Traffic Impact Analysis

Proposed Commons at Visalia Parkway Shopping Center

Southwest of the Intersection of Visalia Parkway and Mooney Boulevard

Visalia, California

Prepared For:

Visalia Parkway Partners, LLC
P.O. Box 6317
Fresno, California 93703

Date:

January 10, 2020

Job No.:

19-008.01

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Mr. Jim Shehadey
Visalia Parkway Partners, LLC
P.O. Box 6317
Fresno, California 93703

January 10, 2020

Subject: Traffic Impact Analysis
Proposed Commons at Visalia Parkway Shopping Center
Southwest of the Intersection of Visalia Parkway and Mooney Boulevard
Visalia, California

Dear Mr. Shehadey:

We are pleased to submit this Traffic Impact Analysis report for the proposed Commons at Visalia Parkway Shopping Center. This report was prepared in general accordance with the requirements of the agencies having jurisdiction at the study locations and identifies deficiencies in the existing transportation system as well as potentially-significant impacts. Recommendations are provided to mitigate potentially-significant Project and cumulative impacts.

Thank you for the opportunity to perform this traffic impact analysis and to provide you with this report. Please feel free to contact our office if you have any questions or comments regarding this report, or if we can be of further assistance.

Sincerely,

PETERS ENGINEERING GROUP

John Rowland, PE, TE

REGISTERED PROFESSIONAL ENGINEER
JOHN ROWLAND
NO. 2484
TRAFFIC
STATE OF CALIFORNIA

EXECUTIVE SUMMARY

This traffic impact analysis (TIA) has been prepared to study the potential traffic impacts related to the proposed Commons at Visalia Parkway Shopping Center in Visalia, California, hereinafter referred to as "the Project." This analysis focuses on the anticipated effect of vehicle traffic resulting from the Project and was performed in general conformance with the following documents, as applicable:

- City of Visalia *Procedures for Traffic Impact Analysis* (TIA) updated October 2014;
- *Caltrans Guide for the Preparation of Traffic Impact Studies* dated December 2002.

The proposed Commons at Visalia Parkway Shopping Center (Project) is located southwest of the intersection of Visalia Parkway and Mooney Boulevard (State Route 63) in Visalia, California. The Project site covers approximately 27.16 acres and will be developed in two phases. Phase 1 of the Project covers approximately 14.68 acres and will include a total of 135,100 square feet of building area as follows:

- Major 1: 56,800 square feet
- Major 2: 29,800 square feet
- Shops A: 10,000 square feet with drive through
- Shops B: 10,000 square feet with drive through
- C-Store: 3,100 square feet with 12 fueling positions
- Restaurant: 7,200 square feet
- Drive Thru 2: 3,000 square feet with drive through
- Drive Thru 3: 5,000 square feet with drive through
- Automotive: 12,000 square feet

Access to Phase 1 is proposed via two driveways connecting to Visalia Parkway and two driveways connecting to Mooney Boulevard. The site plan suggests that a median will be constructed on Visalia Parkway with an opening for the main driveway to allow left turns into the site from westbound Visalia Parkway, while the east driveway will be right-in/right-out only. The site plan also proposes that the south driveway connecting to Mooney Boulevard would have a median opening allowing left turns into the site from northbound Mooney Boulevard, while the north driveway will be right-in/right-out only.

Phase 2 of the Project will cover approximately 12.48 acres identified as Future Auto Sales west of Phase 1 and would have frontage only along Visalia Parkway. For purposes of these analyses, it is assumed that the Future Auto Sales portion of the site could be developed with a retail building area of 70,000 square feet. Access to Phase 2 would be shared with the Phase 1 main driveway with connectivity through Phase 1 to other driveways. It is also likely that a driveway would be constructed connecting to Visalia Parkway on the western edge of the site (Outlot 1).

The potential exists that Phase 2 would be developed as an automobile sales site with a building size of 8,600 square feet; however, the analysis of a 70,000-square-foot retail building represents the worst-case scenario.

Development of Outlot 2 is not considered part of the current Project. Any future development on Outlot 2 would share access with Phase 1 and Phase 2 of the Project. Therefore, for purposes of the cumulative analyses, an assumption is made that 100 units of senior housing would be developed on Outlot 2 in the future.

EXECUTIVE SUMMARY (Continued)

The TIA includes analysis of the following intersections:

1. Whitendale Avenue / County Center Drive
2. Whitendale Avenue / Mooney Boulevard
3. Sunnyside Avenue / Mooney Boulevard
4. Orchard Avenue / Mooney Boulevard
5. Caldwell Avenue / Demaree Street
6. Caldwell Avenue / Dans Street
7. Caldwell Avenue / County Center Drive
8. Caldwell Avenue / Shady Street
9. Caldwell Avenue / Mooney Boulevard
10. Caldwell Avenue / Fairway Street
11. Caldwell Avenue / Stonebrook Street
12. Cameron Avenue / County Center Drive
13. Cameron Avenue / Mooney Boulevard
14. Cameron Avenue / Stonebrook Street
15. Cameron Avenue / West Street
16. Visalia Parkway / Demaree Street
17. Visalia Parkway / Dans Street
18. Visalia Parkway / County Center Drive
19. Visalia Parkway / Outlot 1 Access
20. Visalia Parkway / Main Site Access
21. Visalia Parkway / East Site Access
22. Visalia Parkway / Mooney Boulevard
23. Visalia Parkway / Stonebrook Street
24. North Site Access / Mooney Boulevard
25. South Site Access / Mooney Boulevard
26. Midvalley Avenue / Mooney Boulevard
27. Avenue 272 / Road 108 (Demaree Street)
28. Avenue 272 / Mooney Boulevard
29. Avenue 268 / Mooney Boulevard

Traffic signal warrant analyses are required at the following intersections:

6. Caldwell Avenue / Dans Street (one-way stop plus a private driveway on the north)
12. Cameron Avenue / County Center Drive (one-way stop)
14. Cameron Avenue / Stonebrook Street (one-way stop)
15. Cameron Avenue / West Street (two-way stop)
17. Visalia Parkway / Dans Street (two-way stop)
18. Visalia Parkway / County Center Drive (one-way stop)
28. Avenue 272 / Mooney Boulevard (two-way stop).

The study time periods include the peak hours determined within each of the following time periods:

- A.M. Peak hour: 7:00 a.m. to 9:00 a.m.
- Midday Peak Hour: 11:00 a.m. to 1:00 p.m.
- P.M. Peak Hour: 2:00 p.m. to 6:00 p.m.

The peak hours are analyzed for the following conditions based on both City of Visalia Category IV requirements and typical Caltrans requirements:

- Existing Conditions;
- Existing-Plus-Project Phase 1 Conditions;
- Existing-Plus-Project Phases 1 and 2 Conditions;
- Five-Year Cumulative No-Project Conditions;
- Five-Year Cumulative Conditions With Project;
- 10-Year Cumulative No-Project Conditions;
- 10-Year Cumulative Conditions With Project;
- 20-Year Cumulative No-Project Conditions; and
- 20-Year Cumulative Conditions With Project.

Generally-accepted traffic engineering principles and methods were employed to estimate the number of trips expected to be generated by the Project, to analyze the existing traffic conditions, and to analyze the traffic conditions projected to occur in the future.

The conclusion of the traffic impact analysis is that the Project is likely to cause or contribute to potentially-significant traffic impacts as identified in this report. Recommended mitigation measures or actions are summarized in the tables below.

In general, it is recommended that the Project construct traffic signals at the main site access driveway on Visalia Parkway and widening at the intersection of Visalia Parkway and Mooney Boulevard. The Project may also be required to contribute an equitable share to future intersections improvements if those improvements are not included in the City of Visalia development fee program.

EXECUTIVE SUMMARY (Continued)

Summary of Recommendations

Intersection	Project Scenario			
	Existing Plus Project*	Five-Year	10-Year	20-Year
Caldwell / Dans	2-1: Signals not warranted. Construct no improvements.	5-1: Equitable share if City chooses future signalization.	10-1: Same as Five-Year	20-1: Same as Five-Year
Cameron / Stonebrook	2-2: Signals not warranted. Construct no improvements.	5-2: Equitable share of traffic signals.	10-2: Same as Five-Year	20-2: Same as Five-Year
Cameron / West	2-3: Signals not warranted. Construct no improvements.	5-3: Equitable share of traffic signals.	10-3: Same as Five-Year	20-3: Same as Five-Year
Visalia Pwy / Dans	2-4: Signals not warranted. Construct no improvements.	5-4: Equitable share if City chooses future signalization.	10-4: Same as Five-Year	20-4: Same as Five-Year
Visalia Pwy / County Center	2-5: Signals not warranted. Construct no improvements.	5-5: Equitable share of traffic signals.	10-5: Same as Five-Year	20-5: Same as Five-Year
Visalia Pwy / Main Site	2-6: Install traffic signals.	5-6: Same as Five-Year	10-6: Same as Five-Year	20-6: Same as Five-Year
Visalia Pwy / Stonebrook				20-7: Equitable share of traffic signals.
Visalia Pwy / Mooney	2-7: Install median and widen intersection.	5-7: Same as Five-Year	10-7: Same as Five-Year	20-8: Same as Five-Year with additional lane.
Ave 272 / Mooney	2-8: Signals not warranted. Construct no improvements.	5-8: Equitable share of traffic signals or roundabout.	10-8: Same as Five-Year	20-9: Same as Five-Year

* The conclusions for the existing-plus-Phase 1 scenario are the same as the existing-plus-Phases 1 and 2 scenario.

Equitable Share Responsibility Calculations – P.M. Peak Hour

Location	Project Trips	Existing Volume	20-Year Volume	Equitable Share
Caldwell / Dans	91	1,856	2,326	19.4%
Cameron / Stonebrook	117	1,543	2,501	12.2%
Cameron / West	117	1,425	1,790	32.1%
Visalia Pwy / Dans	96	932	1,247	30.5%
Visalia Pwy / County Center	167	1,043	1,597	30.1%
Visalia Pwy / Main Site				100%
Visalia Pwy / Mooney	638	2,640	3,927	49.6%
Visalia Pwy / Stonebrook	53	416	1,501	4.9%
Ave 272 / Mooney	321	2,346	3,226	36.5%

Traffic Impact Analysis

Proposed Commons at Visalia Parkway Shopping Center

Southwest of the Intersection of Visalia Parkway and Mooney Boulevard

Visalia, California

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

TABLE OF CONTENTS

Page

TABLE OF CONTENTS (Continued)

Page

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 – INTRODUCTION

1.1 – Purpose

This traffic impact analysis has been prepared to study the potential traffic impacts related to the proposed Commons at Visalia Parkway Shopping Center in Visalia, California, hereinafter referred to as "the Project." This analysis focuses on the anticipated effect of vehicle traffic resulting from the Project and was performed in general conformance with the following documents, as applicable:

- City of Visalia *Procedures for Traffic Impact Analysis* (TIA) updated October 2014 (City Procedures).
- *Caltrans Guide for the Preparation of Traffic Impact Studies* dated December 2002 (Caltrans Guidelines).

1.2 – Project Description

The proposed Commons at Visalia Parkway Shopping Center (Project) is located southwest of the intersection of Visalia Parkway and Mooney Boulevard (State Route 63) in Visalia, California. The Project site covers approximately 27.16 acres and will be developed in two phases. Phase 1 of the Project covers approximately 14.68 acres and will include a total of 135,100 square feet of building area as follows:

- Major 1: 56,800 square feet
- Major 2: 29,800 square feet
- Shops A: 10,000 square feet with drive through
- Shops B: 10,000 square feet with drive through
- C-Store: 3,100 square feet with 12 fueling positions
- Restaurant: 7,200 square feet
- Drive Thru 2: 3,000 square feet with drive through
- Drive Thru 3: 5,000 square feet with drive through
- Automotive: 12,000 square feet

Access to Phase 1 is proposed via two driveways connecting to Visalia Parkway and two driveways connecting to Mooney Boulevard. The site plan suggests that a median will be constructed on Visalia Parkway with an opening for the main driveway to allow left turns into the site from westbound Visalia Parkway, while the east driveway will be right-in/right-out only. The site plan also proposes that the south driveway connecting to Mooney Boulevard would have a median opening allowing left turns into the site from northbound Mooney Boulevard, while the north driveway will be right-in/right-out only.

Phase 2 of the Project will cover approximately 12.48 acres identified as Future Auto Sales west of Phase 1 and would have frontage only along Visalia Parkway. For purposes of these analyses, it is assumed that the Future Auto Sales portion of the site could be developed with a retail building area of 70,000 square feet. Access to Phase 2 would be shared with the Phase 1 main driveway with connectivity through Phase 1 to other driveways. It is also likely that a driveway would be constructed connecting to Visalia Parkway on the western edge of the site (Outlot 1).

The potential exists that Phase 2 would be developed as an automobile sales site with a building size of 8,600 square feet; however, the analysis of a 70,000-square-foot retail building represents the worst-case scenario.

Development of Outlot 2 is not considered part of the current Project. Any future development on Outlot 2 would share access with Phase 1 and Phase 2 of the Project. Therefore, for purposes of the cumulative analyses, an assumption is made that 100 units of senior housing would be developed on Outlot 2 in the future.

A vicinity map is presented in the attached Figure 1.1, Site Vicinity Map, and a site plan is presented in Figure 1.2, Site Plan, following the text of this report.

1.3 – Study Area

The study locations were determined as specified in the City Procedures for a Category IV project (analysis of all intersections within one mile of site) and based on correspondence with Caltrans staff. This report includes operations analysis of the following intersections:

1. Whitendale Avenue / County Center Drive
2. Whitendale Avenue / Mooney Boulevard
3. Sunnyside Avenue / Mooney Boulevard
4. Orchard Avenue / Mooney Boulevard
5. Caldwell Avenue / Demaree Street
6. Caldwell Avenue / Dans Street
7. Caldwell Avenue / County Center Drive
8. Caldwell Avenue / Shady Street
9. Caldwell Avenue / Mooney Boulevard
10. Caldwell Avenue / Fairway Street
11. Caldwell Avenue / Stonebrook Street
12. Cameron Avenue / County Center Drive
13. Cameron Avenue / Mooney Boulevard
14. Cameron Avenue / Stonebrook Street
15. Cameron Avenue / West Street
16. Visalia Parkway / Demaree Street
17. Visalia Parkway / Dans Street
18. Visalia Parkway / County Center Drive
19. Visalia Parkway / Outlot 1 Access
20. Visalia Parkway / Main Site Access
21. Visalia Parkway / East Site Access
22. Visalia Parkway / Mooney Boulevard
23. Visalia Parkway / Stonebrook Street
24. North Site Access / Mooney Boulevard
25. South Site Access / Mooney Boulevard
26. Midvalley Avenue / Mooney Boulevard
27. Avenue 272 / Road 108 (Demaree Street)
28. Avenue 272 / Mooney Boulevard
29. Avenue 268 / Mooney Boulevard

The study intersections are identified in Figure 1.3, Study Intersections.

Traffic signal warrant analyses are required at the following intersections:

6. Caldwell Avenue / Dans Street (one-way stop plus a private driveway on the north)
12. Cameron Avenue / County Center Drive (one-way stop)
14. Cameron Avenue / Stonebrook Street (one-way stop)
15. Cameron Avenue / West Street (two-way stop)
17. Visalia Parkway / Dans Street (two-way stop)
18. Visalia Parkway / County Center Drive (one-way stop)
28. Avenue 272 / Mooney Boulevard (two-way stop).

