County's PFF program, the intersection would operate at LOS C in the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-14: Carpenter Road/Hatch Road (#21). Project generated traffic would cause at least one controlled movement at this intersection to degrade to LOS F during both peak periods and the signal warrant would be met in both peak hours. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve Carpenter Road to a six-lane Principal Arterial and Hatch Road east of Carpenter Road to a four-lane Class C Expressway. It is projected that these improvements would provide signalization at this intersection and the lane geometry would be modified to two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches with protected left-turn signal phasing and one left-turn lane, one through lane and one right-turn lane on the westbound approach with permitted left-turn phasing; while the eastbound approach would remain with one shared left-through-right lane with permitted phasing.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS C in the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-15: Crows Landing Road/7th Street (#26). The eastbound and westbound controlled movements would operate at LOS F and the traffic signal warrant would be met with or without the addition of Project generated traffic. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve both Crows Landing Road and 7th Street to four-lane Minor Arterials. It is projected that the improvements would provide signalization at this intersection and the lane geometry would be modified to two left-turn lanes and one right-turn lane on the northbound Crows Landing Road approach, two through lanes and one channelized right-turn lane on the eastbound approach and one left-turn lane and two through lanes on the westbound approach with protected left-turn phasing on all approaches.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS B in the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-16: B Street / 7th Street (#28). Project generated traffic would cause the intersection operations to deteriorate from LOS C to LOS E in the PM peak hour. This intersection is under the jurisdiction of the City of Modesto.

The City of Modesto's CFF program has identified plans and funds to improve 7th Street to a four-lane Minor Arterial. It is projected that the improvements would modify the intersection to two left-turn lanes, two through lanes and one right-turn lane on the northbound and southbound approaches with protected left-turn phasing on these approaches.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS D in the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the City of Ceres cannot guarantee that these improvements would be implemented and the Project impact would be considered *significant and unavoidable*.

Roadway Operations

The roadway operations with the addition of Project generated traffic are summarized in **Table 18-3**. The analysis results indicate that all study segments will be significantly impacted by the proposed Project. The proposed Project would cause the roadway segments to deteriorate from LOS D or better to LOS E or LOS F; or would cause the worsening of LOS E or F conditions during both peak hours except for Whitmore Avenue east of Crows Landing Road in the AM peak hour. The impacts and potential mitigation measures are discussed below.

TABLE 18.3: EXISTING PLUS PROJECT CONDITIONS – ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment Operations - AM Peak Hour										
Street Name	Location	Existing Conditions			Existing+Project			Existing+Project Mitigated ¹		
		LOS	V/C	AM Volume	LOS	V/C	AM Volume	LOS	V/C	
A	Crows Landing Rd	North of Hatch Road	C	0.64	1,986	F	1.22	3,790	D	0.81
B	Crows Landing Rd	North of Whitmore Av	C	0.47	1,472	F	1.12	3,494	C	0.75
C	Crows Landing Rd	South of Whitmore Av	C	0.39	1,213	E	0.92	2,729	D	0.61
D	Whitmore Av	East of Crows Landing Rd	C	0.42	656	E	0.99	1,529	C	0.47
E	Whitmore Av	East of Blaker Rd	D	0.78	1,204	F	1.14	1,763	C	0.54
F	Service Rd	East of Central Av	C	0.3	460	F	1.12	1,737	C	0.53

Roadway Segment Operations - PM Peak Hour										
Street Name	Location	Existing Conditions			Existing+Project			Existing+Project Mitigated ¹		
		LOS	V/C	PM Volume	LOS	V/C	PM Volume	LOS	V/C	
A	Crows Landing Rd	North of Hatch Road	D	0.9	2,795	F	1.64	5,080	F	1.09
B	Crows Landing Rd	North of Whitmore Av	C	0.59	1,828	F	1.44	4,480	E	0.96
C	Crows Landing Rd	South of Whitmore Av	C	0.45	1,386	F	1.29	3,827	D	0.86
D	Whitmore Av	East of Crows Landing Rd	C	0.67	1,041	F	1.64	2,407	D	0.77
E	Whitmore Av	East of Blaker Rd	F	1.22	1,896	F	1.85	2,860	D	0.87
F	Service Rd	East of Central Av	C	0.5	775	F	1.47	2,283	C	0.70

¹ The Mitigated LOS and delay assume fee program improvements from all jurisdictions as well as any additional improvements are implemented.

Impact Traf-17: Crows Landing Road North of Hatch Road (A). This roadway segment would deteriorate from LOS C and LOS D in the AM and PM peak hours, respectively, to LOS F during both periods with the addition of Project traffic. This roadway segment is under the jurisdiction of Stanislaus County and within Modesto’s Sphere of Influence.

The City of Modesto’s CFF program has identified plans and funds to improve Crows Landing Road to a six-lane Principal Arterial between 7th Street and Whitmore Avenue. Installation of the improvements identified in the Modesto CFF program would partially reduce the Project impact. To fully mitigate the Project impact, further widening of the roadway would be required.

The following improvements would achieve acceptable traffic operations but are not currently included in an improvement program: Add one northbound lane and one southbound lane to provide four travel lanes on each direction from Hatch Road to SR 99. This additional widening of Crows Landing Road was considered in conjunction with the adoption of the City of Modesto’s CFF program and was considered to be infeasible.

Because a portion of the improvements have previously been identified as infeasible and because the segment is outside the City of Ceres' jurisdiction, the timing of installation of feasible improvements is out of the City's control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact on this segment would be considered *significant and unavoidable*.

Impact Traf-18: Crows Landing Road North of Whitmore Avenue (B). This roadway segment would deteriorate from LOS C to LOS F during both peak hours with the addition of Project traffic. This roadway segment is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve Crows Landing Road to a six-lane Principal Arterial between 7th Street and Whitmore Avenue. Installation of the improvements identified in the Modesto CFF program would partially reduce the project impact. To fully mitigate the project impact, further widening of the roadway would be required.

The following improvements would achieve acceptable traffic operations but are not currently included in an improvement program: Add one northbound lane and one southbound lane to provide four travel lanes on each direction from Whitmore Avenue to Hatch Road. This additional widening of Crows Landing Road was considered in conjunction with the adoption of the City of Modesto's CFF program and was considered to be infeasible.

Because a portion of the improvements have previously been identified as infeasible and because the segment is outside the City of Ceres' jurisdiction, the timing of installation of feasible improvements is out of the City's control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact on this segment would be considered *significant and unavoidable*.

Impact Traf-19: Crows Landing Road South of Whitmore Avenue (C). This roadway segment would deteriorate from LOS C to LOS E and from LOS C to LOS F during the two peak hours, respectively, with the addition of Project traffic. This segment is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. The Crows Landing Road segment between Whitmore Avenue and Service Road will be annexed by the City of Ceres as a part of the proposed Project.

The Stanislaus County's PFF program has identified plans and funds to improve Crows Landing Road to a four-to-six-lane Arterial. However, the segment of Crows Landing Road between Whitmore Avenue and Service Road would remain a four-lane roadway.

Mitigation Measure

Traf-19: Widening of Crows Landing Road South of Whitmore Avenue. The Project shall dedicate any necessary right-of-way and construct one northbound travel lane and one southbound travel lane along Crows Landing Road from Service Road to Whitmore Avenue to provide three travel lanes in each direction.

With implementation of mitigation measure Traf-19, the increase in capacity would allow the roadway to operate at LOS D in both peak hours, which would reduce the Project impact to a level of *less than significant*.

Impact Traf-20: Whitmore Avenue East of Crows Landing Road (D). This roadway segment would deteriorate from LOS C to LOS E and from LOS C to LOS F during the

two peak hours, respectively, with the addition of Project traffic. This segment is under the jurisdiction of Stanislaus County and City of Modesto and within Ceres' Sphere of Influence. The southern portion of the roadway along the Project area frontage would be annexed by the City of Ceres as a part of the proposed Project.

The City of Modesto's CFF program and the City of Ceres' PFF program have identified plans and funds to improve Whitmore Avenue to a four-lane Minor Arterial. This widening has already been completed along the Project frontage in this segment. Remaining improvement to be implemented within the City of Ceres' PFF program include only additional pavement along unimproved frontages of adjacent properties that have not yet developed.

With the installation of improvements identified in Ceres' PFF program, as already implemented along the Project's frontage, the impact in the City of Ceres would be reduced to less than significant.

With additional installation of the Modesto's CFF program, the segment would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant in all jurisdictions. However, the northern portion of this segment is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-21: Whitmore Avenue East of Blaker Road (E). The Project would cause this roadway segment to deteriorate from LOS D to LOS F during the AM peak hour and would worsen its operations in the PM peak hour, when it already operates at LOS F without the addition of Project traffic. This segment is under the jurisdiction of City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Whitmore Avenue to a four-lane Minor Arterial and the SR99/Whitmore Avenue Interchange Improvement project, currently under construction, also projected the widening of Whitmore Avenue to two travel lanes in each direction.

With installation of Ceres' PFF program and the completion of the Whitmore Avenue Interchange Improvement project, the increase in capacity would allow the roadway to operate at LOS C in the AM peak hour and LOS D in the PM peak hour, which would reduce the impact to a *less than significant* level.

Impact Traf-22: Service Road East of Central Avenue (F). This roadway segment would deteriorate from LOS C to LOS F during both peak hours with the addition of Project traffic. This segment is under the jurisdiction of City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Service Road to a four-lane Expressway. With installation of Ceres' PFF program, the increase in capacity would allow the roadway to operate at LOS C in the AM peak hour and LOS D in the PM peak hour, which would reduce the impact to *less than significant*.

Freeway Mainline Operations

The freeway mainline segments were evaluated with the Project generated trips. The analysis results are summarized in **Table 18.4**. Three mainline segments would be significantly impacted by the proposed Project as discussed below.