1.4 – Study Scenarios

The study time periods include the peak hours determined within each of the following time periods:

- A.M. Peak hour: 7:00 a.m. to 9:00 a.m.
- Midday Peak Hour: 11:00 a.m. to 1:00 p.m.
- P.M. Peak Hour: 2:00 p.m. to 6:00 p.m.

The peak hours are analyzed for the following conditions based on both City of Visalia Category IV requirements and typical Caltrans requirements:

- Existing Conditions;
- Existing-Plus-Project Phase 1 Conditions;
- Existing-Plus-Project Phases 1 and 2 Conditions;
- Five-Year Cumulative No-Project Conditions;
- Five-Year Cumulative Conditions With Project;
- 10-Year Cumulative No-Project Conditions;
- 10-Year Cumulative Conditions With Project;
- 20-Year Cumulative No-Project Conditions; and
- 20-Year Cumulative Conditions With Project.

1.5 – List of Abbreviations

The following is a list of abbreviations that may be used the text of this report.

NBL – Northbound left
NBT – Northbound through
NBR – Northbound right
SBL – Southbound left
SBT – Southbound through
SBR – Southbound right
EBL – Eastbound left
EBT – Eastbound through
EBR – Eastbound right
WBL – Westbound left
WBT – Westbound through
WBR – Westbound right
HCM – Highway Capacity Manual, 2010
PHF – Peak hour factor
LOS – Level of service
sec – seconds
OWS – One-way stop
TWS – Two-way stop
DNS – Does not stop
DNE – Does not exist
S – Shared lane
P – Private driveway
NS – Lane not striped; de facto turn lane
SR – State Route
Pwy – Parkway
Round – Roundabout
TBD – Lane to be constructed by project, length yet to be determined
ITE – Institute of Transportation Engineers
MPH – miles per hour
TCAG – Tulare County Association of Governments

2.0 – IMPACT SIGNIFICANCE CRITERIA

2.1 – Level of Service

The Transportation Research Board *Highway Capacity Manual*, 2010, (HCM) defines level of service (LOS) as, "A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst." Automobile mode LOS characteristics for both unsignalized and signalized intersections are presented in Tables 2.1 and 2.2.

Table 2.1
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Average Vehicle Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Table 2.2
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Volume-to-capacity ratio is low. Progression is exceptionally favorable or the cycle length is very short.	<10
B	Volume-to-capacity ratio is low. Progression is highly favorable or the cycle length is very short.	>10-20
C	Volume-to-capacity ratio is no greater than 1.0. Progression is favorable or cycle length is moderate.	>20-35
D	Volume-to-capacity ratio is high but no greater than 1.0. Progression is ineffective or cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35-55
E	Volume-to-capacity ratio is high but no greater than 1.0. Progression is unfavorable and cycle length is long. Individual cycle failures are frequent.	>55-80
F	Volume-to-capacity ratio is greater than 1.0. Progression is very poor and cycle length is long. Most cycles fail to clear the queue.	>80

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

2.2 – City of Visalia and Caltrans Criteria

The Visalia General Plan and the City Procedures indicate that LOS D is the minimum acceptable LOS standard on city roadways.

The City General Plan also states: "*Although Caltrans has not designated a LOS standard, Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) indicates that when the LOS of a State highway facility falls below the LOS "C/D" cusp in rural areas and the LOS "D/E" cusp in urban areas, additional traffic may have a significant impact.*" This specific language is not contained in the Caltrans document.

The Caltrans *Guide for the Preparation of Traffic Impact Studies* dated December 2002 states the following: "*Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" (see Appendix "C-3") on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.*"

Based on the language contained in the City General Plan, a significant traffic impact will be recognized at intersections within the City of Visalia, including Caltrans intersections, if the Project will decrease the LOS below D at an intersection. Where an intersection is already operating at LOS E or LOS F in the existing or no-Project scenario, a significant impact will be identified if the Project will exacerbate the delay by 5.0 seconds or more.

2.3 – County of Tulare Criteria

Policy TC-1.16, County Level Of Service (LOS) Standards, presented in Chapter 13 of the 2030 Update of the Tulare County General Plan dated August 2012 (County General Plan) states: "*The County shall strive to develop and manage its roadway system (both segments and intersections) to meet a LOS of "D" or better in accordance with the LOS definitions established by the Highway Capacity Manual.*"

Based on the language contained in the County General Plan, a significant traffic impact will be recognized at County intersections if the Project will decrease the LOS below D at an intersection. Where an intersection is already operating at LOS E or LOS F in the existing or no-Project scenario, a significant impact will be identified if the Project will exacerbate the delay by 5.0 seconds or more.

2.4 – Summary of Minimum Acceptable Levels of Service

Table 2.3 presents the current jurisdiction and the target LOS for the study intersections.

Table 2.3
Minimum Acceptable Intersection Levels of Service

Location Number	Intersection	Current Jurisdiction	Target LOS
1	Whitendale Avenue / County Center Drive	City of Visalia	D
2	Whitendale Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
3	Sunnyside Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
4	Orchard Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
5	Caldwell Avenue / Demaree Street	City of Visalia	D
6	Caldwell Avenue / Dans Street	City of Visalia	D
7	Caldwell Avenue / County Center Drive	City of Visalia	D
8	Caldwell Avenue / Shady Street	City of Visalia	D
9	Caldwell Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
10	Caldwell Avenue / Fairway Street	City of Visalia	D
11	Caldwell Avenue / Stonebrook Street	City of Visalia	D
12	Cameron Avenue / County Center Drive	City of Visalia	D
13	Cameron Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
14	Cameron Avenue / Stonebrook Street	City of Visalia	D
15	Cameron Avenue / West Street	City of Visalia	D
16	Visalia Parkway / Demaree Street	City of Visalia	D
17	Visalia Parkway / Dans Street	City of Visalia	D
18	Visalia Parkway / County Center Drive	City of Visalia	D
19	Visalia Parkway / Outlot 1 Access	City of Visalia	D
20	Visalia Parkway / Main Site Access	City of Visalia	D
21	Visalia Parkway / East Site Access	City of Visalia	D
22	Visalia Parkway / Mooney Boulevard	Caltrans (within City of Visalia)	D
23	Visalia Parkway / Stonebrook Street	City of Visalia	D
24	North Site Access / Mooney Boulevard	Caltrans (within City of Visalia)	D
25	South Site Access / Mooney Boulevard	Caltrans (within City of Visalia)	D
26	Midvalley Avenue / Mooney Boulevard	Caltrans (within City of Visalia)	D
27	Avenue 272 / Road 108 (Demaree Street)	County of Tulare	D
28	Avenue 272 / Mooney Boulevard	Caltrans (within City of Visalia)	D
29	Avenue 268 / Mooney Boulevard	Caltrans (within City of Visalia)	D

2.5 – Intersection Queuing Criteria

The City Procedures require an analysis of queuing for turn lanes. For purposes of this study, a queuing deficiency is identified in the no-Project condition if the calculated 95th-percentile queue length exceeds the storage length. A significant queuing impact is determined if the Project causes the calculated 95th-percentile queue length to exceed the existing or planned storage capacity of a lane. In storage lanes that are already deficient without the Project, a

significant queuing impact is determined if the Project increases the calculated 95th-percentile queue length by at least 25 feet (the average storage length for one vehicle).

2.6 – Transit, Bicycle, and Pedestrian Facilities

A significant impact is determined if a proposed Project would disrupt or impede existing or planned transit, bicycle, or pedestrian facilities.

3.0 – TRAFFIC ANALYSIS METHODOLOGY

This section describes the methods and criteria used to evaluate LOS and traffic signal warrants.

3.1 – Intersection Analysis Methodology

The levels of service at the study intersections were determined using the computer program Synchro 9, which is based on the HCM procedures for calculating levels of service.

Although peak-hour traffic volumes are typically utilized in the operational analysis of intersections, the HCM utilizes the peak 15-minute period as the basis for operational analyses by incorporating the peak hour factor (PHF) into the analyses. PHFs for the existing-conditions and existing-plus-Project conditions analyses were determined based on the existing traffic volumes. It is typical traffic engineering practice based on previous versions of the Highway Capacity Manual to assume a PHF of 0.92 in urban areas and 0.88 in rural areas in the absence of field data. For purposes of the cumulative year five-year, 10-year, and 20-year analyses performed for this study, a PHF of 0.92 is used unless the existing PHF is greater than 0.92.

For signalized intersections and all-way-stop-controlled intersections, the overall intersection LOS and the average delay per vehicle are presented. For one-way and two-way stop-controlled intersections an overall intersection LOS is not defined in the HCM. Therefore, for one-way and two-way stop-controlled intersections the LOS and average delay per vehicle for the movement with the greatest delay is reported.

Queue lengths are reported for turn lanes as required in the City Procedures to reveal possible deficiencies that would not be apparent based only on LOS results.

3.2 – Traffic Signal Warrants

The California State Transportation Agency and California Department of Transportation *California Manual on Uniform Traffic Control Devices, 2014 Edition (Revision 4 dated March 29, 2019)* (CMUTCD) presents various criteria (warrants) for determining the need for traffic signals. The CMUTCD states that an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of the need for a traffic control signal shall include an analysis of the applicable factors contained in the following traffic signal warrants:

Warrant 1, Eight-Hour Vehicular Volume.
Warrant 2, Four-Hour Vehicular Volume.
Warrant 3, Peak Hour.
Warrant 4, Pedestrian Volume.
Warrant 5, School Crossing.
Warrant 6, Coordinated Signal System.
Warrant 7, Crash Experience.
Warrant 8, Roadway Network.
Warrant 9, Intersection Near a Grade Crossing

If one or more of the signal warrants is met, signalization of the intersection may be appropriate. However, a signal should not be installed if none or few of the warrants are met since the installation of signals may increase delays on the previously uncontrolled major street and may contribute to an increase in accidents.

The installation of a traffic signal can serve as mitigation when a significant impact is identified at an unsignalized intersection and traffic signal warrants are satisfied. If warrants are not satisfied, traffic signals would not be considered as a feasible mitigation. For cases in which peak hour traffic signal warrants are satisfied, traffic signals are not considered to be the default mitigation measure. Since installation of traffic signals typically includes construction of additional lanes or widening of the intersection, the development of recommendations for mitigation measures includes consideration of widening the intersection to add capacity while maintaining stop sign control. If the addition of lanes results in acceptable levels of service then the installation of traffic signals may be considered to be over-mitigation and may not be recommended even if peak-hour traffic signal warrants are satisfied.

It should be noted that the CMUTCD indicates that the study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants.

4.0 – PROJECT TRIP GENERATION

4.1 – Trip Generation and Internal Capture

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*, are typically used to estimate the number of trips anticipated to be generated by proposed projects. Since the proposed site plan indicates that both Shops A and Shops B will have drive throughs, it is assumed that half of the shops buildings (5,000 square feet each) will be developed as fast-food with drive through, and the remaining half of the shops buildings are assumed to be shopping center uses. The trip generation calculations are presented in Tables A.1 and A.2 in Appendix A and the results are summarized in Tables 4.1 and 4.2 below.

Data presented in the ITE *Trip Generation Handbook, 3rd Edition* dated September 2017 (TGH) contains information that the Project may generate internal trips (sometimes referred to as "internally-captured trips"). Estimation of the number of internal trips accounts for the interaction between the various individual land uses assumed for the trip generation calculations. A common example of an internal trip occurs in a multi-use development containing both offices and shops. A trip made from an office by an office worker to retail shop within the site is defined as internal to (i.e., "captured within") the multi-use site. A more complete description of internal trips is presented in the TGH. An example of an internal trip for the proposed Project is a person who eats at a fast-food restaurant and also purchases fuel. An internal capture rate is generally defined as the percentage of total trips generated by a site that are made entirely within the site. A maximum internal capture rate of five percent for the overall Project was allowed by Caltrans. The internal capture analyses are presented in Appendix A and the results are applied in Tables 4.1 and 4.2.

Table 4.1
Phase 1 Project Trip Generation

ITE Land Use	Building Area	A.M. Peak Hour Traffic Volumes		Midday Peak Hour Traffic Volumes		P.M. Peak Hour Traffic Volumes		Weekday Traffic Volume
		Enter	Exit	Enter	Exit	Enter	Exit	Total
Shopping Center (820)	96,600 sq. ft.	124	76	276	276	254	276	5,874
Fast Food Restaurant with Drive Through (934)	18,000 sq. ft.	369	355	472	453	306	283	8,478
High-Turnover Sit-Down Restaurant (932)	7,200 sq. ft.	40	32	66	60	44	27	808
Super Convenience Market/Gas Station (960)	3,100 sq. ft.	81	81	90	90	108	108	2,598
Automobile Parts and Service Center (943)	12,000 sq. ft.	17	7	18	15	11	17	196
Subtotals:	-	631	551	922	894	723	711	17,954
Internal Capture	-	-30	-30	-45	-45	-36	-36	-898
TOTALS:	**-**	**601**	**521**	**877**	**849**	**687**	**675**	**17,056**

Table 4.2
Phases 1 and 2 Project Trip Generation

ITE Land Use	Building Area	A.M. Peak Hour Traffic Volumes		Midday Peak Hour Traffic Volumes		P.M. Peak Hour Traffic Volumes		Weekday Traffic Volume
		Enter	Exit	Enter	Exit	Enter	Exit	Total
Shopping Center (820)	166,600 sq. ft.	146	90	408	408	381	413	8,508
Fast Food Restaurant with Drive Through (934)	18,000 sq. ft.	369	355	472	453	306	283	8,478
High-Turnover Sit-Down Restaurant (932)	7,200 sq. ft.	40	32	66	60	44	27	808
Super Convenience Market/Gas Station (960)	3,100 sq. ft.	81	81	90	90	108	108	2,598
Automobile Parts and Service Center (943)	12,000 sq. ft.	17	7	18	15	11	17	196
Subtotals:	-	653	565	1,054	1,026	850	848	20,588
Internal Capture	-	-30	-30	-52	-52	-42	-42	-1,024
TOTALS:	**-**	**623**	**535**	**1,002**	**974**	**808**	**806**	**19,564**

4.2 – Pass-By Trips

The ITE *Trip Generation Handbook, 3rd Edition, September 2017* (TGH) presents information suggesting that the Project traffic volumes will include pass-by trips. The TGH defines a pass-by trip as a trip that "is made as an intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator."

The TGH states: "However, not all traffic entering or exiting a site driveway is necessarily new traffic **added** to the street system. The actual amount of new traffic is dependent upon the purpose of the trip and the route used from its origin to its destination. For example, retail-oriented developments such as shopping centers, discount stores, restaurants, banks, service stations, and convenience markets are often located adjacent to busy streets in order to attract the motorists already on the street system for a different purpose. These sites attract a portion of their trips from traffic passing the site on the way from an origin to an ultimate destination. Thus, these "pass-by" trips **do not add new traffic** to the adjacent street system and may be reduced from the total external trips generated by a study site."

Data provided in Appendix E of the TGH and the proposed orientation of the Project suggest that pass-by trips will be generated by the proposed Project. Available data in the TGH indicate the following average pass-by trip percentages for uses contained within the proposed Project:

- 34 percent of the weekday p.m. peak hour trips generated by Shopping Center
- 49 percent of the weekday a.m. peak hour trips generated by Fast Food Restaurant with Drive Through Window

- 50 percent of the weekday p.m. peak hour trips generated by Fast Food Restaurant with Drive Through Window
- 43 percent of the weekday p.m. peak hour trips generated by High-Turnover (Sit-Down) Restaurant
- 63 percent of the weekday a.m. peak hour trips generated by Convenience Market with Gasoline Pumps
- 66 percent of the weekday p.m. peak hour trips generated by Convenience Market with Gasoline Pumps

Based on the available empirical data values, a pass-by rate of 25 percent is applied to the shopping center uses, a rate of 40 percent is applied to the restaurant uses, and a rate of 50 percent is applied to the convenience market/gas station uses for purposes of the peak hour analyses. The pass-by trips for the automotive portion of the Project are expected to be negligible. The pass-by percentages are applied only to the external trips generated by each land use; the pass-by trip calculations are included in the attached spreadsheets utilized to calculate internal capture. Tables 4.3 and 4.4 present the volume of pass-by trips and new primary Project trips estimated to be generated by the Project.