TABLE 18.4: EXISTING PLUS PROJECT FREEWAY MAINLINE LEVEL OF SERVICE

Location	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²
	Existing						Existing plus Project					
Northbound SR 99												
South of Mitchell Rd	4,500	28.5	D	3,600	22.4	C	4,969	32.6	D	3,963	24.7	C
North of Mitchell Rd	4,252	26.6	D	3,091	19.2	C	4,297	27.0	D	3,195	19.9	C
North of Crows Landing Rd	6,060	>45	F	4,814	31.1	D	6,581	>45	F	5,582	40.3	E
Southbound SR 99												
North of Crows Landing Rd	5,440	38.2	E	6,686	>45	F	6,046	>45	F	7,343	>45	F
North of Mitchell Rd	3,281	20.4	C	4,374	27.5	D	3,311	20.6	C	4,476	28.2	D
South of Mitchell Rd	4,040	25.2	C	5,000	32.9	D	4,259	26.7	D	5,511	39.3	E

Source: Dowling Associates, Inc., 2009

¹ Density = passenger cars per mile per lane

² LOS = Level of Service

Bold and shaded signifies potentially significant impacts

Impact Traf-23: SR 99 North of Crows Landing Road - Northbound. This freeway segment would continue to operate at LOS F in the AM peak hour with the addition of Project traffic, which would increase the volume by more than five percent. It would also deteriorate from LOS D to LOS E in the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

According to State Route 99 Transportation Concept Report and the StanCOG's 2007 RTP, SR 99 would be widened from the existing three lanes to four lanes on each direction.⁵ With this improvement, the northbound segment of SR 99 north of Crows Landing Road would operate at LOS D levels in the AM peak hour and LOS C in the PM peak hour with the addition of Project generated traffic, reducing the impact to a less than significant level.

However, the timing, funding and implementation of this improvement is outside the jurisdiction of the City of Ceres and no other mitigation measure is available. If the Project is fully developed prior completion of the widening, the Project impact would be *significant and unavoidable*.

Impact Traf-24: SR 99 North of Crows Landing Road - Southbound. This segment would continue to operate at unacceptable levels during both peak hours with the addition of Project traffic, which would increase the volumes by more than five percent both peak hours. SR 99 is under the jurisdiction of Caltrans.

According to State Route 99 Transportation Concept Report and StanCOG's 2007 RTP, SR 99 would be widened from the existing three lanes to four lanes on each direction.⁶ With this improvement, the southbound segment of SR 99 north of Crows Landing Road would operate at LOS D during the AM peak hour with the addition of Project generated traffic and would improve to LOS E during the PM peak hour, which is still in the unacceptable range but is an improvement over the existing operations.

The timing, funding and implementation of this improvement is outside the jurisdiction of the City of Ceres. If the Project is fully developed prior completion of the widening, the Project impact would be *significant and unavoidable*.

Impact Traf-25: SR 99 South of Mitchell Road - Southbound. This segment would deteriorate from LOS D to LOS E in the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

According to State Route 99 Transportation Concept Report and the StanCOG's 2007 RTP, SR 99 would be widened from the existing three lanes to four lanes on each direction. With this improvement, the southbound segment of SR 99 south of Mitchell Road would operate at LOS C in the PM peak hour with the addition of Project generated traffic, reducing the impact to a less than significant level.

However, the timing, funding and implementation of this improvement is outside the jurisdiction of the City of Ceres. If the Project is fully developed prior completion of the widening, the Project impact would be *significant and unavoidable*.

⁵ California Department of Transportation, District 10, Office of System Planning, *State Route 99 Transportation Concept Report*, November 2002.

⁶ *ibid*

Freeway Interchange Operations

Two of the six study SR 99 interchange locations are currently operating below service level standards in the AM and/or PM peak hours. These two, plus two additional locations would be significantly impacted by the proposed Project as shown in **Table 18.5**.

Impact Traf-26: Mitchell Road Northbound SR 99 Off-Ramp. The Project would degrade the level of service from LOS D to LOS E during the AM peak hour. SR 99 is under the jurisdiction of Caltrans.

With implementation of the SR 99 widening described above, the Mitchell Road northbound off-ramp would operate at LOS D during the AM peak hour, a residual less than significant impact. However, the City of Ceres does not have jurisdiction over the timing, funding and implementation of the improvements. Therefore, the Project impact would remain *significant and unavoidable*.

Impact Traf-27: Crows Landing Road Northbound SR 99 On-Ramp. The Project would degrade the level of service from LOS D to LOS E during the PM peak hour as well as increase the interchange volume by more than five percent in the AM peak hour when the merge area would already operate at LOS F level without the addition of Project trips. SR 99 is under the jurisdiction of Caltrans.

With implementation of the SR 99 widening described above, the Crows Landing Road northbound on-ramp would operate at LOS D during both peak hours, a residual less than significant impact. However, the City of Ceres does not have jurisdiction to the timing, funding and implementation of the improvements. Therefore, the Project impact would remain *significant and unavoidable*.

Impact Traf-28: Crows Landing Road Southbound SR 99 Off-Ramp. The Project would increase the interchange volumes by more than five percent in both the AM and PM peak hours when the merge area would already operate at LOS E and LOS F, respectively, without the addition of Project trips. SR 99 is under the jurisdiction of Caltrans.

With implementation of the SR 99 widening described above, the Crows Landing Road southbound off-ramp would improve to LOS E during both peak hours while still operating at substandard levels. However, the City of Ceres does not have jurisdiction to the timing, funding and implementation of the improvements and no other feasible measures are identified. Therefore, the Project impact would remain *significant and unavoidable*.

Impact Traf-29: Mitchell Road Southbound SR 99 On-Ramp. The Project would degrade the level of service from LOS D to LOS E during the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

With implementation of the SR 99 widening described above, the Mitchell Road southbound on-ramp would operate at LOS D during the PM peak hour, a residual less than significant impact. However, the City of Ceres does not have jurisdiction to the timing, funding and implementation of the improvements. Therefore, the Project impact would remain *significant and unavoidable*.

Internal Circulation

This discussion on internal circulation focuses on the core planning area to the west of Crows Landing Road. The proposed Project would require development of a street system to serve motor vehicles, transit service, bicyclists, and pedestrians. The proposed system is a modified grid system with collector and local streets controlled by roundabouts and stop signs.

TABLE 18.5: EXISTING PLUS PROJECT FREEWAY INTERCHANGE LEVEL OF SERVICE

Location	Analysis Type	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²	
						Existing			Existing plus Project					
Northbound SR-99														
Mitchell Rd off-ramp	Diverge	629	33.1	D	809	28.8	D	988	35.7	E	1,078	31.4	D	
Whitmore Avenue off-ramp	Diverge	193	32.9	D	171	27.9	C	238	33.2	D	263	28.5	D	
Crows Landing Rd on-ramp	Merge	591	36.2	F	802	29.8	D	1,112	40.7	F	1,570	36.4	E	
Southbound SR-99														
Crows Landing Rd off-ramp	Diverge	723	35.1	E	728	46.5	F	1,329	39.9	F	1,385	53.3	F	
Whitmore Av/2nd St on-ramp	Merge	162	26.5	C	283	32.2	D	207	26.9	C	376	33.0	D	
Mitchell Rd on-ramp	Merge	942	28.6	D	889	33.8	D	1,130	30.4	D	1,298	37.3	E	

Source: Dowling Associates, Inc., 2009

¹ Density = passenger cars per mile per lane

² LOS = Level of Service

All new roadways within the core planning area would be classified as primary collector, secondary collectors or local streets. They would have two travel lanes with or without parking lanes on the sides. B Street, a collector that has direct connections to Crows Landing Road and Whitmore Avenue, in conjunction with Knox Road, serves as the main circulator within the core area.

Six roundabouts are proposed in the core area as shown in **Figure 3.4**. Although the roundabouts do not have balanced traffic volumes as generally recommended for roundabout installation, they would operate well below capacity and would provide adequate functionality and comparable or better safety to other control options.

Transit

The proposed Project would result in an increased demand for transit service. The Plan area is served by three local and regional bus routes offered by three different transit agencies: Ceres Area Transit, Modesto Area Express and Stanislaus Regional Transit. This allows for extensive connection potentials. All three routes run along Crows Landing Road in the Plan area with stops at Hackett Road, Service Road and the County Agricultural Center. Modesto Area Express Route 42 runs along Whitmore Avenue adjacent to the Plan area.

While the existing routes and stops would serve the County land uses and a portion of the commercial land uses in the core area, they are over a mile from the western edge of the Plan area, where single-family residential land use are proposed. As the Project develops and the demand for service increases, bus routes may be extended onto the core area. According to the Transit map of the West Landing Specific Plan dated January 2010, the preferred route would be along B Street, down Knox Road to D Street and Hackett Road. These roadways are within one-quarter mile of most land uses in the Plan area. It is generally accepted that most transit users are willing to walk up to one-quarter mile to access bus service. Future transit stops may be located at the intersection of Knox Road and D Street, the intersection of B Street and G Street and the intersection of Crows Landing Road and Whitmore Avenue.

The Applicant should work with Ceres Area Transit to develop a focused transit plan outlining potential transit services in the Plan area, locations of stops, provision of bus turnouts, and the development triggers for such provisions. Based on the routes established in the transit plan, the Applicant should ensure that roadway designs in the Plan area are consistent with the requirement of the transit agencies and would not interfere would future transit services. Successful implementation of the planned improvements would be a *beneficial impact* in regards to transit facilities.

Bicycle Facilities

The proposed Project would result in an increase in bicycle trips in the study area by residents and visitors. However, the Project is not anticipated to disrupt existing bicycle facilities, interfere with planned bicycle facilities, or conflict with any adopted bicycle guidelines, plans, policies or standards.

The development would result in enhanced bicycle connectivity between the Plan area and adjacent areas as well as within the Plan area through a comprehensive network of on-street and off-street bikeways. According to the Bicycle and Pedestrian Circulation map of the West Landing Specific Plan dated January 2010, on Street bicycle paths are proposed along the Plan area boundaries along Whitmore Avenue, Ustick Road and Service Road as well as along Crows Landing Road and Hackett Road. They are also to be provided along the future D Street,, E Street, F Street, G Street and H Street. Off-street bikeways would also provide connections along the future A Street, B Street, C Street, Knox Road and Hackett Road extension.

The proposed bikeways are consistent with the non-motorized transportation policies of the City. The Applicant should ensure that the bikeway designs are consistent with the City's design standards and that adequate and secure bicycle parking is provided in all areas of the Plan area to serve the needs of residents and visitors. There would be a **beneficial impact** in regards to bicycle facilities.

Pedestrian Facilities

The proposed Project would result in an increase in pedestrian trips in the study area by residents and visitors. However, the Project is not anticipated to disrupt existing pedestrian facilities, interfere with planned pedestrian facilities, or conflict with any adopted pedestrian guidelines, plans, policies or standards.

A network of off-street pedestrian walkways and trails is proposed in the core Plan area connecting neighborhoods, schools, parks, jobs and retail commercial uses. Sidewalks would also be provided along all expressways, arterial, collectors and local streets. The sidewalks would have a minimum of five-foot clear width, which meet or exceed the City's sidewalk design standards. The design of the off-street trails and sidewalks should be consistent with the City's design standards and meet the requirements outlined in the accessibility guidelines of the Americans with Disabilities Act (ADA).

The proposed pedestrian facilities are consistent with the City's policies of providing a safe, comprehensive and integrated system for non-motorized transportation. There would be a **beneficial impact** in regards to pedestrian facilities.

CUMULATIVE IMPACTS

Cumulative Conditions

The analysis of transportation and circulation under Cumulative Conditions focuses on Year 2030 conditions. In the areas of internal circulation, transit, bicycle facilities and pedestrian facilities, the Project would not cause additional cumulative impacts beyond those already identified for Existing Conditions.

Cumulative Traffic Forecasts

Cumulative Conditions were analyzed to determine the effect of the Project in combination with the effects of build-out of the surrounding community. Cumulative traffic volumes were derived from the Transportation Planning Partnership Group (TPPG) Countywide Travel Demand Model. The 2030 model forecast reflects Projected area growth as well as land use assumptions of the following planned developments:

- Copper Trails Neighborhood Master Plan
- Maple Glen Master Plan
- Mitchell Ranch Center
- Ceres Gateway Center

Note that the above projects were identified as likely area projects for inclusion in the Cumulative Conditions when this analysis was begun. The likelihood of implementation of some of these projects, such as Maple Glen, has since become more speculative. Therefore, the cumulative analysis can be considered to be very conservative, including a higher level than anticipated of area growth within the analysis time frame than currently anticipated.

The traffic volume forecasts for Cumulative Conditions assume full build-out of the community, which may be a conservative assumption.

Traffic volumes for Cumulative plus Project Conditions were developed by adding traffic generated by the proposed Project to the Cumulative No Project scenario. The Projected Cumulative volumes for both with and without Project conditions are provided in Appendix F.

Planned Roadway Improvements

The 2007 Regional Transportation Plan (RTP) published by the Stanislaus Council of Governments has identified several fiscally constrained planned roadway improvements (Tier 1) in the study area. In addition, the City of Ceres' General Plan designated Service Road and Carpenter Road as Class B Expressways, which would have a minimum of four travel lanes. These improvements, listed below, are assumed to be completed in the Cumulative Conditions analysis.

State Route 99

- Widening to eight travel lanes between Ceres and SR 219 (Kiernan Avenue)
- Whitmore Avenue Interchange Improvement – the interchange and adjacent roadways will be reconfigured. It includes the creation of a new signalized northbound ramp intersection on Whitmore Avenue and elimination of the Whitmore Place and El Camino Avenue intersection and connecting El Camino Avenue to the existing Popular Avenue. This project is currently under construction with an anticipated completion date in 2011.

Crows Landing Road

- Widening from four to six travel lanes between Whitmore Road and 7th Street
- Widening to six travel lanes between Service Road and W. Main Street

Carpenter Road

- Widening to six travel lanes between Maze Boulevard (SR 132) and Service Road

Hatch Road

- Widening to four travel lanes between Carpenter Road and SR 99

Service Road

- Widening to four travel lanes between Ustick Road and Faith Home Road
- Signalization of Morgan Road and Blaker Road intersections as specified in the City's Public Facilities Fee Program

The RTP has also identified the reconfiguration of the SR 99 Mitchell Road interchange as a Tier 1 Project; however, per City of Ceres staff instruction, this improvement as well as a number of Tier 2 Projects such as the widening of Whitmore Road and Morgan Road as well as reconstruction of the Hatch Road interchange are not included in the analysis of Cumulative Conditions because no funding or target completion dates have been identified.

Intersection Operations

The Cumulative Conditions Analysis assumes the planned roadway improvements will be in place by Year 2030; however, the timing, funding and implementation of many of these improvements are beyond the sole control of the City of Ceres.

Results of the intersection level of service analysis under Cumulative Conditions are summarized in **Table 18.6** and the corresponding level of service calculation worksheets are provided in Appendix F.

The proposed Project is projected to have a cumulatively considerable significant impact on 27 study intersections. These intersections and potential mitigation measures to lessen the impacts of the Project are discussed below and graphically shown in Appendix F.

Impact Traf-30: Crows Landing Road/SR 99 Northbound Ramps (#1). With cumulative traffic increases, this unsignalized intersection would operate at LOS F and would meet the signal warrant with or without the addition of Project generated traffic during both peak hours. This intersection is under the jurisdiction of Caltrans.

The following improvements are required to achieve acceptable traffic operations: Installation of a traffic signal and widening the westbound off-ramp approach to provide one left-through shared lane and one right-turn lane.

With implementation of these improvements, the intersection would operate at LOS B in the AM peak hour and LOS D in the PM peak hour in the cumulative condition and the cumulative Project impact would be less than significant. However, the improvements are not included in any current improvement and funding program; thus, there is no established mechanism to fund or implement the improvements. Therefore, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-31: Crows Landing Road/Hatch Road (#2). With cumulative traffic increases, this intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-1) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the intersection would operate at LOS F with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required.

The following improvements would achieve acceptable traffic operations but are not currently included in an improvement program: Add one additional through lane to each of the northbound, southbound and eastbound approaches as well as the receiving lanes on the corresponding legs. Add two additional through lanes on the westbound approach and two corresponding receiving lanes. Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound and southbound movements, with prohibition of eastbound and westbound U-turn movements. These additional widening improvements were considered in conjunction with the adoption of City of Modesto's CFF program and were considered to be infeasible.

Because these improvements have previously been identified as infeasible and because there is no established mechanism to fund or implement the improvements, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*

Table 18.6: Cumulative Peak Hour Intersection Level of Service

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			CUMULATIVE		CUMULATIVE PLUS PROJECT		CUMULATIVE PLUS PROJECT (MITIGATED) ⁴	
1 Crows Landing Rd / SR 99 NB Ramps	Stop	AM	F / F	108.3 / >300	F / F	>300 / >300	B	14.3
		PM	F / F	>300 / >300	F / F	>300 / >300	D	35.3
2 Crows Landing Road / Hatch Road	Signal	AM	D	44.8	F	87.9	D	35.9
		PM	F	91.9	F	153.6	D	52.6
3 Carpenter Road / Whitmore Avenue	All-way Stop	AM	F / F	73.1 / 175.7	F / F	195.3 / >300	C	28.0
		PM	F / F	96.7 / 182.7	F / F	246.3 / >300	C	28.9
4 Ustick Avenue / Whitmore Avenue	Stop/Signal ²	AM	F / F	>300 / >300	E	57.2	E	57.2
		PM	F / F	>300 / >300	E	73.7	E	73.7
5 Crows Landing Road / Whitmore Avenue	Signal	AM	F	101	F	292.7	D	36.1
		PM	F	204.8	F	>300	D	52.6
6 Morgan Road / Whitmore Avenue	Signal	AM	F	146.1	F	249.7	C	28.0
		PM	F	272.9	F	>300	D	36.6
7 Blaker Road / Whitmore Avenue	Signal	AM	E	75	F	141.9	C	18.8
		PM	F	220.7	F	>300	D	42.5
8 Whitmore Place / El Camino Avenue			Intersection Eliminated					
9 Whitmore Place / Whitmore Avenue	Signal	AM	C	25.9	C	25.0		
		PM	C	30.8	C	32.0		
10 Crows Landing Road / Hackett Road	Signal	AM	E	63.2	F	116.2	D	35.7
		PM	E	62.2	F	97.1	D	47.7
11 Carpenter Road / Service Road	All-way Stop	AM	F / F	>300 / >300	F / F	283.1 / >300	C	25.3
		PM	F / F	>300 / >300	F / F	>300 / >300	C	26.0
12 Crows Landing Road / Service Road	Signal	AM	C	30.3	F	230.9	D	48.3
		PM	E	55.4	F	263.8	D	49.3
13 Morgan Road / Service Road	Signal	AM	B	18.4	E.	73.3	C	32.1
		PM	C	20.6	C	21.1	B	18.5
14 Blaker Road / Service Road	Signal	AM	C	23.2	D	36.5		
		PM	C	23.7	D	46.9		
15 Central Avenue / Service Road	Signal	AM	C	26.2	D	42.0	D	40.1