Table 4.3
Pass-By Trips and Primary Project Trips (Phase 1)

Time Period	Trips Entering Site	Trips Exiting Site	Total Trips
A.M. Peak Hour Pass-By Trips	224	202	426
A.M. Peak Hour Primary Trips	377	319	696
Midday Peak Hour Pass-By Trips	312	302	614
Midday Peak Hour Primary Trips	565	547	1,112
P.M. Peak Hour Pass-By Trips	243	234	477
P.M. Peak Hour Primary Trips	444	441	885

Table 4.4
Pass-By Trips and Primary Project Trips (Phases 1 and 2)

Time Period	Trips Entering Site	Trips Exiting Site	Total Trips
A.M. Peak Hour Pass-By Trips	229	206	435
A.M. Peak Hour Primary Trips	394	329	723
Midday Peak Hour Pass-By Trips	344	334	678
Midday Peak Hour Primary Trips	658	640	1,298
P.M. Peak Hour Pass-By Trips	272	266	538
P.M. Peak Hour Primary Trips	536	540	1,076

Considering that the Project will generate a maximum of 1,298 primary (net external) peak hour trips, the Project is a Category IV project in accordance with City of Visalia criteria (generates more than 1,000 peak hour trips but less than 1,500 peak hour trips).

4.3 – Project Trip Distribution and Assignment

The distribution of Project trips has been estimated using engineering judgment considering available routes and complementary uses. The percentage distribution of Project trips is presented in the attached Figure 4.1, Project Trip Distribution Percentages.

The peak-hour Project trips presented in Tables 4.3 through 4.4 were assigned to the study intersections in accordance with the trip distribution percentages described above and are presented in the following figures:

Figure 4.2a: Primary Project Trips – Phase 1 (A.M. and P.M. Peak Hours)
Figure 4.2b: Primary Project Trips – Phase 1 (Midday Peak Hour)
Figure 4.3a: Project Pass-By Trips – Phase 1 (A.M. and P.M. Peak Hours)
Figure 4.3b: Project Pass-By Trips – Phase 1 (Midday Peak Hour)
Figure 4.4a: Primary Project Trips – Phases 1 and 2 (A.M. and P.M. Peak Hours)
Figure 4.4b: Primary Project Trips – Phases 1 and 2 (Midday Peak Hour)
Figure 4.5a: Project Pass-By Trips – Phases 1 and 2 (A.M. and P.M. Peak Hours)
Figure 4.5b: Project Pass-By Trips – Phases 1 and 2 (Midday Peak Hour)

4.4 – Phase 2 Alternative

A potential alternative is being considered in which Phase 2 would be developed as an automobile sales project. Table A.3 in Appendix A presents trip generation calculations for the alternate Phase 2 project, and the results are summarized in Table 4.5 below. It should be noted that ITE Code 840 for new automobile sales was utilized instead of ITE Code 841 for used automobile sales because the average building size for Code 841 is only 2,000 square feet, and the maximum building size studied was less than 5,000 square feet. The building area that would be constructed is not within the data range for ITE Code 841; therefore, ITE Code 840 was utilized.

Other than the information presented in Table 4.5, analysis of the Phase 2 alternative is not proposed as part of the scope of this traffic impact analysis.

Table 4.5
Alternate Phase 2 Trip Generation

ITE Land Use	Building Area	A.M. Peak Hour Traffic Volumes		Midday Peak Hour Traffic Volumes		P.M. Peak Hour Traffic Volumes		Weekday Traffic Volume
		Enter	Exit	Enter	Exit	Enter	Exit	Total
Automobile Sales (New) (840)	8,600 sq. ft.	12	5	10	9	9	13	240

4.5 – Outlot 2 Assumptions

Development of Outlot 2 is not considered part of the current Project. A future development on Outlot 2 would share access with Phase 1 and Phase 2 of the Project. Therefore, for purposes of the cumulative analyses, an assumption has been made that 100 units of senior housing would be developed on Outlot 2 in the future. Table A.4 in Appendix A presents trip generation calculations for Outlot 2, and the results are summarized in Table 4.6 below.

Table 4.6
Outlot 2 Trip Generation

ITE Land Use	Building Area	A.M. Peak Hour Traffic Volumes		Midday Peak Hour Traffic Volumes		P.M. Peak Hour Traffic Volumes		Weekday Traffic Volume
		Enter	Exit	Enter	Exit	Enter	Exit	Total
Senior Housing - Attached (252)	100	7	13	16	17	14	12	370

5.0 – EXISTING CONDITIONS

5.1 – Existing Roadway Network

The Project study area includes 29 intersections, the locations of which are illustrated in Figure 1.3, Study Intersections. The existing lane configurations and intersection control at the study locations are presented in Figure 5.1, Existing Lane Configurations and Intersection Control.

A description of the major roadways in the vicinity of the Project site is presented below.

Mooney Boulevard (State Route 63) is a north-south roadway designated as an arterial in the City of Visalia General Plan. North of the Project site Mooney Boulevard is a six-lane divided highway with signalized intersections, dedicated left- and right-turn lanes, and frequent commercial driveways. The speed limit is posted as 40 miles per hour (MPH) north of Visalia Parkway. South of the Project site Mooney Boulevard is generally a four-lane divided highway that is slightly more rural in nature than it is to the north and a posted speed limit of 55 MPH south of Midvalley Avenue.

Visalia Parkway is an east-west roadway designated as an arterial in the City of Visalia General Plan. The roadway generally consists of one lane in each direction with dedicated left-turn lanes. Within the Project vicinity, the north side of the roadway has been developed to its ultimate width including curb and gutter, while the south side (eastbound lane) is generally narrow with dirt shoulders. The posted speed limit is 40 MPH on both sides of Mooney Boulevard

5.2 – Existing Transit Service

Visalia Transit operates 13 fixed-route buses that service Visalia, Farmersville, Exeter, Goshen, and Tulare. Visalia Transit connects with Tulare InterModal Express, Tulare County Area Transit, Kings Area Regional Transit, Greyhound, and Amtrak. Visalia Transit provides a supplemental Dial-A-Ride service, curb to curb service designed to provide comparable paratransit service for individuals with disabilities who are not able to use the fixed route service. Dial-a-Ride also provides same-day service to the general public (non-ADA certified passengers), but are limited to same day reservations and space availability.

Youth can travel from schools to near-by recreation centers via the Loop Bus. The V-Line provides service from Visalia to Fresno. Visalia Transit also manages the Sequoia Shuttle, which is a seasonal transit service to and from the Sequoia National Park, made possible through a partnership with the National Parks Service. Finally, the Visalia Towne Trolley operates year-round through the heart of the City of Visalia.

Visalia Transit Routes 1A and 1B travel past the Project site on Mooney Boulevard. Route 12B travels north and east of the intersection of Mooney Boulevard and Visalia Parkway.

5.3 – Existing Bicycle and Pedestrian Facilities

The City of Visalia Bikeway Plan encourages the use of walking and bicycling and recognizes three classes of bikeways:

- Bike Path (Class I Bikeway, including paseos and public greenways). Provides a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with cross flows by motorists minimized.
- Bike Lane (Class II Bikeway). Provides a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through-travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted.
- Bike Route (Class III Bikeway). Provides right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

Dedicated bicycle facilities are not present in the immediate Project vicinity Visalia Parkway is planned for Class II bike lanes, while Mooney Boulevard is not designated for a bikeway.

Pedestrian facilities, including sidewalks, crosswalks, and pedestrian traffic signals at signalized intersections, are well established in the developed areas north of Visalia Parkway. Areas south of Visalia Parkway are typically less developed and pedestrian connectivity is not well established.

5.4 – Existing Traffic Volumes

Existing peak-hour traffic volumes at the study intersections were determined by performing manual turning-movement counts at the study intersections on a weekday at the following times:

- 7:00 a.m. to 9:00 a.m. (to determine a.m. peak hour volumes)
- 11:00 a.m. to 1:00 p.m. (to determine a.m. peak hour volumes)
- 2:00 p.m. to 6:00 p.m. (to determine a.m. peak hour volumes)

The counts included turning movements, heavy vehicles, pedestrians, bicycles, and right turns on red. The traffic count data sheets are presented in Appendix B. The existing peak-hour turning movement volumes are presented in Figure 5.2a, Existing A.M. and P.M. Peak-Hour Traffic Volumes and Figure 5.2b, Existing Midday Peak-Hour Traffic Volumes.

The site is adjacent to urbanized areas and counts were performed while school was in session; therefore, seasonal and daily adjustments were not applied.

5.5 – Existing-Conditions Intersection LOS Analysis

The results of the existing-conditions intersection LOS analyses are summarized in Table 5.1. The intersection analysis sheets are presented in Appendix C. Levels of service and delays worse than the target LOS D or indicated in bold type and are underlined.

Table 5.1
Intersection Analysis Summary – Existing Conditions

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	23.9	C	17.1	B	21.5	C
Whitendale / Mooney	Signals	18.5	B	25.1	C	22.9	C
Sunnyside / Mooney	Signals	11.2	B	16.5	B	17.3	B
Orchard / Mooney	Signals	9.7	A	15.6	B	15.3	B
Caldwell / Demaree	Signals	25.4	C	22.0	C	27.3	C
Caldwell / Dans	TWS	**37.5**	**E**	22.9	C	**36.0**	**E**
Caldwell / County Center	Signals	16.4	B	18.6	B	20.6	C
Caldwell / Shady	Signals	13.4	B	14.3	B	14.6	B
Caldwell / Mooney	Signals	18.7	B	28.1	C	28.9	C
Caldwell / Fairway	Signals	13.3	B	16.5	B	19.1	B
Caldwell / Stonebrook	Signals	6.8	A	7.9	A	6.9	A
Cameron / County Center	OWS	15.4	C	16.9	C	19.6	C
Cameron / Mooney	Signals	15.4	B	25.5	C	23.8	C
Cameron / Stonebrook	OWS	**43.7**	**E**	**36.1**	**E**	**44.6**	**E**
Cameron / West	TWS	30.6	D	**38.1**	**E**	**61.4**	**F**
Visalia Pwy / Demaree	Signals	22.2	C	17.2	B	19.9	B
Visalia Pwy / Dans	TWS	31.5	D	16.9	C	20.2	C
Visalia Pwy / County Center	OWS	22.9	C	19.3	C	28.3	D
Visalia Pwy / Outlot 1	DNE						
Visalia Pwy / Main Site	OWS	11.7	B	14.7	B	17.3	C
Visalia Pwy / East Site	DNE						
Visalia Pwy / Mooney	Signals	21.9	C	27.4	C	30.7	C
Visalia Pwy / Stonebrook	DNS	DNS	DNS	DNS	DNS	DNS	DNS
North Site / Mooney	DNE						
South Site / Mooney	DNE						
Midvalley / Mooney	Signals	5.9	A	6.1	A	5.6	A
Ave 272 / Road 108	Signals	12.8	B	11.5	B	12.7	B
Ave 272 / Mooney	TWS	**77.2**	**F**	**119.7**	**F**	**134.5**	**F**
Ave 268 / Mooney	Signals	8.3	A	9.5	A	14.3	B

5.6 – Existing-Conditions Queuing Analysis

The results of the existing conditions queuing analyses are summarized in Table 5.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 5.2
Queuing Analysis Summary – Existing Conditions

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	55	124	0	18	108	0	39	85	0	27	86	0
	Midday	46	168	0	47	161	0	51	167	0	61	148	0
	P.M.	69	273	6	64	204	0	64	185	0	60	169	3
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	45	73	35	62	83	17	39	113	35	32	102	0
	Midday	64	82	63	107	90	20	100	238	44	78	289	2
	P.M.	57	116	59	98	106	0	104	217	51	65	263	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	50	0		8	0		47	142		83	126	
	Midday	159	43		25	49		135	301		124	400	
	P.M.	151	37		18	58		93	292		108	360	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	0		26	0		10	127	0	61	93	0
	Midday	46	36		80	53		32	298	0	221	273	0
	P.M.	37	31		84	48		45	256	0	174	261	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	186	220		65	233	44	90	203	0	75	234	
	Midday	139	185		77	165	39	53	133	33	71	151	
	P.M.	222	327		105	257	54	88	220	49	119	203	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	P	S
	A.M.	3			5				80			10	
	Midday	0			3				15			15	
	P.M.	3			5				30			28	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	67	166		15	134		95	93	0	54	103	24
	Midday	62	195		18	161		137	122	0	95	114	8
	P.M.	96	263		25	186		129	143	0	108	140	18
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	36	127		27	112			37			9	0
	Midday	57	145		62	133			35			27	0
	P.M.	63	176		77	147			7			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	58	83		45	91		41	101	16	30	90	0
	Midday	154	163		140	119		159	223	36	114	338	41
	P.M.	150	202		126	158		140	227	38	106	306	39
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	54	81		70	103		19	29		26	21	
	Midday	81	106		106	116		51	66		55	50	
	P.M.	108	173		144	150		61	70		**107**	49	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	23	55	0	0	138	0		5			36	0
	Midday	27	134	0	6	132	0		0			16	0
	P.M.	48	199	0	5	171	6		18			29	7

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 5.2 (Continued)
Queuing Analysis Summary – Existing Conditions

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				10		15				13		
	Midday				10		38				18		
	P.M.				43		18				23		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	64	56		83	68		8	109	15	37	77	0
	Midday	248	130		138	93		51	209	0	163	234	53
	P.M.	182	136		145	97		41	196	32	137	195	40
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					28		5		28			
	Midday					15		13		40			
	P.M.					18		5		80			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	5			0				20	0	0	0	20
	Midday	8			0				10	0	0	3	18
	P.M.	10			0				15	0	5	5	25
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	46	190	0	72	68	0	59	166		92	129	
	Midday	32	103	0	67	46	8	34	123		101	113	
	P.M.	25	150	0	105	68	16	59	167		118	152	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	18			0				5			93	
	Midday	3			0				0			10	
	P.M.	5			0				0			18	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	8									28		28
	Midday	5									28		10
	P.M.	8									33		18
Visalia Pwy/ Outlot 1	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	DNS	S	DNE	DNE	DNE	P	DNE	S
	A.M.		3								3		
	Midday		5								23		
	P.M.		5								30		
Visalia Pwy/ East Site	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Mooney	Storage	180	*	S	175	*	S	240	*	S	295	*	215
	A.M.	87	219		**214**	154		114	296		28	120	0
	Midday	136	269		**248**	219		129	328		114	176	0
	P.M.	144	306		**291**	224		151	385		81	220	0

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 5.2 (Continued)
Queuing Analysis Summary – Existing Conditions

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	DNS	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNS
	A.M.												
	Midday												
	P.M.												
North Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
South Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		32	0		0		14	164		14	145	1
	Midday		34	0		0		18	196		22	202	10
	P.M.		37	0		0		15	220		17	218	15
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	15	69		17	48		29	190		71	140	
	Midday	11	36		23	45		17	118		42	115	
	P.M.	17	33		29	98		25	179		29	171	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		25			68		5			0		
	Midday		115			45		3			3		
	P.M.		70			28		23			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		25	0		33		66	166		44	170	
	Midday		84	3		4		65	172		46	207	
	P.M.		142	35		26		121	277		73	311	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

5.7 – Existing-Conditions Traffic Signal Warrants Analysis

This report includes analysis of traffic signal warrants at seven intersections. The warrant analysis focused on Warrants 1, 2, 3, and 7; the warrant worksheets are presented in Appendix D.