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			CUMULATIVE		CUMULATIVE PLUS PROJECT		CUMULATIVE PLUS PROJECT (MITIGATED) ⁴	
		PM	C	32.6	E	56.6	D	53.1
16 Mitchell Road / Service Road	Signal	AM	F	118.0	F	207.8	D	39.5
		PM	F	220.5	F	>300	D	54.8
							144.5 / 216.7	
17 Carpenter Road / Keyes Road	All-way Stop	AM	F / F	99.4/ 148.7	F / F	216.7	A	6.6
		PM	F / F	293/ >300	F / F	>300 / >300	A	6.4
18 Crows Landing Road / Keyes Road	All-way Stop	AM	F / F	174.1 / 242.3	F / F	>300 / >300	D	41.5
		PM	F / F	244.4 / >300	F / F	>300 / >300	D	47.8
19 Carpenter Road / Maze Boulevard	Signal	AM	F	>300	F	>300	D	45.0
		PM	F	212.2	F	275.3	D	45.4
20 Carpenter Road / Paradise Road	Signal	AM	E	62.4	E	69.9	D	36.7
		PM	F	99	F	120.2	D	40.6
21 Carpenter Road / Hatch Road	All-way Stop	AM	F / F	>300 / >300	F / F	>300 / >300	D	49.2
		PM	F / F	>300 / >300	F / F	>300 / >300	D	35.0
22 Morgan Road / Hatch Road	Signal	AM	F	131	F	160.8	C	31.6
		PM	F	96.4	F	131.9	C	33.5
23 Dallas Street -B Street / Whitmore Avenue	Stop/Signal ²	AM	A / F	8.5 / >300	E	75.9	D	40.0
		PM	F / F	188.2 / >300	E	65.7	D	36.9
24 Crows Landing Road / Glenn Avenue	Stop	AM	F / F	>300 / >300	F / F	>300 / >300	C	22.7
		PM	F / F	>300 / >300	F / F	>300 / >300	D	51.1
25 Crows Landing Road / El Paso Avenue	Stop	AM	D / F	52 / >300	F / F	>300 / >300	F / F	>300 / >300
		PM	A / F	7.8 / >300	F / F	>300 / >300	F / F	>300 / >300
26 Crows Landing Road / 7th Street	Stop	AM	F / F	>300 / >300	F / F	>300 / >300	D	40.6
		PM	F / F	>300 / >300	F / F	>300 / >300	C	31.6
27 River Road / 9th Street (northbound) ³	Stop	AM	F / F	>300 / >300	F / F	>300 / >300	A/A	0.0/0.0
		PM	A / C	9.9 / 24.9	C / F	23.1 / 53.8	A/A	0.0/0/0
270 River Road / 9th Street (southbound) ³	Stop	AM	A / E	1.1 / 10.3	A / B	1 / 10.5		
		PM	A / E	0.8 / 13.7	A / B	0.7 / 14.1		
28 B Street / 7th Street	Signal	AM	F	104.8	F	116.3	C	31.2
		PM	F	>300	F	>300	D	49.7
29 B Street / 9th Street	Signal	AM	E	57.2	E	78.5	C	32.8

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			CUMULATIVE		CUMULATIVE PLUS PROJECT		CUMULATIVE PLUS PROJECT (MITIGATED) ⁴	
		PM	F	96.8	F	106.5	D	50.9
			Proposed Intersections					
101	Crows Landing Rd/Retail Drwy2	Stop	AM		A / C	0.1 / 20.4		
			PM		A / F	1.1 / 64		
102	Retail Drwy1/Whitmore Av	Stop	AM		A / C	0.4 / 17.9		
			PM		A / C	4 / 23.8		
103	E St/Whitmore Av	Stop	AM		A / E	6.2 / 46.7		
			PM		A / C	2 / 20.4		
104	Ustick Rd/F St	Stop	AM		A / B	1.8 / 12.7		
			PM		A / B	1.3 / 11.1		
105	Ustick Rd/C St	Stop	AM		A / C	4 / 18.1		
			PM		A / C	2.9 / 15.1		
106	Ustick Rd/G St	Stop	AM		A / C	2.7 / 17.3		
			PM		A / C	1.4 / 15.5		
107	H St/Service Rd	Stop	AM		A / B	0.1 / 10.6		
			PM		A / A	0.1 / 9.8		
108	Knox Rd/Service Rd	Stop	AM		A / B	0.1 / 11		
			PM		A / B	0.3 / 10		
109	A St/Service St	Stop	AM		A / B	0 / 13		
			PM		A / B	0.1 / 10.3		
110	Crows Landing Rd/B St-Cornucop	Signal	AM		B	13.2	B	12.3
			PM		F	121.3	C	22.6
111	Crows Landing Rd/A St	Signal	AM		B	10.5		
			PM		D	51.1		
112	A St/Hackett Rd	Roundabout	AM		A / A	3.9 / 4		
			PM		A / A	4.5 / 4.7		
113	Knox Rd/B St North	Roundabout	AM		A / A	5.1 / 5.9		
			PM		A / A	5.6 / 6.1		
114	B St/CSt	Roundabout	AM		A / A	3.5 / 3.6		
			PM		A / A	3.6 / 3.7		
115	Knox Rd/B St South	Roundabout	AM		A / A	4.6 / 5.1		

INTERSECTION	CONTROL	PEAK HOUR	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY	LEVEL OF SERVICE ¹	AVERAGE DELAY
			CUMULATIVE		CUMULATIVE PLUS PROJECT		CUMULATIVE PLUS PROJECT (MITIGATED) ⁴	
		PM			A / A	4.2 / 4.5		
116 A St/B St	Roundabout	AM			A / A	5.5 / 7		
		PM			A / A	4.9 / 5.5		

Note:

¹ LOS and delay at signalized and all-way stop intersections are based on weighted average delay of all intersection approaches. LOS and delay at side-street stop-controlled intersections are calculated for the approach delay of the intersection leg with the worst LOS and the weighted average delay of all approaches; this table displays both values as "all legs/worst leg" for LOS and delay.

² Intersection has one-way stop-controlled under Cumulative conditions and is signalized under Cumulative plus Project conditions.

³ The River Road/9th Street intersection is analyzed as two separate intersections due to the raised median.

⁴ The Mitigated LOS and delay assume fee program improvements from all jurisdictions as well as any additional improvements are implemented.

Shaded/Bold area denotes intersections with significant Project impacts

Impact Traf-32: Carpenter Road/Whitmore Avenue (#3). This unsignalized intersection would operate at LOS F and would meet the signal warrant with or without the addition of Project generated traffic during both peak hours. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

With the installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-2), the intersection would operate at LOS C in both AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-33: Crows Landing Road/Whitmore Avenue (#5). This intersection would operate at LOS F during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of Stanislaus County and Modesto and within Modesto's and Ceres' Sphere of Influence. The southern portion would be annexed by the City of Ceres as a part of the Project.

Installation of the improvements in Ceres' PFF program, required by mitigation measure Traf-3, and those identified in the City of Modesto's CFF program, County's PFF program and (discussed under Impact Traf-3) would partially reduce this cumulative impact. Per the City of Ceres, the following improvements are specified here but assumed to be part of the PFF improvements that would reduce this impact: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound, southbound and westbound movements with prohibition of eastbound, westbound and southbound U-turn movements.

To fully mitigate the cumulative impact, the following improvements would be required: Add one additional right-turn lane to each of the southbound and westbound approaches. These improvements are within City of Modesto jurisdiction. With these improvements, the intersection would operate at LOS D in both AM and PM peak hours in the cumulative condition.

With implementation of Ceres PFF program (as required by mitigation measure Traf-3), Modesto CFF programs improvements (as discussed under Impact Traf-3) and additional improvements specified above, the cumulative Project impact in the southern portion of the intersection would be *less than significant*.

However, because the northern portion of the intersection is outside the City of Ceres' jurisdiction, the certainty and timing of the installation of Modesto's CFF improvement (as discussed under Impact Traf-3) is not within the City of Ceres' control. As such, the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. Additionally, there is no established mechanism to fund or implement a portion of the improvements in the City of Modesto jurisdiction. Therefore, the Project's contribution to a cumulative impact in the northern portion of this intersection would be considered *significant and unavoidable*.

Impact Traf-34: Morgan Road/Whitmore Avenue (#6). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this

intersection delay to increase by more than five seconds in both peak hours. The northwest portion of this intersection is under the jurisdiction of Modesto and the remaining portions are under the jurisdiction of Ceres.

With the installation of the improvements identified in the City of Modesto's CFF program and the City of Ceres' PFF program (discussed under Impact Traf-4), the intersection would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic. With the improvements, the Project's impact within Ceres would be reduced to *less than significant* as the City of Ceres would install the PFF improvements in the timely manner as they are warranted.

However, a portion of the intersection is outside the City of Ceres' jurisdiction; therefore, the certainty and timing of the installation of Modesto's CFF improvement is not within the City of Ceres' control. As such, the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact outside Ceres would be considered *significant and unavoidable*.

Impact Traf-35: Blaker Road/Whitmore Road (#7). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of the City of Ceres.

Installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-5) would partially reduce this cumulative impact.

Per the City of Ceres, the following improvements are specified here but assumed to be part of the PFF improvements that would reduce the impact: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound movement with prohibition of westbound U-turn movement.

With installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-5), including allowing for provision of overlap phasing and prohibition of U-turns, the intersection would operate at LOS B in the AM peak hour and LOS D in the PM peak hour and the Project impact would be reduced to *less than significant*.

Impact Traf-36: Crows Landing Road/Hackett Road (#10). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. This intersection within the annexation area proposed as a part of the Project.

Implementation of the improvements discussed under Impact Traf-8 would partially reduce the cumulative impact. Per the City of Ceres, the following improvements are specified here but assumed to be part of the improvements identified in mitigation measure Traf-8 that would reduce the impact: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the westbound movement with prohibition of southbound U-turn movement.

Upon implementation of mitigation measure Traf-8, including allowing for provision of overlap phasing and prohibition of U-turns, the intersection would operate at LOS D during both peak hours and the Project impact would be *less than significant*.

Impact Traf-37: Carpenter Road/Service Road (#11). This unsignalized intersection would operate at LOS F and would meet the signal warrant with or without the addition of Project generated traffic during both peak hours. This intersection is under the jurisdiction of Stanislaus County.

The Stanislaus County's PFF program have identified plans and funds to improve Carpenter Road to a six-lane Class C Expressway north of Service Road and a four-lane Major Arterial south of Service Road. It is projected that these improvements would provide signalization at the intersection and modify the intersection to provide one left-turn lane, one through lane and one shared through-right lane on all four approaches with protected left-turn signal phasing on the northbound and southbound approaches and permitted signal phasing on the eastbound and westbound approaches.

With the installation of improvements identified in County's PFF program, the intersection would operate at LOS C in both the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-38: Crows Landing Road/Service Road (#12). Project traffic would cause the intersection operations to deteriorate from LOS C to LOS F during the AM peak hour and would cause the intersection delay to increase by more than five seconds during the PM peak hour when the intersection would operate at LOS E. This intersection is under the jurisdiction of Stanislaus County and the City of Ceres.

Installation of the improvements identified in the City of Ceres' PFF program (mitigation measure Traf-9a) and the County's PFF program (discussed under Impact Traf-9) and mitigation measure Traf-9b would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Ceres (mitigation measure Traf-9a) and County PFF improvements and implementation of mitigation measure Traf-9b, the intersection would operate at LOS F in the AM and PM peak hours with the additional of Project generated traffic. Implementing the following measure would fully mitigate the cumulative impact.

Mitigation Measure

Traf-38: Implement Crows Landing Road/Service Road Intersection Improvements with Fair-Share Reimbursement. The Project shall dedicate right-of-way and implement the following improvements for the northern portion that will be in the City of Ceres' jurisdiction, which are required to achieve acceptable traffic operations but are not currently included in an improvement program: Add one additional northbound through lane and corresponding receiving lane on the north leg. Add one additional southbound through lane. Convert the southbound shared through-right lane to an exclusive through lane. Add one exclusive southbound right-turn lane. Add one additional westbound left-turn lane and one additional westbound right-turn lane. Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound movement with prohibition of westbound U-turn movement. Modify the traffic signal to remove right-turn overlap phasing for the westbound movement as proposed in mitigation measure Traf-9, which would eliminate the prohibition of southbound U-turn movement. The City shall provide for reimbursement from other projects on a fair-share basis as appropriate.

With installation of the improvements identified in the City of Ceres' PFF program, as required by mitigation measure Traf-9a and the County's PFF program (discussed under Impact Traf-9) and implementation of additional improvements identified in mitigation measures Traf-9b and Traf-38, the intersection would operate at LOS D in the AM and PM peak hours and would reduce the Project impact to *less than significant*. However, the southern portion of this intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control. As such, the Project impact would be considered *significant and unavoidable*.

Impact Traf-39: Morgan Road/Service Road (#13). Project generated traffic would cause the intersection to deteriorate from LOS B to LOS E during the AM peak hour. This intersection is under the jurisdiction of the City of Ceres.

Installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-10) would partially reduce this cumulative impact. Per the City of Ceres, the following improvements are specified here but assumed to be part of the PFF improvements that would reduce the impact: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the southbound movement with prohibition of eastbound U-turn movement.

With installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-10), including allowing for the provision of overlap phasing and prohibition of U-turns, the intersection would operate at LOS C in the AM peak hour and LOS B in the PM peak hour and would reduce the Project impact to *less than significant*.

Impact Traf-40: Central Avenue/Service Road (#15). Project generated traffic would cause the intersection to deteriorate from LOS C to LOS E during the PM peak hour. This intersection is under the jurisdiction of the Stanislaus County and City of Ceres.

The City of Ceres' PFF program has identified plans and funds to improve Central Avenue to a four-lane Arterial and Service Road to a four-lane Expressway. It is projected that the improvements would modify the intersection to provide one left-turn lane, one through lane and one shared through-right lane on all four approaches with protected signal phasing on all four approaches.

With the installation of improvements identified in Ceres' PFF program, the intersection would operate at LOS D in both AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to *less than significant*.

Impact Traf-41: Mitchell Road/Service Road (#16). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of the City of Ceres and nearly all of these improvements are included in the frontage improvements of the adjacent developments.

Installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-12) and mitigation measure Traf-12 would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Ceres PFF improvements and implementation of mitigation measure Traf-12, the intersection would operate at LOS F in both peak hours with the additional of Project generated traffic. Implementing the following measure would fully mitigate the cumulative impact.

Mitigation Measure

Traf-41: Fair Share Contribution Towards Mitchell Road/Service Road Intersection Improvements. The Project shall make a fair-share contribution to the following improvements, which are required to achieve acceptable traffic operations but are not currently included in an improvement program: Add one northbound left-turn lane and one right-turn lane to provide two left-turn lanes, two through lanes and one right-turn lane on the northbound approach. Add one southbound left-turn lane to provide two left-turn lanes, two through lanes and one right-turn lane on the southbound approach. Add one eastbound through lane and two right-turn lanes as well as one receiving lane on the corresponding east leg to provide one left-turn lane, three through lanes and two right-turn lanes on the eastbound approach. Add one westbound left-turn lane, one through lane and one right-turn lane as well as one receiving lane on the corresponding west leg to provide two left-turn lanes, three through lanes and one right-turn lane on the westbound approach. Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound, southbound and eastbound movements with prohibition of eastbound, westbound and southbound U-turn movement and optimize the cycle length and split phase time.

With installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-12) and implementation of mitigation measure Traf-41, the intersection would operate at LOS D in both AM and PM peak hours with the addition of Project-generated traffic. Note that comparable improvements are anticipated to be implemented as mitigation for the Ceres Gateway Project and the Mitchell Ranch Project, both in planning phases and not yet approved. With these improvements, the Project's impact would be reduced to less than significant. However, the improvements identified in mitigation measure Traf-41 are not included in any current improvement and funding program that could ensure implementation in the timeframe of this project. For this reason, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

It should be noted that this intersection would be reconfigured as a part of the future SR 99 Mitchell Road Interchange Improvement Project, which would provide additional roadway capacity and may potentially lessen the Project impact; however, the timing of the interchange improvement is unclear.

Impact Traf-42: Carpenter Road/Keyes Road (#17). This intersection would operate at unacceptable levels of service with and without the addition of Project generated traffic and would meet the traffic signal warrant during the PM peak hour. This intersection is under the jurisdiction of the Stanislaus County.

The Stanislaus County's PFF program has identified plans and funds to improve Carpenter Road to a four-lane Major Arterial and provide signalization at this intersection. It is projected that the improvements would modify the intersection to provide one left-turn lane, one through lane and one shared through-right lane on the northbound and southbound approaches and one shared left-through-right lane on the eastbound and westbound approaches with permitted left-turn phasing on all four approaches.

With the installation of improvements identified in the County's PFF program, the intersection would operate at LOS A in the AM and PM peak hours with the addition of Project-generated traffic. With these improvements, the Project's impact would be reduced to less than significant. However, because the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not within the City of Ceres' control, and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's

contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-43: Crows Landing Road/Keyes Road (#18). This intersection would operate at unacceptable levels of service and would meet the traffic signal warrant during both peak hours with and without the addition of Project generated traffic. This intersection is under the jurisdiction of the Stanislaus County.

With the installation of the improvements identified in the Stanislaus County's PFF program (discussed under Impact Traf-13), the intersection would operate at LOS D in the AM and PM peak hours with the addition of Project-generated traffic. With the improvements, the Project's impact would be reduced to less than significant. However, the intersection is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation is not entirely within the City of Ceres' control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-44: Carpenter Road/Maze Road (#19). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of the Stanislaus County and the City of Modesto.

The City of Modesto's CFF program has identified plans and funds to improve Carpenter Road to a six-lane Principal Arterial and Maze Road to a four-lane Minor Arterial. It is projected that the improvements would modify the intersection to provide two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches and two left-turn lanes, two through lanes and one right-turn lane on the eastbound and westbound approaches with protected left-turn phasing on all four approaches.

The installation of improvements identified in Modesto's CFF program would partially reduce the cumulative project impact. The intersection would operate at LOS E in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic. To fully mitigate the cumulative impact, further roadway widening would be required: Add one additional through lane to the northbound approach as well as the receiving lane on the corresponding north leg.

With installation of improvements identified in Modesto's CFF program and the widening described above, the intersection would operate at LOS D in both peak hours in the cumulative condition and the cumulative Project impact would be less than significant. However, the widening improvements are not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement. Also, because the intersection is outside the City of Ceres' jurisdiction, the certainty and timing of the installation is not within the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-45: Carpenter Road/Paradise Road (#20). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This

intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve Carpenter Road to a six-lane Principal Arterial and Paradise Road to a four-lane Minor Arterial. It is projected that these improvements would provide signalization at this intersection and the lane geometry would be modified to two left-turn lanes, three through lanes and one right-turn lane on the northbound and southbound approaches and two left-turn lanes, two through lanes and one right-turn lane on the westbound and eastbound approaches with protected left-turn phasing on all four approaches.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS D in the AM and PM peak hours with the addition of Project-generated traffic under cumulative conditions. With these improvements, the Project's impact would be reduced to less than significant. However, because the intersection is outside the City of Ceres' jurisdiction, the certainty and timing of the installation is not within the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-46: Carpenter Road/Hatch Road (#21). This intersection would operate at unacceptable levels of service and would meet the traffic signal warrant during both peak hours with and without the addition of Project generated traffic. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-14) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the intersection would operate at LOS F during both AM and PM peak hours with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required: Add one exclusive left-turn lane on the eastbound approach and convert the existing lane to a shared through-right lane through lane. Add one additional right turn lane on the westbound approach. Modify the traffic signal to allow for the provision of right-turn overlap phasing for the westbound movement with prohibition of southbound U-turn movement and provision of protected left-turn phasing for the northbound and southbound approaches.

With installation of improvements identified in Modesto's CFF program and the widening described above, the intersection would operate at LOS D in both peak hours in the cumulative condition and the cumulative Project impact would be less than significant. However, the widening improvements are not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvements. Also, because the intersection is outside the City of Ceres' jurisdiction, the certainty and timing of the installation is not within the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-47: Morgan Road/Hatch Road (#22). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This

intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

The City of Modesto's CFF program has identified plans and funds to improve Hatch Road to a four-lane Class C Expressway. It is projected that the improvements would modify the intersection to provide two through lanes and one right-turn lane on the eastbound approach and two left-turn lanes and two through lanes on the westbound approach with protected left-turn phasing on all the approaches.