Crash records were obtained from the Statewide Integrated Traffic Records System (SWITRS) for the years 2016, 2017, and 2018. Table 5.3 summarizes general crash information at the study intersections.

Table 5.3
Crash Records Summary

Intersection	Date of Collision	Primary Factor	Type	Correctable With Traffic Signals?
Caldwell / Dans	No information found.			
Cameron / County Center	10/03/2016	Right of Way	Broadside	Yes
	10/29/2016	Unknown	Broadside	Yes
Cameron / Stonebrook	No information found.			
Cameron / West	10/06/2016	Right of Way	Head-On	Yes
	12/28/2017	Improper Turn	Broadside	Yes
Visalia Pwy / Dans	11/01/2017	Alcohol/Drug	Rear-End	No
Visalia Pwy / County Center	No information found.			
Ave 272 / Mooney	09/26/2017	Right of Way	Broadside	Yes
	01/10/2018	Run Stop Sign	Broadside	No

Table 5.4 summarizes the traffic signal warrants studies.

Table 5.4
Traffic Signal Warrants Summary – Existing Conditions

Intersection	Warrant 1	Warrant 2	Warrant 3	Warrant 7
Caldwell / Dans	Not satisfied	Satisfied*	Satisfied*	Not satisfied
Cameron / County Center	Not satisfied	Not satisfied	Not satisfied	Not satisfied
Cameron / Stonebrook	Satisfied*	Satisfied*	Satisfied*	Not satisfied
Cameron / West	Satisfied*	Satisfied*	Satisfied*	Not satisfied
Visalia Pwy / Dans	Not satisfied	Satisfied*	Satisfied*	Not satisfied
Visalia Pwy / County Center	Not satisfied	Satisfied*	Not satisfied	Not satisfied
Ave 272 / Mooney	Satisfied*	Satisfied*	Satisfied*	Not satisfied

* A substantial amount of the minor street traffic is right turns. If the right turns are excluded then peak-hour warrants may not be satisfied.

The results of the warrants analyses indicate that the intersection of Cameron Avenue and County Center Drive is the only intersection at which volumes clearly do not warrant traffic signals in the existing condition.

At each of the other intersections studied, traffic signal warrants are satisfied based purely on the total approach traffic volumes. However, in each case the minor street traffic consists of a substantial number of right turns, without which the traffic volumes would not satisfy the traffic signal warrants studied. Furthermore, in each peak-hour scenario the calculated delay (Warrant 3, Part A, Item 1) is less than the required number of vehicle-hours. This further supports the conclusion that warrants may not be satisfied if right turns were excluded from the analysis. The low number of crashes reported also suggests that traffic signals may not be clearly warranted at the intersections. Each intersection is discussed below.

The intersection of Caldwell Avenue and Dans Street has one-way stop control plus an uncontrolled private driveway on the north (modeled as two-way stop control) and

experiences a high volume of traffic on the major street (Caldwell Avenue, with over 1,500 combined trips during some hours) and typically experiences less than 100 trips per hour approaching Caldwell Avenue on Dans Street, with occasional hours exceeding 100 trips. During the peak hours the number of right turns from Dans Street is approximately double the number of left turns. Considering that Dans Street is designated as a local street in the City of Visalia General Plan, and that County Center Drive exists approximately 1,000 feet to the east, it is recommended that traffic signals not be considered warranted at this time.

The traffic volumes at the intersection of Cameron Avenue and County Center Drive do not satisfy the traffic signal warrants analyzed. It is noted that the counts included the existing trail crosswalk on the north side of the intersection, and very few pedestrians and bicyclists were observed.

The intersection of Cameron Avenue and Stonebrook Street has one-way stop control and experiences a high volume of traffic on the major street (Cameron Avenue, with over 1,000 combined trips during several hours) and typically experiences over 200 northbound trips per hour on Stonebrook Street. The number of peak-hour left turns from northbound Stonebrook Street is typically less than 10 per hour, with a maximum of six observed in the turning movement counts during any 15-minute period counted. A vast majority of the minor street traffic turns right, and the calculated delay (Warrant 3, Part A, Item 1) is less than the required number of vehicle-hours. Therefore, it is recommended that traffic signals not be considered warranted at this time.

The intersection of Cameron Avenue and West Street has two-way stop control and experiences a high volume of traffic on the major street (Cameron Avenue, with over 1,000 combined trips during several hours) and experiences over 100 southbound trips per hour during several hours on West Street. The number of either the peak-hour left turns or through movements from West Street is typically less than 10 per hour, with a maximum of nine (northbound left turn) observed in the turning movement counts during any 15-minute period counted. A vast majority of the minor street traffic turns right from southbound West Street, and the calculated delay (Warrant 3, Part A, Item 1) is less than the required number of vehicle-hours. Therefore, it is recommended that traffic signals not be considered warranted at this time.

The intersection of Visalia Parkway and Dans Street has two-way stop control and typically experiences less than 100 trips per hour approaching on Dans Street, with occasional hours exceeding 100 trips. During the peak hours the number of right turns from Dans Street is approximately double to triple the number of left turns. If right-turns are excluded from the analyses the traffic signal warrants would clearly not be satisfied, and the calculated delay (Warrant 3, Part A, Item 1) is less than the required number of vehicle-hours. Considering that Dans Street is designated as a local street in the City of Visalia General Plan, and that County Center Drive exists approximately 1,000 feet to the east, it is recommended that traffic signals not be considered warranted at this time.

The intersection of Visalia Parkway and County Center Drive has one-way stop control and typically experiences less than 1,000 combined trips per hour on Visalia Parkway, with more than 150 trips per hour approaching on County Center Drive during several hours. Only the four-warrant is satisfied based on total traffic volumes; however, if right-turns are excluded

from the analyses the traffic signal warrants would not be satisfied. It is recommended that traffic signals not be considered warranted at this time.

The intersection of Mooney Boulevard (SR 63) and Avenue 272 has two-way stop control and typically experiences between 1,000 and 2,000 combined trips per hour on Mooney Boulevard, with peaks exceeding 2,000 trip per hour. The intersection typically experiences less than 100 trips per hour approaching from either minor street approach, with occasional hours exceeding 150 trips from one minor street approach. If right-turns are excluded from the analyses the traffic signal warrants would clearly not be satisfied. The calculated delay (Warrant 3, Part A, Item 1) is less than the required number of vehicle-hours. Therefore, it is recommended that traffic signals not be considered warranted at this time.

5.8 – Existing Conditions Deficiencies

The following intersections are currently operating at levels of service worse than the target LOS D:

- Caldwell Avenue / Dans Street (one-way stop control plus a private driveway on the north side with LOS E on the northbound approach during the a.m. and p.m. peak hours, traffic signal warrants not considered to be satisfied)
- Cameron Avenue / Stonebrook Street (one-way stop control with LOS E during all three peak hours for the northbound left turn, traffic signal warrants not considered to be satisfied);
- Cameron Avenue / West Street (two-way stop control with LOS E during the midday peak hour and LOS F during the p.m. peak hour for the northbound left turn; LOS E for southbound left turn and through, traffic signal warrants not considered to be satisfied);
- Avenue 272 / Mooney Boulevard (two-way stop control with LOS F during all three peak hours on minor street approaches, traffic signal warrants not considered to be satisfied).

The calculated 95th-percentile queues at the following intersections exceed the storage capacity as described:

- Caldwell Avenue / Fairway Street (left-turn lane on southbound approach during the p.m. peak hour);
- Visalia Parkway / Mooney Boulevard (left-turn lane on the westbound approach during all three peak hours).

6.0 – EXISTING-PLUS-PROJECT PHASE 1 CONDITIONS

6.1 – Existing-Plus-Project Phase 1 Lane Configurations and Intersection Control

The existing-plus-Project Phase 1 lane configurations and intersection control are presented in Figure 6.1, Existing Plus Project Phase 1 Lane Configurations and Intersection Control.

6.2 – Existing-Plus-Project Phase 1 Traffic Volumes

The existing-plus-Project Phase 1 peak-hour traffic volumes are determined by adding the existing traffic volumes (Figure 5.2) and the Project traffic volumes (Figures 4.2 and 4.3). The resulting existing-plus-Project Phase 1 peak-hour traffic volumes are presented in the following figures:

Figure 6.2a: Existing-Plus-Project Phase 1 Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 6.2b: Existing-Plus-Project Phase 1 Peak Hour Traffic Volumes (Midday Peak Hour)

6.3 – Existing-Plus-Project Phase 1 Intersection LOS Analysis

The results of the existing-plus-Project Phase 1 intersection LOS analyses are summarized in Table 6.1. The intersection analysis sheets are presented in Appendix C. Project significant impacts are identified in bold type and are underlined. Levels of service and delays that are worse than the target LOS but are not representative of a Project significant impact are identified in italic type and are underlined.

6.4 – Existing-Plus-Project Phase 1 Queuing Analysis

The results of the existing-plus-Project Phase 1 queuing analyses are summarized in Table 6.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 6.1
Intersection Analysis Summary – Existing-Plus-Project Phase 1

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	24.0	C	17.3	B	21.7	C
Whitendale / Mooney	Signals	18.9	B	26.2	C	23.6	C
Sunnyside / Mooney	Signals	11.2	B	16.9	B	17.6	B
Orchard / Mooney	Signals	10.1	B	16.1	B	15.8	B
Caldwell / Demaree	Signals	26.0	C	22.6	C	28.1	C
Caldwell / Dans	TWS	**42.5**	**E**	25.5	D	*39.9*	*E*
Caldwell / County Center	Signals	17.0	B	20.7	C	22.5	C
Caldwell / Shady	Signals	13.3	B	14.2	B	14.6	B
Caldwell / Mooney	Signals	19.7	B	31.4	C	31.8	C
Caldwell / Fairway	Signals	13.3	B	16.7	B	19.4	B
Caldwell / Stonebrook	Signals	6.8	A	7.9	A	7.0	A
Cameron / County Center	OWS	16.0	C	17.8	C	20.4	C
Cameron / Mooney	Signals	16.1	B	27.6	C	25.1	C
Cameron / Stonebrook	OWS	**52.4**	**F**	**46.0**	**E**	**54.4**	**F**
Cameron / West	TWS	**38.7**	**E**	**51.9**	**F**	**86.4**	**F**
Visalia Pwy / Demaree	Signals	23.5	C	18.0	B	20.8	C
Visalia Pwy / Dans	TWS	**39.8**	**E**	18.7	C	22.2	C
Visalia Pwy / County Center	OWS	30.7	D	29.7	D	**43.3**	**E**
Visalia Pwy / Outlot 1	DNE						
Visalia Pwy / Main Site	TWS	**44.0**	**E**	**>300**	**F**	**>300**	**F**
Visalia Pwy / East Site	OWS	12.7	B	19.0	C	16.5	C
Visalia Pwy / Mooney	Signals	24.6	C	39.3	D	37.3	D
Visalia Pwy / Stonebrook	DNS	DNS	DNS	DNS	DNS	DNS	DNS
North Site / Mooney	OWS	11.6	B	15.6	C	15.3	C
South Site / Mooney	OWS	11.7	B	17.2	C	16.3	C
Midvalley / Mooney	Signals	5.9	A	6.4	A	5.8	A
Ave 272 / Road 108	Signals	12.9	B	11.5	B	12.8	B
Ave 272 / Mooney	TWS	**145.7**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.3	A	9.7	A	15.4	B

Table 6.2
Queuing Analysis Summary – Existing Plus-Project Phase 1

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	132	212	23	47	189	0	103	140	0	63	142	27
	Midday	46	175	0	47	169	0	51	167	0	61	148	0
	P.M.	69	282	6	64	209	0	64	185	0	60	169	3
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	46	74	40	67	84	17	42	124	38	33	115	0
	Midday	68	87	68	119	95	20	111	165	52	82	321	2
	P.M.	59	122	62	106	111	0	112	236	58	68	286	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	51	0		11	0		49	156		85	140	
	Midday	159	43		31	49		138	334		124	439	
	P.M.	156	39		27	59		98	319		110	390	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	0		31	0		11	141	0	62	106	0
	Midday	48	41		92	56		37	343	0	234	310	0
	P.M.	38	34		92	50		50	287	0	184	289	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	190	238		66	247	44	94	210	0	76	241	
	Midday	143	211		79	186	39	57	140	34	74	160	
	P.M.	227	353		108	277	54	93	227	50	121	211	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	P	S
	A.M.	3			5				90			10	
	Midday	0			3				18			18	
	P.M.	3			5				35			30	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	67	176		15	142		102	99	0	65	110	24
	Midday	62	235		18	176		158	132	0	122	125	8
	P.M.	96	284		25	198		147	151	0	130	150	18
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	37	135		28	119			38			10	0
	Midday	58	156		63	144			35			28	0
	P.M.	63	187		77	157			7			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	60	91		56	94		52	115	16	31	109	9
	Midday	162	185		172	123		192	256	40	121	399	42
	P.M.	163	230		156	168		172	260	43	115	357	24
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	56	86		70	110		19	29		26	22	
	Midday	86	116		108	126		51	66		**56**	51	
	P.M.	114	183		148	160		64	72		**111**	53	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	26	58	0	0	144	0		5			38	0
	Midday	31	142	0	6	141	0		0			17	4
	P.M.	51	207	0	5	181	6		18			29	10

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 6.2 (Continued)
Queuing Analysis Summary – Existing Plus-Project Phase 1

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				10		15				13		
	Midday				10		40				18		
	P.M.				18		45				23		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	70	65		106	74		15	140	25	40	109	0
	Midday	267	150		183	101		64	283	15	177	304	72
	P.M.	200	161		183	107		53	253	46	151	245	47
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					30		5		33			
	Midday					20		15		53			
	P.M.					20		5		100			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	5			0				25	0	3	3	25
	Midday	8			0				18	0	0	3	20
	P.M.	13			0				25	0	8	5	30
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	46	199	0	79	72	0	59	168		107	129	
	Midday	32	115	0	83	51	16	34	124		123	113	
	P.M.	25	160	0	115	72	22	59	173		123	152	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	18			0				8			123	
	Midday	3			0				0			15	
	P.M.	3			0				0			23	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	8									50		30
	Midday	5									65		13
	P.M.	8									68		18
Visalia Pwy/ Outlot 1	Storage												
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	725	S	S	P	S	S	P	S
	A.M.		5			10			198			8	
	Midday		5			8			573			475	
	P.M.		8			10			580			525	
Visalia Pwy/ East Site	Storage	DNE	DNS	DNS	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									20			
	Midday									53			
	P.M.									38			
Visalia Pwy/ Mooney	Storage	180	*	TBD	175	*	S	240	*	S	295	*	215
	A.M.	**283**	139	44	**228**	214		140	275		28	171	5
	Midday	**500**	186	49	**252**	308		200	313		139	264	51
	P.M.	**452**	206	57	**270**	308		219	360		81	277	21

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 6.2 (Continued)
Queuing Analysis Summary – Existing Plus-Project Phase 1

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	DNS	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNS
	A.M.												
	Midday												
	P.M.												
North Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	DNE	DNS	DNE	DNE	DNS	DNS
	A.M.			10									
	Midday			25									
	P.M.			18									
South Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	TBD	DNS	DNE	DNE	DNS	DNS
	A.M.			13				23					
	Midday			30				63					
	P.M.			23				48					
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		41	0		0		15	194		15	168	3
	Midday		43	0		0		18	248		22	253	14
	P.M.		44	0		0		15	262		17	261	18
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	15	71		17	50		29	192		71	141	
	Midday	11	40		23	48		17	121		42	118	
	P.M.	17	35		29	102		25	181		29	173	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		80			98		5			0		
	Midday		213			90		5			3		
	P.M.		123			45		28			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		26	0		35		69	191		47	198	
	Midday		92	3		4		70	204		50	245	
	P.M.		145	35		26		121	324		73	363	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

6.5 – Existing-Plus-Project Phase 1 Transit, Bicycle, and Pedestrian Facilities

The proposed Project is not expected to impede or interfere with existing transit, bicycle, and pedestrian facilities.