The installation of improvements identified in Modesto's CFF program would partially reduce the cumulative project impact. The intersection would operate at LOS E in both AM and PM peak hours with the addition of Project-generated traffic. To fully mitigate the cumulative impact, the following improvement is required: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound movement with prohibition of westbound U-turn movement.

With installation of the improvements identified in the City of Modesto's CFF program and the traffic signal phasing improvement, the intersection would operate at LOS C in both AM and PM peak hours with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the signal improvement is not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvement. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-48: Dallas Street-B Street/Whitmore Avenue (#23). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The northern portion of the intersection is under the jurisdiction of the City of Modesto and the southern portion is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. The southern portion of the intersection would be annexed by the City of Ceres as a part of the proposed Project.

The City of Modesto's CFF program and the City of Ceres' PFF program have identified plans and funds to improve Whitmore Road to a four-lane Minor Arterial, which is consistent with the intersection configuration proposed by the Project. Per the City of Ceres, the following improvements are specified here but assumed to be part of the PFF improvements that would reduce the impact: Modify the traffic signal to allow for the provision of right-turn overlap phasing for the northbound movement with prohibition of westbound U-turn movement.

With implementation of Modesto CFF and Ceres PFF programs, including overlap phasing and prohibition of U-turns, the intersection would operate at LOS D in both AM and PM peak hours with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to *less than significant*. However, because the northern portion of this intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-49: Crows Landing Road/Glenn Avenue (#24). This intersection would operate at unacceptable levels of service and would meet the traffic signal warrant during

both peak hours with and without the addition of Project generated traffic. This intersection is under the jurisdiction of City of Modesto.

The City of Modesto's CFF program has identified plans and funds to improve Crows Landing Road to a six-lane Principal Arterial. It is projected that the improvements would provide signalization and modify the intersection to provide one left-turn lane, three through lanes and one right-turn lane with protected left-turn signal phasing on the northbound and southbound approaches and one left-turn lanes and one shared through-right lane with permitted left-turn signal phasing on the eastbound and westbound approaches.

With the installation of improvements identified in Modesto's CFF program, the intersection would operate at LOS C in the AM peak hour and LOS E in the PM peak hour with the addition of Project-generated traffic. To fully mitigate the cumulative project impact, the following improvement would be required: Restripe the westbound lanes to provide one shared left-turn lane and one exclusive right-turn lane.

With installation of the improvements identified in the City of Modesto's CFF program and implementation of the lane restriping described above, the intersection would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the restriping improvement is not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvement. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control, therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-50: Crows Landing Road/7th Street (#26). This intersection would operate at unacceptable levels of service and would meet the traffic signal warrant during both peak hours with and without the addition of Project generated traffic. This intersection is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-15) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the intersection would operate at LOS F in the PM peak hour with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required: Add one additional through lane to the eastbound approach as well as the receiving lane on the corresponding leg.

With installation of the improvements identified in the City of Modesto's CFF program and the widening described above, the intersection would operate at LOS D in the AM peak hour and LOS C in the PM peak hour with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the widening improvements are not included in any current improvement and funding program, therefore, there is no established mechanism to fund or implement the improvement. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control, therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-51: River Road/9th Street – Northbound (#27). This intersection would operate at unacceptable levels of service and would meet the traffic signal warrant during both peak hours with and without the addition of Project generated traffic. This intersection is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence.

The following improvements would be required to mitigate the cumulative impact: Modify the westbound control to allow free-flow right-turn movement, which would require converting the northbound through-right lane to an exclusive right-turn lane and extending the westbound right-turn channelization to provide a dedicated receiving lane for the westbound movement. Pedestrian movements should be taken into consideration in the design of the intersection.

With these improvements, the intersection would operate at LOS A in both AM and PM peak hours with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the improvements are not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvements. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-52: B Street/7th Street (#28). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of the City of Modesto.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-16) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the intersection would operate at LOS E in the AM peak hour and LOS F in the PM peak hour with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required: Add one right turn lane to provide two left-turn lanes, two through lanes and two right-turn lanes on the northbound approach. Add one through lane and one right-turn lane to provide one left-turn lane, two through lanes and two right-turn lanes on the eastbound approach. Add one left-turn lane and one through lane to provide two left-turn lanes, one through lane and one shared through-right lane on the westbound approach. Modify the traffic signal to allow for the provision of right-turn overlap phasing on the northbound and eastbound approaches with prohibition of U-turn movement on the westbound and northbound approaches and provide protected left-turn signal phasing on all approaches.

With installation of the improvements identified in the City of Modesto's CFF program and the widening described above, the intersection would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the widening improvements are not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvements. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-53: B Street/9th Street (#29). This intersection would operate at unacceptable levels of service during both peak hours with and without the addition of Project generated traffic. The proposed Project would cause this intersection delay to increase by more than five seconds in both peak hours. This intersection is under the jurisdiction of the City of Modesto.

The following improvements would be required to mitigate the cumulative impact: Add one left-turn lane to provide one left-turn lane, one shared left-through lane and one shared through-right lane to the eastbound approach; modify the traffic signal to allow for the provision of right-turn overlap phasing for the southbound movement with prohibition of eastbound U-turn movement.

With the improvements described above, the intersection would operate at LOS C in the AM peak hour and LOS D in the PM peak hour with the addition of Project-generated traffic and the cumulative Project's impact would be reduced to less than significant. However, the improvements are not included in any current improvement and funding program; therefore, there is no established mechanism to fund or implement the improvements. Also, because the intersection is outside the City of Ceres' jurisdiction, the timing of installation of improvements is out of the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-54: Crows Landing Road/Cornucopia Way-B-Street (#110). The intersection would operate at LOS F in the PM peak hour with the addition of Project generated traffic. This intersection is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. This intersection lies within the annexation area proposed as a part of the Project.

Mitigation Measure

Traf-54: Implement Crows Landing Road/Cornucopia Way-B-Street Intersection Improvements with Fair-Share Reimbursement. The Project shall implement the following improvements, which are required to achieve acceptable traffic operations but are not currently included in an improvement program: Add a northbound through lane as well as the receiving lanes on the corresponding leg to provide one left-turn lane, two through lanes, and one shared-right lane on the northbound approach. Convert the southbound right-turn lane to a through-right lane as well as the receiving lanes on the corresponding leg to provide one left-turn lane, two through lanes and one shared through-right lane on the southbound approach. Add one eastbound right-turn lane to provide one shared left-through lane, and two right-turn lanes on the eastbound approach. The City shall provide for reimbursement from other projects on a fair-share basis as appropriate.

With implementation of mitigation measures Traf-54, the intersection would operate at LOS B in the AM peak hour and LOS C in the PM peak hour and would reduce the Project impact to *less than significant*.

Roadway Operations

The roadway operations with the addition of Project generated traffic under Cumulative conditions are summarized in **Table 18.7**. The analysis results indicate that all study segments will be significantly impacted by the proposed Project. The impacts and potential mitigation measures are discussed below.

TABLE 18.7: CUMULATIVE PLUS PROJECT CONDITIONS – ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment Operations - AM Peak Hour										
Street Name	Location	Cumulative Conditions			Cumulative+Project			Cumulative+Project (Mitigated)		
		LOS	V/C	AM Volume	LOS	V/C	AM Volume	LOS	V/C	
A	Crows Landing Rd	North of Hatch Road	D	0.91	4,271	F	1.30	6,075	F	1.01
B	Crows Landing Rd	North of Whitmore Av	C	0.69	3,224	F	1.12	5,246	D	0.87
C	Crows Landing Rd	South of Whitmore Av	D	0.78	2,408	F	1.32	3,924	D	0.68
D	Whitmore Av	East of Crows Landing Rd	D	0.76	1,184	F	1.33	2,057	C	0.63
E	Whitmore Av	East of Blaker Rd	F	1.78	2,765	F	2.14	3,324	C	0.68
F	Service Rd	East of Central Av	C	0.64	2,107	F	1.03	3,384	C	0.69

Roadway Segment Operations - PM Peak Hour										
Street Name	Location	Cumulative Conditions			Cumulative +Project			Cumulative +Project (Mitigated)		
		LOS	V/C	PM Volume	LOS	V/C	PM Volume	LOS	V/C	
A	Crows Landing Rd	North of Hatch Road	F	1.14	5,333	F	1.63	7,618	F	1.26
B	Crows Landing Rd	North of Whitmore Av	D	0.92	4,322	F	1.49	6,974	F	1.15
C	Crows Landing Rd	South of Whitmore Av	F	1.08	3,359	F	1.96	5,800	F	1.01
D	Whitmore Av	East of Crows Landing Rd	D	0.93	1,438	F	1.81	2,804	D	0.86
E	Whitmore Av	East of Blaker Rd	F	2.17	3,357	F	2.79	4,321	D	0.88
F	Service Rd	East of Central Av	C	0.70	2,284	F	1.16	3,792	C	0.77

Impact Traf-57: Crows Landing Road North of Hatch Road (A). This roadway segment would deteriorate from LOS D in the AM peak hour with the addition of Project generated traffic. Project traffic would also worsen the roadway operations, which would already be operating at LOS F in the PM peak hours without the Project. This roadway segment is under the jurisdiction of Stanislaus County and within Modesto's Sphere of Influence.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-17) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the segment would operate at LOS F with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required. The additional widening improvements were considered in conjunction with the adoption of City of Modesto's CFF program and were considered to be infeasible.

Because a portion of these improvements have previously been identified as infeasible and because the segment is outside the City of Ceres' jurisdiction, and the certainty and timing of the installation of feasible improvements is not within the City of Ceres' control and therefore cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-58: Crows Landing Road North of Whitmore Avenue (B). This roadway segment would deteriorate from LOS C in the AM peak hour and LOS D in the PM peak hour to LOS F with the addition of Project traffic. This intersection is under the jurisdiction of the City of Modesto.