6.6 – Existing-Plus-Project Phase 1 Potentially-Significant Impacts and Mitigation Measures

The Project Phase 1 potentially-significant impacts are described below, followed by the recommended mitigation measure or action.

Impact 1-1

At the intersection of Caldwell Avenue and Dans Street, the Project will exacerbate the delay associated with the existing LOS E by an additional 5.0 seconds on the northbound approach during the a.m. peak hour.

Recommendation 1-1

Traffic signal warrants are not satisfied in the existing condition at the intersection of Caldwell Avenue and Dans Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. Furthermore, alternate routes and connectivity are available for vehicles traveling on Dans Street, and the distance to County Center Drive is relatively short (signals at both intersections would be in close proximity) and it is anticipated that County Center Drive is a more likely candidate for signalization. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 1-2

At the intersection of Cameron Avenue and Stonebrook Street, the Project will cause the LOS to drop from E to F in the left-turn lane on the northbound approach during the a.m. and p.m. peak hours, and will exacerbate the delay associated with the existing LOS E by more than 5.0 seconds in the left-turn lane on the northbound approach during the midday peak hours.

Recommendation 1-2

Traffic signal warrants are not satisfied in the existing condition at the intersection of Cameron Avenue and Stonebrook Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 1-3

At the intersection of Cameron Avenue and West Street, the Project will cause the LOS to drop from D to E on the northbound approach during the a.m. peak hour, will cause the LOS to drop from E to F on the northbound approach during the midday peak hour, and will exacerbate the delay associated with the existing LOS F by more than 5.0 seconds during the p.m. peak hour. Both the northbound and southbound approaches are operating below the target LOS during the p.m. peak hour in the existing condition and the delays will be exacerbated by the Project.

Recommendation 1-3

Traffic signal warrants are not satisfied in the existing condition at the intersection of Cameron Avenue and West Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional

discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

Impact 1-4

At the intersection of Visalia Parkway and Dans Street, the Project will cause the LOS to drop from D to E on the southbound approach during the a.m. peak hour.

Recommendation 1-4

Traffic signal warrants are not satisfied in the existing condition at the intersection of Visalia Parkway and Dans Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. Furthermore, alternate routes and connectivity are available for vehicles traveling on Dans Street, and the distance to County Center Drive is relatively short (signals at both intersections would be in close proximity) and it is anticipated that County Center Drive is a more likely candidate for signalization. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

Impact 1-5

At the intersection of Visalia Parkway and County Center Drive, the Project will cause the LOS to drop from D to E in the left-turn lane on the southbound approach during the p.m. peak hour.

Recommendation 1-5

Traffic signal warrants are not satisfied in the existing condition at the intersection of Visalia Parkway and County Center Drive, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 1-6

At the intersection of Visalia Parkway and the Main Site Access, the intersection would operate at LOS E during the a.m. peak hour and LOS F during the midday and p.m. peak hours with two-way stop control.

Recommendation 1-6

Peak-hour traffic signal warrants are expected to be satisfied based on existing conditions plus Phase 1 of the project at the intersection of Visalia Parkway and the Main Site Access, which also includes the existing shopping center access on the north. Peak-hour warrants are presented in Appendix D. Considering the anticipated heavy minor street

volumes and heavy turning movements over numerous hours per day, it is recommended that traffic signals be installed at the intersection. The proposed driveway should be aligned with the existing driveway on the north side of Visalia Parkway to facilitate signalization. The intersection should be designed to accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the existing-plus-Project condition are as follows:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: one left-turn lane and one through lane with a shared right turn
Northbound: one shared left-turn/through and one right-turn lane
Southbound: one shared left-turn/through/right-turn lane (existing driveway)

Impact 1-7

At the intersection of Visalia Parkway and Mooney Boulevard, the Project will cause the calculated 95th percentile queues to exceed the existing storage capacity in the left-turn lane on the eastbound approach.

Recommendation 1-7

The Project includes construction of a median on Visalia Parkway. The median construction should accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the existing-plus-Project condition are as follows:

Eastbound: two left-turn lanes, one through lane, and one right-turn lane
Westbound: two left-turn lanes and one through lane with a shared right turn
Northbound: one left-turn lane and two through lanes with a shared right turn
Southbound: one left-turn lane, three through lanes, and one right-turn lane

Impact 1-8

At the intersection of Avenue 272 and Mooney Boulevard, the Project will exacerbate the delay associated with the existing LOS F by more than 5.0 seconds on the westbound approach during the a.m. peak hour, and will exacerbate the delays associated with the existing LOS F by more than 5.0 seconds on the eastbound and westbound approaches during the midday and p.m. peak hours.

Recommendation 1-8

Traffic signal warrants are not satisfied in the existing condition at the intersection of Avenue 272 and Mooney Boulevard, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

6.7 – Summary of Existing-Plus-Project Phase 1 Mitigated Conditions

Tables 6.3 and 6.4 present a summary of the mitigated conditions. The mitigated intersection analyses sheets are presented in Appendix F.

Table 6.3
Mitigated Intersection Analysis Summary – Existing-Plus-Project Phase 1

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Visalia Pwy / Main Site	Signals	13.6	B	15.3	B	16.4	B
Visalia Pwy / Mooney	Signals	20.8	C	28.2	C	27.7	C

Table 6.4
Mitigated Queuing Analysis Summary – Existing Plus-Project Phase 1

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Main Site	A.M.	59	142	11	87	135			53	44		16	
	Midday	72	135	26	81	138			83	48		84	
	P.M.	92	167	14	114	195			66	43		82	
Visalia Pwy/ Mooney	A.M.	128	126	42	99	180		117	223		25	145	7
	Midday	231	179	49	132	258		164	292		112	247	48
	P.M.	208	197	54	137	260		178	334		74	274	21

Lanes should be designed to accommodate the calculated queues and should consider the calculated queues in the 20-year scenario. The City of Visalia requires a minimum storage length of 300 feet.
See Section 1.5 for a list of abbreviations

7.0 – EXISTING-PLUS-PROJECT PHASES 1 AND 2 CONDITIONS

7.1 – Existing-Plus-Project Phases 1 and 2 Lane Configurations and Intersection Control

The existing-plus-Project Phases 1 and 2 lane configurations and intersection control are presented in Figure 7.1, Existing Plus Project Phases 1 and 2 Lane Configurations and Intersection Control.

7.2 – Existing-Plus-Project Phases 1 and 2 Traffic Volumes

The existing-plus-Project Phases 1 and 2 peak-hour traffic volumes are determined by adding the existing traffic volumes (Figure 5.2) and the Project traffic volumes (Figures 4.4 and 4.5). The resulting existing-plus-Project Phases 1 and 2 peak-hour traffic volumes are presented in the following figures:

Figure 7.2a: Existing-Plus-Project Phases 1 and 2 Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 7.2b: Existing-Plus-Project Phases 1 and 2 Peak Hour Traffic Volumes (Midday Peak Hour)

7.3 – Existing-Plus-Project Phases 1 and 2 Intersection LOS Analysis

The results of the existing-plus-Project Phases 1 and 2 intersection LOS analyses are summarized in Table 7.1. The intersection analysis sheets are presented in Appendix C. Project significant impacts are identified in bold type and are underlined.

7.4 – Existing-Plus-Project Phases 1 and 2 Queuing Analysis

The results of the existing-plus-Project Phases 1 and 2 queuing analyses are summarized in Table 7.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 7.1
Intersection Analysis Summary – Existing-Plus-Project Phases 1 and 2

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	24.0	C	17.3	B	21.7	C
Whitendale / Mooney	Signals	18.9	B	26.4	C	23.7	C
Sunnyside / Mooney	Signals	11.2	B	16.9	B	17.7	B
Orchard / Mooney	Signals	10.0	B	16.2	B	15.9	B
Caldwell / Demaree	Signals	26.0	C	22.7	C	28.2	C
Caldwell / Dans	TWS	**43.2**	**E**	25.8	D	**41.3**	**E**
Caldwell / County Center	Signals	17.1	B	21.0	C	22.9	C
Caldwell / Shady	Signals	13.3	B	14.2	B	14.6	B
Caldwell / Mooney	Signals	19.7	B	32.2	C	29.8	C
Caldwell / Fairway	Signals	13.3	B	16.7	B	19.4	B
Caldwell / Stonebrook	Signals	6.8	A	7.9	A	7.0	A
Cameron / County Center	OWS	16.0	C	18.0	C	20.6	C
Cameron / Mooney	Signals	16.2	B	28.0	C	25.5	C
Cameron / Stonebrook	OWS	**53.6**	**F**	**48.0**	**E**	**56.5**	**F**
Cameron / West	TWS	**39.0**	**E**	**55.1**	**F**	**92.1**	**F**
Visalia Pwy / Demaree	Signals	23.5	C	18.2	B	21.1	C
Visalia Pwy / Dans	TWS	**40.1**	**E**	19.0	C	22.7	C
Visalia Pwy / County Center	OWS	30.9	D	32.5	D	**48.1**	**E**
Visalia Pwy / Outlot 1	OWS	10.7	B	11.8	B	12.1	B
Visalia Pwy / Main Site	TWS	**48.0**	**E**	**>300**	**F**	**>300**	**F**
Visalia Pwy / East Site	OWS	12.9	B	27.5	D	18.8	C
Visalia Pwy / Mooney	Signals	24.9	C	42.8	D	41.7	D
Visalia Pwy / Stonebrook	DNS	DNS	DNS	DNS	DNS	DNS	DNS
North Site / Mooney	OWS	11.7	B	16.4	C	15.9	C
South Site / Mooney	OWS	11.7	B	19.7	C	18.4	C
Midvalley / Mooney	Signals	5.9	A	6.4	A	5.8	A
Ave 272 / Road 108	Signals	12.9	B	11.6	B	12.8	B
Ave 272 / Mooney	TWS	**153.7**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.3	A	9.7	A	15.6	B

Table 7.2
Queuing Analysis Summary – Existing Plus-Project Phases 1 and 2

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	132	212	23	47	189	0	103	140	0	63	142	27
	Midday	46	177	0	47	170	0	51	167	0	61	148	0
	P.M.	69	284	6	64	211	0	64	185	0	60	169	3
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	46	74	40	67	85	17	42	124	38	33	115	0
	Midday	69	88	69	120	95	20	113	269	54	83	327	2
	P.M.	60	124	64	109	113	0	114	241	59	69	292	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	51	0		11	0		49	156		85	141	
	Midday	159	43		31	49		138	339		124	445	
	P.M.	156	40		30	59		98	324		110	396	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	0		31	0		11	141	0	62	107	0
	Midday	48	42		95	57		39	352	0	239	318	0
	P.M.	39	35		94	51		51	294	0	185	295	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	190	240		66	248	44	94	210	0	76	241	
	Midday	144	215		79	190	39	59	142	34	74	162	
	P.M.	228	358		108	282	54	94	229	49	121	213	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	200	S
	A.M.	3			5				90			10	
	Midday	0			3				18			18	
	P.M.	3			5				35			30	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	67	176		15	143		102	99	0	67	110	24
	Midday	62	239		18	178		161	134	0	125	126	8
	P.M.	96	288		25	201		150	153	0	133	152	18
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	37	135		28	119			38			10	0
	Midday	58	158		63	146			35			28	0
	P.M.	63	189		77	159			7			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	60	91		57	94		52	115	16	31	109	9
	Midday	162	187		176	123		197	262	43	121	407	42
	P.M.	132	179		130	131		143	252	71	93	341	41
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	56	86		70	110		19	29		26	22	
	Midday	86	117		107	127		52	67		**57**	52	
	P.M.	115	185		148	162		64	73		**111**	54	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	26	58	0	0	144	0		5			38	0
	Midday	32	143	0	6	142	0		0			17	4
	P.M.	52	208	0	5	183	6		18			29	10

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 7.2 (Continued)
Queuing Analysis Summary – Existing Plus-Project Phases 1 and 2

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				10		15				13		
	Midday				10		40				18		
	P.M.				18		45				23		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	70	65		107	74		15	141	26	40	110	0
	Midday	270	153		191	102		66	295	19	180	314	74
	P.M.	205	165		192	107		56	266	47	154	257	49
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					30		5		33			
	Midday					20		15		55			
	P.M.					20		8		105			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	5			0				25	0	3	3	25
	Midday	8			0				18	0	0	3	23
	P.M.	13			0				25	0	8	5	33
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	46	199	0	79	72	0	59	168		107	129	
	Midday	32	117	0	85	52	18	34	124		127	113	
	P.M.	25	162	0	116	73	24	59	173		128	152	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	18			0				8			123	
	Midday	3			0				0			18	
	P.M.	3			0				3			25	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	8									50		30
	Midday	5									75		13
	P.M.	8									78		18
Visalia Pwy/ Outlot 1	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									0			
	Midday									5			
	P.M.									5			
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	725	S	S	P	S	S	P	S
	A.M.		5			10			213			8	
	Midday		8			18			**>1000**			**595**	
	P.M.		8			15			**790**			**575**	
Visalia Pwy/ East Site	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									20			
	Midday									93			
	P.M.									53			
Visalia Pwy/ Mooney	Storage	180	*	TBD	175	*	S	240	*	S	295	*	215
	A.M.	**290**	140	44	**229**	215		141	276		28	173	8
	Midday	**557**	192	50	**251**	315		202	317		139	287	51
	P.M.	**548**	212	59	**273**	313		232	353		81	289	32

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 7.2 (Continued)
Queuing Analysis Summary – Existing Plus-Project Phases 1 and 2

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	DNS	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNS
	A.M.												
	Midday												
	P.M.												
North Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	DNE	DNS	DNE	DNE	DNS	DNS
	A.M.			10									
	Midday			30									
	P.M.			23									
South Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	TBD	DNS	DNE	DNE	DNS	DNS
	A.M.			13				23					
	Midday			40				85					
	P.M.			30				63					
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		41	0		0		15	195		15	169	3
	Midday		44	0		0		18	258		22	261	15
	P.M.		45	0		0		15	272		17	270	19
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	15	71		17	50		29	192		71	141	
	Midday	11	40		23	48		17	121		42	118	
	P.M.	17	36		29	103		25	182		29	173	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		83			100		5			0		
	Midday		228			100		5			3		
	P.M.		135			53		28			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		26	0		35		69	191		47	199	
	Midday		93	3		5		70	210		50	252	
	P.M.		145	35		26		121	336		73	376	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

7.5 – Existing-Plus-Project Phases 1 and 2 Transit, Bicycle, and Pedestrian Facilities

The proposed Project is not expected to impede or interfere with existing transit, bicycle, and pedestrian facilities.

7.6 – Existing-Plus-Project Phases 1 and 2 Potentially-Significant Impacts and Mitigation Measures

The Project Phases 1 and 2 potentially-significant impacts are described below, followed by the recommended mitigation measure or action.

Impact 2-1

At the intersection of Caldwell Avenue and Dans Street, the Project will exacerbate the delay associated with the existing LOS E by more than 5.0 seconds on the northbound approach during the a.m. and p.m. peak hours.

Recommendation 2-1

Traffic signal warrants are not satisfied in the existing condition at the intersection of Caldwell Avenue and Dans Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. Furthermore, alternate routes and connectivity are available for vehicles traveling on Dans Street, and the distance to County Center Drive is relatively short (signals at both intersections would be in close proximity) and it is anticipated that County Center Drive is a more likely candidate for signalization. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 2-2

At the intersection of Cameron Avenue and Stonebrook Street, the Project will cause the LOS to drop from E to F in the left-turn lane on the northbound approach during the a.m. and p.m. peak hours, and will exacerbate the delay associated with the existing LOS E by more than 5.0 seconds in the left-turn lane on the northbound approach during the midday peak hours.

Recommendation 2-2

Traffic signal warrants are not satisfied in the existing condition at the intersection of Cameron Avenue and Stonebrook Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 2-3

At the intersection of Cameron Avenue and West Street, the Project will cause the LOS to drop from D to E on the northbound approach during the a.m. peak hour, will cause the LOS to drop from E to F on the northbound approach during the midday peak hour, and will exacerbate the delay associated with the existing LOS F by more than 5.0 seconds during the p.m. peak hour. Both the northbound and southbound approaches are operating below the target LOS during the p.m. peak hour in the existing condition and the delays will be exacerbated by the Project.

Recommendation 2-3

Traffic signal warrants are not satisfied in the existing condition at the intersection of Cameron Avenue and West Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional

discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

Impact 2-4

At the intersection of Visalia Parkway and Dans Street, the Project will cause the LOS to drop from D to E on the southbound approach during the a.m. peak hour.

Recommendation 2-4

Traffic signal warrants are not satisfied in the existing condition at the intersection of Visalia Parkway and Dans Street, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. Furthermore, alternate routes and connectivity are available for vehicles traveling on Dans Street, and the distance to County Center Drive is relatively short (signals at both intersections would be in close proximity) and it is anticipated that County Center Drive is a more likely candidate for signalization. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

Impact 2-5

At the intersection of Visalia Parkway and County Center Drive, the Project will cause the LOS to drop from D to E in the left-turn lane on the southbound approach during the p.m. peak hour.

Recommendation 2-5

Traffic signal warrants are not satisfied in the existing condition at the intersection of Visalia Parkway and County Center Drive, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current one-way stop control.

Impact 2-6

At the intersection of Visalia Parkway and the Main Site Access, the intersection would operate at LOS E during the a.m. peak hour and LOS F during the midday and p.m. peak hours with two-way stop control.

Recommendation 2-6

Considering the anticipated heavy minor street volumes and heavy turning movements over numerous hours per day, and that the peak-hour traffic signal warrant is expected to be satisfied in the existing-plus-Project condition, it is recommended that traffic signals be installed at the intersection. The proposed driveway should be aligned with the

existing driveway on the north side of Visalia Parkway to facilitate signalization. The intersection should be designed to accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the existing-plus-Project condition are as follows:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: one left-turn lane and one through lane with a shared right turn
Northbound: one shared left-turn/through and one right-turn lane
Southbound: one shared left-turn/through/right-turn lane (existing driveway)

Impact 2-7

At the intersection of Visalia Parkway and Mooney Boulevard, the Project will cause the calculated 95th percentile queues to exceed the existing storage capacity in the left-turn lane on the eastbound approach.

Recommendation 2-7

The Project includes construction of a median on Visalia Parkway. The median construction should accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the existing-plus-Project condition are as follows:

Eastbound: two left-turn lanes, one through lane, and one right-turn lane
Westbound: two left-turn lanes and one through lane with a shared right turn
Northbound: one left-turn lane and two through lanes with a shared right turn
Southbound: one left-turn lane, three through lanes, and one right-turn lane

Impact 2-8

At the intersection of Avenue 272 and Mooney Boulevard, the Project will exacerbate the delay associated with the existing LOS F by more than 5.0 seconds on the westbound approach during the a.m. peak hour, and will exacerbate the delays associated with the existing LOS F by more than 5.0 seconds on the eastbound and westbound approaches during the midday and p.m. peak hours.

Recommendation 2-8

Traffic signal warrants are not satisfied in the existing condition at the intersection of Avenue 272 and Mooney Boulevard, and the additional delays at the intersection with the Project Phase 1 are not expected to noticeably change the existing conditions through the course of the day. Therefore, although traffic signals could be installed and would result in LOS D or better, the signals are not expected to be warranted. For additional discussion of traffic signal warrants at the intersection, refer to Section 5.7. It is recommended that the intersection remain in its current configuration with the current two-way stop control.

7.7 – Summary of Existing-Plus-Project Phases 1 and 2 Mitigated Conditions

Tables 7.3 and 7.4 present a summary of the mitigated conditions. The mitigated intersection analyses sheets are presented in Appendix F.

Table 7.3
Mitigated Intersection Analysis Summary – Existing-Plus-Project Phases 1 and 2

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Visalia Pwy / Main Site	Signals	13.6	B	19.2	B	17.9	B
Visalia Pwy / Mooney	Signals	20.9	C	29.3	C	29.1	C

Table 7.4
Mitigated Queuing Analysis Summary – Existing Plus-Project Phases 1 and 2

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Main Site	A.M.	59	146	11	88	135			55	44		16	
	Midday	78	153	26	172	148			105	49		119	
	P.M.	109	198	15	138	192			80	44		109	
Visalia Pwy/ Mooney	A.M.	131	128	38	100	181		118	223		25	148	9
	Midday	251	193	50	127	263		170	296		112	270	53
	P.M.	231	193	54	144	268		184	330		74	287	32

Lanes should be designed to accommodate the calculated queues and should consider the calculated queues in the 20-year scenario. The City of Visalia requires a minimum storage length of 300 feet.
See Section 1.5 for a list of abbreviations

8.0 – FIVE-YEAR CUMULATIVE NO-PROJECT CONDITIONS

8.1 – Pending Projects

The analyses for the cumulative conditions consider the effects of traffic expected to be generated by pending and approved projects in the study area. Table 8.1 presents a summary of the pending projects that were provided by the City of Visalia as of the time the traffic counts were performed and that were considered in the analysis. The trip generation characteristics of the projects are presented in Table A.5 in Appendix A.

Table 8.1
Pending and Approved Projects

Project	Size or Units	Location	Status
SPR 2018-191 La-Z-Boy furniture store	15,600 sq. ft.	West of existing Costco	Under construction
CUP 2018-27 Oil and lube with three bays	2,050 sq. ft.	West of existing Costco	Under construction
SPR 2018-138 furniture store	33,000 sq. ft.	West of existing Costco	Under construction
SPR 2017-057 Convenience store and gas station	3,191 sq. ft. with 12 fueling positions	Southeast of Visalia Pwy & Demaree	Resubmit issued on July 24, 2019
SPR 2017-057 Retail Buildings	Four 6,500 sq. ft. buildings	SE of Visalia Pwy and Demaree	Resubmit issued on July 24, 2019
SPR 2019-126 Residential	228	NE of Visalia Pwy and Stonebrook	Resubmit issued on July 3, 2019
SPR 2019-125 Residential	3	NE of Visalia Pwy and Demaree	Revise and proceed issued August 7, 2019
SPR 2019-079 Restaurant	7,522 sq. ft.	West side of Mooney south of Caldwell	Revise and proceed issued, plans not submitted
CUP 2019-30 Dental	3,552 sq. ft.	West side of Mooney south of Sunnyside	Permits issued
CUP 2018-30 Medical office building	56,000 sq. ft.	North of Sunnyside and west of Mooney	Approved by planning commission, plans not submitted.
CUP 2019-32 Luv-2-Play	21,966 sq. ft.	North of Caldwell and west of Shady	CUP to planning commission on August 12, 2019
CUP 2019-11 Coffee Shop	560 sq. ft.	SW of Caldwell and Stonebrook	Approved by planning commission, plans submitted.
Los Pinos Subdivision	21	NW of Visalia Pwy and Dans	Under construction
Southern Highlands Subdivision	71 single-family and 40 multifamily units.	SW of Visalia Pwy and Dans	Under construction

It should be noted that a proposed commercial development at the southeast corner of Mooney Boulevard and Visalia Parkway was submitted to the City of Visalia after studies began and the baseline was established for the Commons at Visalia Parkway Shopping Center. City staff indicated that the TIA does not need to be updated to include recent projects submitted after preparation of the TIA began.

8.2 – Five-Year Cumulative No-Project Lane Configurations and Intersection Control

The five-year cumulative no-Project lane configurations and intersection control are presented in Figure 8.1, Five-Year Cumulative No-Project Lane Configurations and Intersection Control.

8.3 – Five-Year Cumulative No-Project Traffic Volumes

The five-year cumulative traffic volumes without the Project were estimated by adding the traffic volumes that are expected to occur as a result of the pending projects to the pending projects and, where applicable, also applying a growth rate based on a review of the growth projected by the Tulare County travel model (described in Section 12 of this report). The five-year cumulative no-Project traffic volumes are presented in the following figures:

Figure 8.2a: Five-Year Cumulative No-Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 8.2b: Five-Year Cumulative No-Project Peak Hour Traffic Volumes (Midday Peak Hour)

8.4 – Five-Year Cumulative No-Project Intersection LOS Analysis

The results of the five-year cumulative no-Project intersection LOS analyses are summarized in Table 8.2. The intersection analysis sheets are presented in Appendix C. Levels of service and delays worse than the target LOS D or indicated in bold type.

8.5 – Five-Year Cumulative No-Project Queuing Analysis

The results of the five-year cumulative no-Project queuing analyses are summarized in Table 8.3. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 8.2
Intersection Analysis Summary – Five-Year No-Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	24.6	C	17.7	B	22.1	C
Whitendale / Mooney	Signals	19.3	B	27.0	C	23.7	C
Sunnyside / Mooney	Signals	13.4	B	21.5	C	23.1	C
Orchard / Mooney	Signals	9.9	A	16.1	B	15.6	B
Caldwell / Demaree	Signals	26.6	C	23.1	C	29.5	C
Caldwell / Dans	TWS	**45.6**	**E**	25.5	D	**42.7**	**E**
Caldwell / County Center	Signals	16.9	B	19.9	B	22.5	C
Caldwell / Shady	Signals	13.3	B	14.3	B	14.6	B
Caldwell / Mooney	Signals	19.5	B	29.9	C	31.0	C
Caldwell / Fairway	Signals	13.2	B	16.6	B	19.3	B
Caldwell / Stonebrook	Signals	8.0	A	7.9	A	7.0	A
Cameron / County Center	OWS	16.2	C	18.5	C	21.8	C
Cameron / Mooney	Signals	16.3	B	28.3	C	25.4	C
Cameron / Stonebrook	OWS	**77.3**	**F**	**47.9**	**E**	**56.6**	**F**
Cameron / West	TWS	**39.0**	**E**	**47.0**	**E**	**79.8**	**F**
Visalia Pwy / Demaree	Signals	25.3	C	18.9	B	21.9	C
Visalia Pwy / Dans	TWS	**42.1**	**E**	17.0	C	24.0	C
Visalia Pwy / County Center	OWS	29.6	D	23.4	C	**41.4**	**E**
Visalia Pwy / Outlot 1	DNE						
Visalia Pwy / Main Site	OWS	12.4	B	16.0	C	19.7	C
Visalia Pwy / East Site	DNE						
Visalia Pwy / Mooney	Signals	25.1	C	31.8	C	36.1	D
Visalia Pwy / Stonebrook	OWS	10.1	B	9.3	A	9.2	A
North Site / Mooney	DNE						
South Site / Mooney	DNE						
Midvalley / Mooney	Signals	5.8	A	6.1	A	5.6	A
Ave 272 / Road 108	Signals	13.1	B	11.7	B	13.3	B
Ave 272 / Mooney	TWS	**127.5**	**F**	**244.4**	**F**	**261.8**	**F**
Ave 268 / Mooney	Signals	8.4	A	9.8	A	15.3	B

Table 8.3
Queuing Analysis Summary – Five-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	137	224	23	47	196	0	104	151	0	64	148	29
	Midday	47	184	0	49	174	0	53	177	0	63	157	0
	P.M.	78	285	8	66	214	0	68	194	0	60	180	3
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	48	78	41	71	88	17	42	126	38	33	122	0
	Midday	71	95	70	127	100	23	115	267	57	86	334	3
	P.M.	60	125	63	109	117	0	114	242	60	69	294	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	69	22		8	24		98	152		88	158	
	Midday	**211**	52		25	49		234	314		124	450	
	P.M.	**278**	55		18	59		132	306		112	391	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	6		27	19		10	145	0	64	99	0
	Midday	48	38		83	56		34	337	0	236	295	0
	P.M.	38	32		87	49		47	276	0	184	291	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	195	236		72	243	46	100	225	0	78	258	
	Midday	149	208		86	181	45	60	152	43	77	172	
	P.M.	248	357		120	284	64	100	243	55	131	236	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	P	S
	A.M.	3			5				95			10	
	Midday	0			3				18			18	
	P.M.	3			5				38			33	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	67	173		16	140		98	101	0	57	110	26
	Midday	64	236		18	174		148	130	0	101	122	11
	P.M.	102	295		26	202		146	151	0	116	146	21
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	37	137		28	120			38			11	0
	Midday	58	155		63	142			35			27	0
	P.M.	63	191		77	161			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	65	93		49	100		44	120	19	33	102	13
	Midday	170	180		154	136		172	251	36	128	380	43
	P.M.	170	234		142	179		156	252	38	126	354	14
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	54	86		70	110		19	30		27	21	
	Midday	82	115		107	125		51	66		**56**	50	
	P.M.	112	185		148	160		64	73		**112**	50	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	24	84	0	13	145	0		0			38	0
	Midday	28	144	0	11	141	0		0			16	0
	P.M.	49	213	0	10	182	6		23			30	7

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 8.3 (Continued)
Queuing Analysis Summary – Five-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				13		18				15		
	Midday				13		43				20		
	P.M.				20		48				25		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	70	63		87	77		8	126	16	44	84	0
	Midday	283	152		153	110		56	250	0	194	266	62
	P.M.	198	161		160	116		46	227	38	162	217	41
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					28		48		30			
	Midday					18		25		48			
	P.M.					20		13		88			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	5			0				25	0	3	3	25
	Midday	8			0				15	0	0	3	18
	P.M.	10			0				23	0	5	5	28
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	48	222	0	76	78	3	66	180		117	138	
	Midday	33	121	0	101	53	19	43	135		130	121	
	P.M.	28	183	0	73	74	31	67	185		150	162	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	18			0				8			125	
	Midday	3			0				0			13	
	P.M.	3			0				3			23	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									38		35
	Midday	5									35		15
	P.M.	10									53		23
Visalia Pwy/ Outlot 1	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	DNS	S	DNE	DNE	DNE	P	DNE	S
	A.M.		3								3		
	Midday		5								25		
	P.M.		5								35		
Visalia Pwy/ East Site	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Mooney	Storage	180	*	S	175	*	S	240	*	S	295	*	215
	A.M.	103	248		**260**	186		118	339		31	131	0
	Midday	166	319		**295**	248		133	376		121	192	5
	P.M.	162	388		**316**	246		153	443		89	239	0

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 8.3 (Continued)
Queuing Analysis Summary – Five-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	S	DNE	TBD
	A.M.	10											35
	Midday	10											18
	P.M.	15											18
North Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
South Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		35	0		0		14	183		14	160	1
	Midday		34	0		0		18	222		22	224	10
	P.M.		37	0		0		15	246		17	246	15
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	21	71		17	50		29	210		72	157	
	Midday	19	38		24	48		17	134		44	132	
	P.M.	25	34		29	102		25	202		29	194	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		65			95		5			0		
	Midday		165			70		5			3		
	P.M.		98			40		28			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		26	0		35		70	185		47	189	
	Midday		91	4		23		70	193		49	230	
	P.M.		144	35		26		124	313		75	352	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

8.6 – Five-Year Cumulative No-Project Deficiencies

The following intersections are expected to operate at levels of service worse than the target LOS D in the five-year no-Project scenario:

- Caldwell Avenue / Dans Street
- Cameron Avenue / Stonebrook Street
- Cameron Avenue / West Street
- Visalia Parkway / Dans Street
- Visalia Parkway / County Center Drive
- Avenue 272 / Mooney Boulevard.