Installation of the improvements identified in the City of Modesto's CFF program (discussed under Impact Traf-18) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Modesto CFF improvements, the segment would operate at LOS F with the additional of Project generated traffic. To fully mitigate the cumulative impact, further widening of the roadway would be required. The additional widening improvements were considered in conjunction with the adoption of City of Modesto's CFF program and were considered to be infeasible.

Because a portion of these improvements have previously been identified as infeasible and because the segment is outside the City of Ceres' jurisdiction, the certainty and timing of the installation of feasible improvements is not within the City of Ceres' control; therefore the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. For these reasons, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-59: Crows Landing Road South of Whitmore Avenue (C). This roadway segment would deteriorate from LOS D in the AM peak hour with the addition of Project generated traffic. Project traffic would also worsen the roadway operations, which would already be operating at LOS F in the PM peak hours without the Project. This segment is under the jurisdiction of Stanislaus County and within Ceres' Sphere of Influence. The Crows Landing Road segment between Whitmore Avenue and Service Road will be annexed by the City of Ceres as a part of the proposed Project.

Implementation of mitigation measure Traf-19 would partially reduce the cumulative impact. Under cumulative traffic conditions, even with the implementation of mitigation measure Traf-19 by providing three travel lanes on each direction, the segment would operate at LOS F with the additional of Project generated traffic in the PM peak hour. To fully mitigate the cumulative impact, further widening of the roadway would be required.

However, further widening of Crows Landing Road would result in secondary impact to pedestrians by increasing crossing time and exposure to vehicular traffic, where increased pedestrian activities are projected near the proposed retail commercial center. Therefore, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-60: Whitmore Avenue East of Crows Landing Road (D). This roadway segment would deteriorate from LOS D to LOS F during both peak hours with the addition of Project traffic. This segment is under the jurisdiction of Stanislaus County and City of Modesto and within Ceres' Sphere of Influence. The southern portion of the roadway along the Project area frontage would be annexed by the City of Ceres as a part of the proposed Project.

With installation of the improvements identified in the City of Modesto's CFF program and City of Ceres' PFF program (discussed under Impact Traf-20), the roadway would operate at LOS D in the AM and PM peak hour with the addition of Project-generated traffic.

With the implementation of Ceres' PFF improvements, the Project's impact in Ceres would be reduced to *less than significant*. However, the northern portion of the segment is outside the City of Ceres' jurisdiction; therefore, the certainty and timing of the installation is not within the City of Ceres' control. Therefore, the improvements cannot be assured to be completed in the same timeframe that an impact is caused by this Project. As such the Project's contribution to a cumulative impact on the northern portion of this segment would be considered *significant and unavoidable*.

Impact Traf-61: Whitmore Avenue East of Blaker Road (E). This roadway segment would operate at LOS F with or without the addition of Project generated traffic. The Project would add traffic to this segment and worsen the operations. This segment is under the jurisdiction of City of Ceres.

Installation of the improvements identified in the City of Ceres' PFF program and the SR 99/Whitmore Avenue Interchange Improvement project (discussed under Impact Traf-21) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Ceres PFF improvements and the SR 99/Whitmore Avenue Interchange Improvement project improvements, the segment would operate at LOS F with the additional of Project generated traffic. To fully mitigate the cumulative impact, the following improvement would be required

Widen Whitmore Avenue by two lanes to accommodate three travel lanes on each direction.

Implementation of this additional widening would allow the roadway to operate at LOS C in the AM peak hour and LOS D in the PM peak hour, and reduce Project contribution to a less than significant level. However, such additional widening is not included in the SR 99/Whitmore Avenue Interchange Improvement Project and is considered by the City of Ceres to be infeasible. Therefore, the Project's contribution to a cumulative impact at this intersection would be considered *significant and unavoidable*.

Impact Traf-62: Service Road East of Central Avenue (F). This roadway segment would deteriorate from LOS C to LOS F during both peak hours with the addition of Project traffic. This segment is under the jurisdiction of City of Ceres.

Installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-22) would partially reduce this cumulative impact.

Under cumulative traffic conditions, even with the installation of the Ceres' PFF improvements, the roadway segment would operate at LOS F with the Project-generated traffic. To fully mitigate the cumulative impact, the following improvement would be required.

Mitigation Measure

Traf-62: Fair Share Contribution Towards Widening of Service Road East of Central Avenue. The Project shall make a fair-share contribution to the following improvement, which is required to achieve acceptable traffic operations but are not currently included in an improvement program: Widen Service Road by two lanes to accommodate three travel lanes on each direction.

With installation of the improvements identified in the City of Ceres' PFF program (discussed under Impact Traf-22) and implementation of mitigation measure Traf-62, the roadway would operate at LOS D in the AM and PM peak hour with the addition of Project-generated traffic. Because the Ceres standards show a right-of-way of 110 feet for both a 4 lane arterial and a 6 lane arterial, it is anticipated that the additional lanes specified in Traf-62 can be implemented through minor changes to the PFF. Assuming such PFF modifications, contribution to the PFF will satisfy the Project's fair-share contribution. While the improvements identified in mitigation measure Traf-62 are not included in any current improvement and funding program, the negligible level of costs and absence of need for additional right-of-way makes the implementation reasonably assured. With the improvements, the cumulative impact would reduce to *less than significant*.

Freeway Mainline Operations

The freeway mainline segments were evaluated with the Project generated trips under Cumulative conditions. The analysis results are summarized in **Table 18.8**. Three mainline segments would be significantly impacted by the proposed Project as discussed below. Note that the southbound segment north of Mitchell Road would operate at LOS E with and without the addition of Project generated trips; but the Project would not increase the traffic volume by five percent or more. Therefore it is not considered a significant impact.

Impact Traf-63: SR99 North of Crows Landing Road - Northbound. This segment would continue to operate at LOS F in the AM peak hour with the addition of Project traffic, which would increase the volume by more than five percent. It would also deteriorate from LOS D to LOS E in the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

This analysis already assumes that SR 99 would be widened to eight lanes for this scenario. Widening the freeway mainline segment further would provide additional capacity; however, this would go beyond the route concept for this facility and can only be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

TABLE 18.8: CUMULATIVE PLUS PROJECT FREEWAY MAINLINE LEVEL OF SERVICE

Location	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²	Volume	Density ¹	LOS ²
	Cumulative						Cumulative plus Project					
Northbound SR 99												
South of Mitchell Rd	6,103	28.6	D	4,044	18.5	C	6,506	31.2	D	4,407	20.1	C
North of Mitchell Rd	6,540	31.4	D	3,832	17.5	B	6,585	31.8	D	3,924	17.9	B
North of Crows Landing Rd	9,827	>45	F	6,810	33.5	D	10,348	>45	F	7,578	41.4	E
Southbound SR 99												
North of Crows Landing Rd	6,915	34.4	D	10,661	>45	F	7,521	40.6	E	11,318	>45	F
North of Mitchell Rd	4,250	19.4	C	7,321	38.3	E	4,280	19.5	C	7,423	39.5	E
South of Mitchell Rd	4,322	19.7	C	6,820	33.6	D	4,541	20.7	C	7,331	38.4	E

Source: Dowling Associates, Inc., 2009

¹ Density = passenger cars per mile per lane

² LOS = Level of Service

Bold and shaded signifies potentially significant impacts

Impact Traf-64: SR99 North of Crows Landing Road - Southbound. With the addition of Project traffic, this segment would degrade from LOS D to LOS E in the AM peak hour. It would continue to operate at unacceptable levels during the PM peak hour and would increase the volumes by more than five percent in both peak hours. SR 99 is under the jurisdiction of Caltrans.

This analysis already assumes that SR 99 would be widened to eight lanes for this scenario. Widening the freeway mainline segment further would provide additional capacity; however, this would go beyond the route concept for this facility and can only be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

Impact Traf-65: SR99 South of Mitchell Road - Southbound. This segment would deteriorate from LOS D to LOS E in the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

This analysis already assumes that SR 99 would be widened to eight lanes for this scenario. Widening the freeway mainline segment further would provide additional capacity; however, this would go beyond the route concept for this facility and can only be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

Freeway Interchange Ramps Operation

Four of the six study SR 99 interchange ramp locations would be significantly impacted by the proposed Project as shown in **Table 18.9**. Note that the northbound Whitmore Avenue off-ramp would operate at LOS E in the AM peak hour with and without the Project and the southbound Whitmore Avenue on-ramp would operate at LOS F in the PM peak hour with and without the Project. The Project would not increase the traffic volume at these locations by five percent or more; therefore, such impacts are not considered significant.

Impact Traf-66: Mitchell Road Northbound SR99 Off-ramp. The Project would degrade the level of service from LOS D to LOS E during the AM peak hour. SR 99 is under the jurisdiction of Caltrans.

Widening the freeway mainline segment and/or the ramp would provide additional capacity. Widening the freeway mainline segment beyond eight lanes would go beyond the route concept for this facility. Widening of the ramps may require additional right-of-way, auxiliary lanes, and reconstruction of the ramp & interchange facilities. These improvements would need to be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

Impact Traf-67: Crows Landing Road Northbound SR99 On-ramp. The Project would degrade the level of service from LOS D to LOS E during the PM peak hour as well as increase the interchange volume by more than five percent in the AM peak hour when the merge area would already operate at LOS F level without the addition of Project trips. SR 99 is under the jurisdiction of Caltrans.