The calculated 95th-percentile queues at the following intersections exceed the storage capacity as described:

- Sunnyside Avenue / Mooney Boulevard (left-turn lane on eastbound approach during the midday and p.m. peak hours);
- Caldwell Avenue / Fairway Street (left-turn lane on southbound approach during the midday and p.m. peak hours);
- Visalia Parkway / Mooney Boulevard (left-turn lane on the westbound approach during all three peak hours).

9.0 – FIVE-YEAR CUMULATIVE WITH PROJECT CONDITIONS

The five-year cumulative with Project analyses include the assumption that both Phases 1 and 2 of the Project are constructed, as well as senior housing on Outlot 2 as described in Section 4.5 of this report.

9.1 – Five-Year Cumulative With Project Lane Configurations and Intersection Control

The five-year cumulative with Project lane configurations and intersection control are presented in Figure 9.1, Five-Year Cumulative With Project Lane Configurations and Intersection Control.

9.2 – Five-Year Cumulative With Project Traffic Volumes

The five-year cumulative with Project peak-hour traffic volumes are presented in the following figures:

Figure 9.2a: Five-Year Cumulative With Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 9.2b: Five-Year Cumulative With Project Peak Hour Traffic Volumes (Midday Peak Hour)

9.3 – Five-Year Cumulative With Project Intersection LOS Analysis

The results of the five-year with Project intersection LOS analyses are summarized in Table 9.1. The intersection analysis sheets are presented in Appendix C. Project significant impacts are identified in bold type and are underlined.

9.4 – Five-Year Cumulative With Project Queuing Analysis

The results of the five-year with Project queuing analyses are summarized in Table 9.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 9.1
Intersection Analysis Summary – Five-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	24.7	C	17.9	B	22.4	C
Whitendale / Mooney	Signals	19.9	B	28.7	C	24.5	C
Sunnyside / Mooney	Signals	13.5	B	22.2	C	23.8	C
Orchard / Mooney	Signals	10.1	B	16.6	B	16.2	B
Caldwell / Demaree	Signals	27.3	C	24.0	C	30.5	C
Caldwell / Dans	TWS	**53.3**	**F**	29.1	D	**50.1**	**F**
Caldwell / County Center	Signals	17.5	B	22.6	C	25.2	C
Caldwell / Shady	Signals	13.3	B	14.2	B	14.6	B
Caldwell / Mooney	Signals	20.5	C	34.4	C	34.2	C
Caldwell / Fairway	Signals	13.2	B	16.8	B	19.6	B
Caldwell / Stonebrook	Signals	8.0	A	7.9	A	7.1	A
Cameron / County Center	OWS	16.9	C	20.3	C	23.5	C
Cameron / Mooney	Signals	17.0	B	30.6	C	27.1	C
Cameron / Stonebrook	OWS	**109.5**	**F**	**69.8**	**F**	**75.6**	**F**
Cameron / West	TWS	**52.4**	**F**	**70.3**	**F**	**121.5**	**F**
Visalia Pwy / Demaree	Signals	27.0	C	20.4	C	23.1	C
Visalia Pwy / Dans	TWS	**63.7**	**F**	20.0	C	27.3	D
Visalia Pwy / County Center	OWS	**46.4**	**E**	**49.8**	**E**	**103.0**	**F**
Visalia Pwy / Outlot 1	OWS	11.1	B	12.4	B	12.8	B
Visalia Pwy / Main Site	TWS	**81.8**	**F**	**>300**	**F**	**>300**	**F**
Visalia Pwy / East Site	OWS	14.3	B	30.8	D	23.6	C
Visalia Pwy / Mooney	Signals	27.6	C	50.3	D	47.3	D
Visalia Pwy / Stonebrook	OWS	10.2	B	9.5	A	9.3	A
North Site / Mooney	OWS	12.1	B	17.5	C	17.1	C
South Site / Mooney	OWS	12.2	B	23.2	C	21.5	C
Midvalley / Mooney	Signals	5.9	A	6.5	A	5.9	A
Ave 272 / Road 108	Signals	13.2	B	11.8	B	13.4	B
Ave 272 / Mooney	TWS	**270.9**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.4	A	10.0	B	17.0	B

Table 9.2
Queuing Analysis Summary – Five-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	137	233	23	47	200	0	104	151	0	64	148	29
	Midday	47	192	0	49	184	0	53	177	0	63	157	0
	P.M.	78	297	8	66	227	0	68	194	0	60	180	3
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	50	82	43	76	92	17	46	137	39	34	136	0
	Midday	75	101	92	142	105	23	128	297	67	91	371	2
	P.M.	63	133	68	121	124	0	126	268	70	73	328	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	72	23		13	25		103	166		90	176	
	Midday	**211**	53		31	49		236	353		124	500	
	P.M.	**278**	55		30	59		135	340		112	429	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	10	10		32	20		12	159	0	65	113	0
	Midday	52	44		100	61		41	398	0	258	343	0
	P.M.	40	36		97	52		53	317	0	195	328	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	198	255		73	258	46	105	231	0	79	266	
	Midday	155	242		90	208	44	65	162	44	80	185	
	P.M.	249	391		121	310	64	105	250	55	132	242	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	200	S
	A.M.	3			5				105			10	
	Midday	0			3				20			20	
	P.M.	3			5				43			38	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	67	183		16	149		114	107	0	71	118	26
	Midday	64	270		19	195		174	140	0	133	134	10
	P.M.	102	321		26	219		165	161	0	141	158	21
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	37	145		28	127			38			11	0
	Midday	58	169		63	156			35			28	0
	P.M.	63	205		77	173			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	67	104		61	105		56	135	37	35	121	12
	Midday	176	199		183	131		206	289	50	131	445	44
	P.M.	172	253		165	177		183	286	55	128	411	62
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	56	90		70	117		19	30		27	22	
	Midday	87	125		109	136		53	67		**58**	53	
	P.M.	117	197		150	172		65	74		**114**	55	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	26	87	0	14	151	0		0			38	0
	Midday	33	153	0	11	152	0		0			18	4
	P.M.	53	223	0	10	193	6		24			31	11

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 9.2 (Continued)
Queuing Analysis Summary – Five-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				13		18				15		
	Midday				15		48				23		
	P.M.				25		50				28		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	76	73		112	84		16	159	26	48	119	0
	Midday	292	164		203	113		70	342	22	201	351	86
	P.M.	215	184		206	123		59	308	49	178	289	56
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					33		60		35			
	Midday					23		38		65			
	P.M.					25		18		115			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	8			0				35	3	3	3	28
	Midday	10			0				23	0	0	3	25
	P.M.	13			0				33	0	8	8	35
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	48	248	0	84	82	8	66	182		132	138	
	Midday	33	135	0	116	58	29	43	137		157	121	
	P.M.	28	195	0	86	79	39	67	191		160	162	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	20			0				8			168	
	Midday	3			0				0			20	
	P.M.	3			0				3			30	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									80		38
	Midday	5									115		18
	P.M.	13									145		25
Visalia Pwy/ Outlot 1	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									0			
	Midday									5			
	P.M.									8			
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	725	S	S	P	S	S	P	S
	A.M.		5			10			293			10	
	Midday		8			18			**>1000**			**620**	
	P.M.		8			15			**910**			**615**	
Visalia Pwy/ East Site	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									25			
	Midday									103			
	P.M.									68			
Visalia Pwy/ Mooney	Storage	180	*	TBD	175	*	S	240	*	S	295	*	215
	A.M.	**306**	160	44	**275**	257		144	319		31	186	14
	Midday	**587**	215	50	**273**	370		210	402		147	327	58
	P.M.	**578**	249	59	**288**	356		235	410		89	310	44

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 9.2 (Continued)
Queuing Analysis Summary – Five-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	S	DNE	TBD
	A.M.	13											40
	Midday	13											20
	P.M.	18											20
North Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	DNE	DNS	DNE	DNE	DNS	DNS
	A.M.			10									
	Midday			35									
	P.M.			25									
South Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	TBD	DNS	DNE	DNE	DNS	DNS
	A.M.			15				25					
	Midday			48				103					
	P.M.			35				78					
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		42	0		0		15	218		15	188	3
	Midday		44	0		0		18	293		22	293	15
	P.M.		45	0		0		15	305		17	304	19
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	21	75		17	52		29	212		72	159	
	Midday	19	43		24	51		17	137		44	135	
	P.M.	25	36		29	107		25	205		29	197	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		123			133		5			0		
	Midday		273			168		5			3		
	P.M.		158			73		33			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		28	0		37		73	213		50	222	
	Midday		97	3		24		73	238		51	281	
	P.M.		147	35		26		124	378		75	426	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

9.5 – Five-Year Cumulative With Project Transit, Bicycle, and Pedestrian Facilities

The proposed Project is not expected to impede or interfere with existing transit, bicycle, and pedestrian facilities.

9.6 – Five-Year Cumulative With Project Potentially-Significant Impacts and Mitigation Measures

The cumulative five-year potentially-significant impacts are described below, followed by the recommended mitigation measure or action.

Impact 5-1

At the intersection of Caldwell Avenue and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. and p.m. peak hours.

Recommendation 5-1

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 5-2

At the intersection of Cameron Avenue and Stonebrook Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 5-2

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 5-3

At the intersection of Cameron Avenue and West Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 5-3

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 5-4

At the intersection of Visalia Parkway and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. peak hour.

Recommendation 5-4

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 5-5

At the intersection of Visalia Parkway and County Center Drive, the cumulative effect of the Project and regional growth will cause LOS E during the a.m. and midday peak hours and LOS F during the p.m. peak hour.

Recommendation 5-5

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 5-6

At the intersection of Visalia Parkway and the Main Site Access, the intersection would operate at LOS F during all three peak hours with two-way stop control.

Recommendation 5-6

Considering the anticipated heavy minor street volumes and heavy turning movements over numerous hours per day, and that the peak-hour traffic signal warrant is expected to be satisfied in the existing-plus-Project condition, it is recommended that traffic signals be installed at the intersection. The proposed driveway should be aligned with the existing driveway on the north side of Visalia Parkway to facilitate signalization. The intersection should be designed to accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the five-year condition are as follows:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: one left-turn lane and one through lane with a shared right turn
Northbound: one shared left-turn/through and one right-turn lane
Southbound: one shared left-turn/through/right-turn lane (existing driveway)

Impact 5-7

At the intersection of Visalia Parkway and Mooney Boulevard, the cumulative effect of the Project and regional growth will cause the calculated 95th percentile queues to exceed the existing storage capacity in the left-turn lanes on the eastbound and westbound approaches.

Recommendation 5-7

The intersection will require widening to accommodate the calculated queues. The intersection construction should accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the five-year with Project condition are as follows:

Eastbound: two left-turn lanes, one through lane, and one right-turn lane
Westbound: two left-turn lanes and one through lane with a shared right turn
Northbound: one left-turn lane and two through lanes with a shared right turn
Southbound: one left-turn lane, three through lanes, and one right-turn lane

Impact 5-8

At the intersection of Avenue 272 and Mooney Boulevard, the cumulative effect of the Project and regional growth will exacerbate delays associated with the existing LOS F during all three peak hours.

Recommendation 5-8

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. A roundabout would also mitigate the intersection to acceptable levels of service. An Intersection Control Evaluation Report (ICE) will eventually be required by Caltrans to identify the preferred control; it is recommended that the ICE report not be required as part of the environmental review. The ICE may be deferred until such time as

the intersection improvements are imminent. It is noted that Caltrans typically prefers that Sidra software be utilized to analyze roundabouts. In our experience, the Synchro software typically provides delay results that are greater the Sidra results. It is our opinion that, if the Synchro software indicates an acceptable LOS for a roundabout, then a roundabout may be considered as a feasible improvement. The ICE report, when prepared, should utilize Sidra software or the software required by Caltrans at that time. The Project may be required to pay an equitable share of the cost of the future traffic signals or roundabout at the discretion of the City of Visalia.

9.7 – Summary of Five-Year Cumulative With Project Mitigated Conditions

Tables 9.3 and 9.4 present a summary of the mitigated conditions. The mitigated intersection analyses sheets are presented in Appendix F.

Table 9.3
Mitigated Intersection Analysis Summary – Five-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Caldwell / Dans	Signals	10.3	B	8.7	A	9.8	A
Cameron / Stonebrook	Signals	13.7	B	14.7	B	16.4	B
Cameron / West	Signals	10.6	B	12.4	B	13.9	B
Visalia Pwy / Dans	Signals	15.4	B	9.7	A	10.4	B
Visalia Pwy / County Center	Signals	12.8	B	10.7	B	13.3	B
Visalia Pwy / Main Site	Signals	14.0	B	20.1	C	19.7	B
Visalia Pwy / Mooney	Signals	23.0	C	32.9	C	32.3	C
Ave 272 / Mooney	Signals	10.4	B	10.9	B	11.5	B
	Round	8.9	A	12.8	B	15.8	C

Table 9.4
Mitigated Queuing Analysis Summary – Five-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Caldwell / Dans	A.M.	35	167		47	154			41			0	
	Midday	17	225		23	171			23			1	
	P.M.	27	303		35	193			5			7	
Cameron / Stonebrook	A.M.		173	10	244	145		29		35			
	Midday		330	14	198	188		24		43			
	P.M.		450	16	209	211		15		53			
Cameron / West	A.M.	63	186	0	4	202	0		27	0	6	6	27
	Midday	102	401	0	11	302	0		18	0	3	6	32
	P.M.	143	477	0	17	307	0		20	0	10	11	41
Visalia Pwy/ Dans	A.M.	142	175		7	285			0			47	
	Midday	33	223		14	236			6			32	
	P.M.	33	347		12	378			0			32	
Visalia Pwy/ County Center	A.M.	83	109			274					55		28
	Midday	61	132			305					88		29
	P.M.	117	159			435					76		33
Visalia Pwy/ Main Site	A.M.	60	167	12	88	160			59	44		16	
	Midday	101	171	29	172	157			110	49		119	
	P.M.	109	269	18	138	221			83	44		110	
Visalia Pwy/ Mooney	A.M.	147	153	43	125	225		130	276		29	169	35
	Midday	265	214	50	142	297		176	323		121	277	52
	P.M.	243	234	55	151	299		199	364		89	291	42
Ave 272 / Mooney (Signals)	A.M.		45			39		48	242		8	179	
	Midday		45			25		34	327		25	424	
	P.M.		30			20		161	361		27	439	
Ave 272 / Mooney (Round)	A.M.		25			0			75			50	
	Midday		25			0			125			150	
	P.M.		0			0			200			200	

Lanes should be designed to accommodate the calculated queues and should consider the calculated queues in the 20-year scenario. The City of Visalia requires a minimum storage length of 300 feet.
See Section 1.5 for a list of abbreviations

10.0 – 10-YEAR CUMULATIVE NO-PROJECT CONDITIONS

10.1– 10-Year Cumulative No-Project Lane Configurations and Intersection Control

The 10-year cumulative no-Project lane configurations and intersection control are presented in Figure 10.1, 10-Year Cumulative No-Project Lane Configurations and Intersection Control.