Widening the freeway mainline segment and/or the ramp would provide additional capacity. Widening the freeway mainline segment beyond eight lanes would go beyond the route concept for this facility. Widening of the ramps may require additional right-of-way, auxiliary lanes, and reconstruction of the ramp & interchange facilities. These improvements would need to be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

TABLE 18.9: CUMULATIVE PLUS PROJECT FREEWAY INTERCHANGE LEVEL OF SERVICE

Location	Analysis Type	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²	Ramp Volume	Density ¹	LOS ²
		Cumulative						Cumulative + Project					
Northbound SR-99													
Mitchell Rd off-ramp	Diverge	724	34.6	D	809	25.8	C	1,083	38.4	E	1,078	28.9	D
Whitmore Avenue off-ramp	Diverge	193	37.7	E	171	26.2	C	238	38.2	E	263	27.1	C
Crows Landing Rd on-ramp	Merge	719	40.7	F	1,166	31.5	D	1,240	45.2	F	1,934	38.1	E
Southbound SR-99													
Crows Landing Rd off-ramp	Diverge	997	37.3	E	1,422	64.5	F	1,603	43.5	E	2,079	71.3	F
Whitmore Av/2nd St on-ramp	Merge	260	23.4	C	283	35.1	F	305	23.8	C	376	35.9	F
Mitchell Rd on-ramp	Merge	942	26.0	C	889	34.3	D	1,130	27.7	C	1,298	38.2	E

Source: Dowling Associates, Inc., 2009

¹ Density = passenger cars per mile per lane

² LOS = Level of Service

Impact Traf-68: Crows Landing Road Southbound SR99 Off-ramp. The Project would increase the interchange volumes by more than five percent in both the AM and PM peak hours when the merge area would already operate at LOS E and LOS F, respectively, without the addition of Project trips. SR 99 is under the jurisdiction of Caltrans.

Widening the freeway mainline segment and/or the ramp would provide additional capacity. Widening the freeway mainline segment beyond eight lanes would go beyond the route concept for this facility. Widening of the ramps may require additional right-of-way, auxiliary lanes, and reconstruction of the ramp & interchange facilities. These improvements would need to be planned and implemented by Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

Impact Traf-69: Mitchell Road Southbound SR99 On-ramp. The Project would degrade the level of service from LOS D to LOS E during the PM peak hour. SR 99 is under the jurisdiction of Caltrans.

Widening the freeway mainline segment and/or the ramp would provide additional capacity. Widening the freeway mainline segment beyond eight lanes would go beyond the route concept for this facility. Widening of the ramps may require additional right-of-way, auxiliary lanes, and reconstruction of the ramp & interchange facilities. These improvements would need to be planned and implemented through coordination with Caltrans. As a result, the Project impact would remain *significant and unavoidable*.

Rail Crossings

Potential impacts at rail crossing were also analyzed to determine if hazardous conditions would be created or worsened. The Project would add traffic to the Whitmore Avenue and Service Road crossings of the Union Pacific Railroad that are located just east of the Plan area as well as to the Hatch Road crossings. The potential for the Project's added traffic at the at-grade crossing locations to have incremental impacts was investigated in the following areas:

1. Increased housing near rail yards – The proposed Project does not include changes in land use that would permit housing adjacent to existing rail yards.
2. The potential for collisions between trains and vehicles – The Project will add traffic at the crossing in the amounts and percentages shown in Table 18.10, below.

Crossing	Peak Hour	Total Volume At Crossing	Project Volume	Project as % of Total	
Existing	Whitmore Av	AM	1613	785	49%
		PM	2453	1256	51%
Service Rd	AM	2240	1819	81%	
	PM	2391	1906	80%	
Hatch Rd	AM	1202	159	13%	
	PM	1704	239	14%	
Cumulative					
Whitmore Av	AM	2346	785	34%	
	PM	3256	1256	39%	
Service Rd	AM	3579	1819	51%	
	PM	3407	1906	56%	
Hatch Rd	AM	3676	159	4%	
	PM	3734	239	6%	

3. According to the Statewide Integrated Traffic Record System (SWITRS) records, there has been no reported collision involving trains along Whitmore Avenue, Service Road or Hatch Road between January 2005 and August 2008. There was also no vehicle-related incident on Service Road within 300 feet of the crossing during the same period. However, there were two vehicle-versus-vehicle collisions on Whitmore Avenue near the crossings. The first is a broadside collision that occurred in 2005. The second is a sideswipe collision occurred in 2007 and is reported to be alcohol related. There were 23 reported vehicle-versus-vehicle collisions and one vehicle-versus-bicycle collision on Hatch Road in the vicinity of the crossing but none appears to be at the crossing itself. These included 18 rear end collisions, two hit object collisions, two broadside collisions, one sideswipe collision and one head-on collision.
4. The potential for collisions between trains and pedestrians – Given the nature of adjacent land uses, the only location where pedestrian traffic may be added as a result of the proposed Project is the Service Road crossing. Residents from developments to the east may walk to the County offices for work or visit. However, the number of pedestrians is not expected to be substantial. As there had been no train related collision and no pedestrian related incident near any of the crossings and the distance from any of the proposed residential and commercial uses to the crossings is over one-half of a mile, it is unlikely that the Project will add significantly to the potential for train versus pedestrian collisions.
5. Increases to the traffic queues on the approaches to the crossing – the Project’s added traffic will increase the traffic queues on the eastbound approach to Morgan Road and the westbound approach to Crows Landing Road on Whitmore Avenue, Service Road and Hatch Road. The Projected queue lengths as well as available distance in number of vehicles are shown in **Table 18.11** below. One vehicle length is estimated to be 25 feet.

TABLE 18.11: QUEUE LENGTHS ON APPROACH TO CROSSINGS

Crossing	Peak Hour	Base Queue	With Project Added	Mitigated Queue	Available Distance
		in Vehicles WB/EB	in Vehicles WB/EB	in Vehicles WB/EB	in Vehicles WB/EB
Existing					
Whitmore Av	AM	16/11	53/21	15/11	102/103
	PM	28/34	60/108	26/26	102/103
Service Rd	AM	9/0	91/29	57/12	103/103
	PM	6/0	89/156	32/27	103/103
Hatch Rd	AM	12/6	21/10	16/10	102/47
	PM	10/10	31/17	16/17	102/47
Cumulative					
Whitmore Av	AM	34/48	62/88	13/20	102/103
	PM	74/113	131/217	19/40	102/103
Service Rd	AM	16/12	133/32	40/13	103/103
	PM	35/16	100/38	13/36	103/103
Hatch Rd	AM	23/98	35/116	16/57	102/47
	PM	52/70	59/93	25/49	102/47

Project-Specific Safety at Crossings

Impact Traf-70: Traffic Collisions at the Rail Crossings. The Project’s added traffic will incrementally add to the potential for traffic collisions at the rail crossings on Whitmore Avenue, Service Road and Hatch Road.

With the exception of Hatch Road in the AM peak hour, the Project would add more than five percent to the peak hour traffic volumes in each scenario, which is presumed by this analysis to be a potentially significant. However, none of these crossings has a history of train-related accidents and could be considered safe crossings. Measures are recommended below to further enhance safety at these crossings.

Mitigation Measure

Traf-70: **Rail Crossing Safety Enhancement.** The following improvements would reduce the potential adverse impacts on rail safety at the crossings, to which the Project shall make a fair share contribution:

1. Installation of additional warning signage. Install additional warning and regulatory signs and pavement markings per Chapter 8 of the MUTCD, possibly including R15-1 ("2 TRACKS"), R8-8 ("DO NOT STOP ON TRACKS"), R8-10 ("STOP HERE WHEN FLASHING") as applicable.
2. Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains.
3. Installation of pedestrian-specific warning devices and channelization. When improvements are made on Service Road, standard sidewalk treatment should be included to provide continuity from the residential development to the east to the County offices. No other specific pedestrian devices appear to be needed at this time.

The City should continue to include rail crossing improvement measures in its Public Facilities Fees program, which would provide a mechanism whereby new developments would pay a fair share of the costs of rail crossing improvement measures like those described above.

Potential rail safety impacts would also be reduced through implementation of improvement measures for the Crows Landing Road and Morgan Road intersections on Whitmore Avenue, Service Road and Hatch Road.

Implementation of Traf-70 would reduce the Project's impacts on rail safety related to increased potential for traffic collisions at these locations to a level of *less than significant*.

Queuing at Crossings

This distances between the railroad crossings and both Crows Landing Road and Morgan Road, the first controlled intersections on the west and east of the crossings, respectively, are over 2,500 feet or 100 vehicle lengths except on the eastbound approach on Hatch Road where the available distance is about 1190 feet or 47 vehicle length.

For the Existing conditions, traffic generated by the Project would potentially cause the eastbound 95th percentile queues to extend onto the crossings on Whitmore Avenue and on Service Road in the PM peak hour. However, mitigation measures identified in the Intersection Operations section in this analysis would mitigate the Project impact to less than significant levels.

For the Cumulative conditions, traffic generated by the Project would significantly impact the queue lengths on both directions of all three roadways during the AM and/or the PM peak hours. Most of the impacts would be mitigated by measures recommended elsewhere in this analysis, as shown in **Table 18.11**. However, the Project's residual impact level on the westbound approach to Crows

Landing Road along Hatch Road would remain significant, with a potential for vehicle queues backing up across the rail line in the cumulative condition.

While the queue analysis presented above does not specifically relate to the queues that would exist during activation of the railroad crossing by a train, the Project's impacts on those queuing conditions are likely to be similar in nature.

Impact Traf-71: Vehicle Queuing Across Rail Crossings. The Project's added traffic will incrementally add to the potential for vehicle queues on the westbound approach to Crows Landing Road to extend across the rail crossing on Hatch Road.

For Cumulative plus Project conditions, the Project's added traffic would significantly impact on the westbound Hatch Road queue lengths in both peak hours even with the mitigation measures recommended above for the Crows Landing Road/Hatch Road intersection. No feasible mitigation has been identified to reduce this queue to the length that can be accommodated, but the following mitigation would help to reduce the potential for rail-related accidents.

However, this rail crossing does not have a history of train-involved collisions, and with the implementation of mitigation measure Traf-70, above, to further increase the safety of this crossing, the Project's impacts on rail safety related to vehicle queuing would be reduced to a *less than significant* level.