10.2 – 10-Year Cumulative No-Project Traffic Volumes

The 10-year cumulative traffic volumes without the Project were estimated by adding the traffic volumes that are expected to occur as a result of the pending projects to the pending projects and, where applicable, also applying a growth rate based on a review of the growth projected by the Tulare County travel model (described in Section 12 of this report). The 10-year cumulative no-Project traffic volumes are presented in the following figures:

Figure 10.2a: 10-Year Cumulative No-Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 10.2b: 10-Year Cumulative No-Project Peak Hour Traffic Volumes (Midday Peak Hour)

10.3 – 10-Year Cumulative No-Project Intersection LOS Analysis

The results of the 10-year cumulative no-Project intersection LOS analyses are summarized in Table 10.1. The intersection analysis sheets are presented in Appendix C. Levels of service and delays worse than the target LOS D or indicated in bold type.

10.4 – 10-Year Cumulative No-Project Queuing Analysis

The results of the 10-year cumulative no-Project queuing analyses are summarized in Table 10.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 10.1
Intersection Analysis Summary – 10-Year No-Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	26.3	C	18.6	B	23.3	C
Whitendale / Mooney	Signals	20.0	C	29.4	C	24.3	C
Sunnyside / Mooney	Signals	13.4	B	22.0	C	23.4	C
Orchard / Mooney	Signals	9.9	A	16.2	B	15.7	B
Caldwell / Demaree	Signals	28.1	C	24.5	C	32.1	C
Caldwell / Dans	TWS	**61.0**	**F**	30.2	D	**57.7**	**F**
Caldwell / County Center	Signals	17.4	B	22.0	C	26.1	C
Caldwell / Shady	Signals	13.2	B	14.2	B	14.5	B
Caldwell / Mooney	Signals	20.2	C	32.4	C	33.5	C
Caldwell / Fairway	Signals	13.2	B	16.6	B	19.4	B
Caldwell / Stonebrook	Signals	7.9	A	7.7	A	7.0	A
Cameron / County Center	OWS	16.8	C	20.3	C	24.8	C
Cameron / Mooney	Signals	16.7	B	31.3	C	26.9	C
Cameron / Stonebrook	OWS	**84.7**	**F**	**55.6**	**F**	**63.2**	**F**
Cameron / West	TWS	**57.2**	**F**	**58.8**	**F**	**111.5**	**F**
Visalia Pwy / Demaree	Signals	26.3	C	19.5	B	22.4	C
Visalia Pwy / Dans	TWS	**52.0**	**F**	18.1	C	26.7	D
Visalia Pwy / County Center	OWS	**36.8**	**E**	26.1	D	**77.6**	**F**
Visalia Pwy / Outlot 1	DNE						
Visalia Pwy / Main Site	OWS	12.8	B	16.6	C	21.7	C
Visalia Pwy / East Site	DNE						
Visalia Pwy / Mooney	Signals	29.9	C	37.7	D	42.6	D
Visalia Pwy / Stonebrook	OWS	10.1	B	9.4	A	9.1	A
North Site / Mooney	DNE						
South Site / Mooney	DNE						
Midvalley / Mooney	Signals	5.8	A	6.1	A	5.6	A
Ave 272 / Road 108	Signals	13.5	B	11.9	B	13.8	B
Ave 272 / Mooney	TWS	**255.7**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.6	A	10.1	B	17.1	B

Table 10.2
Queuing Analysis Summary – 10-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	150	275	23	47	235	0	107	166	0	66	161	33
	Midday	51	200	0	52	191	3	57	194	0	68	170	0
	P.M.	87	301	12	79	232	0	79	214	0	61	196	4
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	53	88	43	76	101	18	45	139	39	35	134	0
	Midday	81	108	97	144	114	28	131	294	66	98	369	6
	P.M.	63	131	66	117	133	0	120	255	64	72	315	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	70	22		8	24		99	159		89	164	
	Midday	**211**	52		25	49		234	331		124	481	
	P.M.	**278**	55		18	59		132	323		112	413	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	6		28	20		10	151	0	65	103	0
	Midday	48	39		85	58		34	358	0	243	313	0
	P.M.	39	33		89	51		48	292	0	188	308	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	215	252		77	257	49	110	247	0	84	286	
	Midday	172	242		98	211	52	68	175	50	89	200	
	P.M.	**290**	395		129	306	81	108	251	57	146	257	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	P	S
	A.M.	3			5				115			13	
	Midday	0			3				20			20	
	P.M.	3			5				48			40	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	69	175		17	144		100	113	0	61	122	32
	Midday	71	276		19	194		165	140	0	112	131	14
	P.M.	113	336		30	219		176	161	0	129	148	25
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	37	149		28	131			38			11	0
	Midday	58	169		63	155			35			28	0
	P.M.	63	210		77	175			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	70	105		54	106		46	135	6	36	116	14
	Midday	184	201		169	152		187	275	42	138	427	45
	P.M.	185	257		154	183		171	280	54	140	376	44
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	54	89		70	115		19	30		27	21	
	Midday	83	124		109	135		53	67		**58**	51	
	P.M.	113	194		150	167		65	73		**114**	51	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	24	87	0	14	151	0		0			38	0
	Midday	28	158	0	11	155	0		0			17	0
	P.M.	50	225	0	10	191	6		24			31	7

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 10.2 (Continued)
Queuing Analysis Summary – 10-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				13		18				15		
	Midday				50		23				15		
	P.M.				30		53				28		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	74	71		91	91		9	140	18	48	96	0
	Midday	319	170		173	123		63	286	0	**225**	309	79
	P.M.	221	191		189	143		55	281	47	186	245	47
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					30		50		30			
	Midday					18		30		53			
	P.M.					20		15		93			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	8			0				40	3	3	3	28
	Midday	8			0				18	0	0	3	20
	P.M.	13			3				33	0	10	8	30
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	51	270	0	47	86	7	71	190		120	145	
	Midday	34	130	0	105	56	22	44	142		137	127	
	P.M.	29	239	0	42	76	40	72	195		156	171	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	20			0				8			145	
	Midday	3			0				0			15	
	P.M.	3			0				3			25	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									55		40
	Midday	5									43		18
	P.M.	13									113		30
Visalia Pwy/ Outlot 1	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	DNS	S	DNE	DNE	DNE	P	DNE	S
	A.M.		3								5		
	Midday		5								25		
	P.M.		5								40		
Visalia Pwy/ East Site	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Mooney	Storage	180	*	S	175	*	S	240	*	S	295	*	215
	A.M.	104	273		**336**	205		123	386		39	147	0
	Midday	**185**	369		**332**	270		144	422		139	210	8
	P.M.	179	430		**339**	260		159	570		108	254	0

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 10.2 (Continued)
Queuing Analysis Summary – 10-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	S	DNE	TBD
	A.M.	10											35
	Midday	13											18
	P.M.	15											18
North Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
South Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		37	0		0		15	201		15	175	0
	Midday		34	0		0		18	249		22	252	10
	P.M.		37	0		0		15	277		17	278	15
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	21	77		19	52		31	233		75	173	
	Midday	21	42		25	52		19	145		48	143	
	P.M.	26	35		30	112		25	223		30	214	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		105			138		5			0		
	Midday		223			123		5			3		
	P.M.		140			70		35			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		28	0		37		75	204		50	210	
	Midday		100	5		24		75	213		52	253	
	P.M.		151	35		27		129	354		78	398	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

10.5 – 10-Year Cumulative No-Project Deficiencies

The following intersections are expected to operate at levels of service worse than the target LOS D in the 10-year no-Project scenario:

- Caldwell Avenue / Dans Street
- Cameron Avenue / Stonebrook Street
- Cameron Avenue / West Street
- Visalia Parkway / Dans Street
- Visalia Parkway / County Center Drive
- Avenue 272 / Mooney Boulevard.

The calculated 95th-percentile queues at the following intersections exceed the storage capacity as described:

- Sunnyside Avenue / Mooney Boulevard (left-turn lane on eastbound approach during the midday and p.m. peak hours);
- Caldwell Avenue / Demaree Street (left-turn lane on eastbound approach during the p.m. peak hour);
- Caldwell Avenue / Fairway Street (left-turn lane on southbound approach during the midday and p.m. peak hours);
- Cameron Avenue / Mooney Boulevard (left-turn lane on southbound approach during the midday peak hour);
- Visalia Parkway / Mooney Boulevard (left-turn lane on the westbound approach during all three peak hours and left-turn lane on eastbound approach during the midday peak hour).

11.0 – 10-YEAR CUMULATIVE WITH PROJECT CONDITIONS

The 10-year cumulative with Project analyses include the assumption that both Phases 1 and 2 of the Project are constructed, as well as senior housing on Outlot 2 as described in Section 4.5 of this report.

11.1 – 10-Year Cumulative With Project Lane Configurations and Intersection Control

The 10-year cumulative with Project lane configurations and intersection control are presented in Figure 11.1, 10-Year Cumulative With Project Lane Configurations and Intersection Control.

11.2 – 10-Year Cumulative With Project Traffic Volumes

The 10-year cumulative with Project peak-hour traffic volumes are presented in the following figures:

Figure 11.2a: 10-Year Cumulative With Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)

Figure 11.2b: 10-Year Cumulative With Project Peak Hour Traffic Volumes (Midday Peak Hour)

11.3 – 10-Year Cumulative With Project Intersection LOS Analysis

The results of the 10-year with Project intersection LOS analyses are summarized in Table 11.1. The intersection analysis sheets are presented in Appendix C. Project significant impacts are identified in bold type and are underlined.

11.4 – 10-Year Cumulative With Project Queuing Analysis

The results of the 10-year with Project queuing analyses are summarized in Table 11.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 11.1
Intersection Analysis Summary – 10-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	26.6	C	18.8	B	23.7	C
Whitendale / Mooney	Signals	20.6	C	31.4	C	25.1	C
Sunnyside / Mooney	Signals	13.5	B	22.6	C	24.1	C
Orchard / Mooney	Signals	10.1	B	16.7	B	16.3	B
Caldwell / Demaree	Signals	28.8	C	25.5	C	33.3	C
Caldwell / Dans	TWS	**72.9**	**F**	**35.0**	**E**	**67.1**	**F**
Caldwell / County Center	Signals	18.1	B	25.4	C	30.1	C
Caldwell / Shady	Signals	13.2	B	14.2	B	14.5	B
Caldwell / Mooney	Signals	21.5	C	38.0	D	37.5	D
Caldwell / Fairway	Signals	13.2	B	16.8	B	19.7	B
Caldwell / Stonebrook	Signals	7.9	A	7.8	A	7.0	A
Cameron / County Center	OWS	17.5	C	22.6	C	27.3	D
Cameron / Mooney	Signals	17.5	B	33.9	C	28.6	C
Cameron / Stonebrook	OWS	**121.0**	**F**	**84.6**	**F**	**84.9**	**F**
Cameron / West	TWS	**81.4**	**F**	**93.6**	**F**	**180.5**	**F**
Visalia Pwy / Demaree	Signals	28.0	C	21.2	C	23.9	C
Visalia Pwy / Dans	TWS	**80.8**	**F**	21.7	C	30.6	D
Visalia Pwy / County Center	OWS	**64.9**	**F**	**65.2**	**F**	**234.5**	**F**
Visalia Pwy / Outlot 1	OWS	11.4	B	12.8	B	13.3	B
Visalia Pwy / Main Site	TWS	**109.4**	**F**	**>300**	**F**	**>300**	**F**
Visalia Pwy / East Site	OWS	14.8	B	33.4	D	25.2	D
Visalia Pwy / Mooney	Signals	30.9	C	**60.0**	**E**	54.5	D
Visalia Pwy / Stonebrook	OWS	10.2	B	9.6	A	9.3	A
North Site / Mooney	OWS	12.5	B	19.0	C	18.4	C
South Site / Mooney	OWS	12.7	B	27.6	D	25.3	D
Midvalley / Mooney	Signals	5.9	A	6.7	A	6.1	A
Ave 272 / Road 108	Signals	13.6	B	12.0	B	13.9	B
Ave 272 / Mooney	TWS	**>300**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.6	A	10.4	B	19.3	B

Table 11.2
Queuing Analysis Summary – 10-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	150	283	23	47	244	0	107	166	0	66	161	33
	Midday	51	213	0	52	199	3	57	194	0	68	170	0
	P.M.	87	313	12	79	257	0	79	214	0	61	196	4
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	55	92	45	82	104	18	49	152	40	36	149	0
	Midday	84	110	119	158	116	28	142	333	79	102	414	6
	P.M.	67	138	71	129	140	0	132	279	73	76	347	0
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	72	23		13	25		103	173		92	183	
	Midday	**211**	53		31	49		236	372		124	542	
	P.M.	**278**	55		30	59		135	358		112	454	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	10	10		33	20		12	166	0	67	117	0
	Midday	54	45		102	61		42	419	0	264	363	0
	P.M.	40	37		100	53		54	335	0	201	346	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	217	274		78	274	49	115	252	0	84	293	
	Midday	182	292		105	243	56	77	190	52	94	216	
	P.M.	**293**	435		130	336	83	113	254	57	148	262	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	200	S
	A.M.	3			5				130			13	
	Midday	0			3				23			25	
	P.M.	3			5				53			45	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	68	186		17	155		118	118	0	81	130	32
	Midday	75	314		20	243		192	151	0	146	143	14
	P.M.	113	361		30	262		196	172	0	154	159	25
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	38	157		29	137			39			12	0
	Midday	58	184		63	169			35			28	0
	P.M.	63	223		77	188			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	74	119		68	113		60	151	37	37	138	14
	Midday	191	220		196	144		220	315	59	141	494	45
	P.M.	188	279		178	182		200	308	68	143	424	44
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	57	94		71	122		19	30		27	22	
	Midday	89	135		112	147		55	69		**60**	54	
	P.M.	120	207		154	180		67	75		**118**	56	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	175	S	S	540	540
	A.M.	26	91	0	13	158	0		0			39	0
	Midday	34	167	0	11	165	0		0			18	4
	P.M.	55	235	0	11	202	6		25			32	11

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 11.2 (Continued)
Queuing Analysis Summary – 10-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				13		18				15		
	Midday				18		55				25		
	P.M.				35		58				28		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	81	82		117	100		17	175	29	53	132	0
	Midday	319	177		224	123		75	384	29	**225**	403	104
	P.M.	222	200		223	142		65	359	52	187	312	62
Cameron / Stonebrook	Storage	DNE	DNS	DNS	S	*	DNE	150+	DNE	890	DNE	DNE	DNE
	A.M.					33		65		38			
	Midday					23		43		73			
	P.M.					25		18		125			
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	10			0				58	3	3	3	33
	Midday	10			0				33	0	0	3	28
	P.M.	15			3				48	0	10	10	38
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	51	283	0	51	88	11	71	192		135	145	
	Midday	34	144	0	121	62	31	44	144		163	127	
	P.M.	29	259	0	49	81	44	72	205		167	171	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	20			0				10			193	
	Midday	3			0				0			23	
	P.M.	3			0				3			35	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									113		43
	Midday	8									145		20
	P.M.	15									248		35
Visalia Pwy/ Outlot 1	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									0			
	Midday									5			
	P.M.									8			
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	725	S	S	P	S	S	P	S
	A.M.		5			10			240			10	
	Midday		8			18			**>1000**			**630**	
	P.M.		10			15			**963**			**638**	
Visalia Pwy/ East Site	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									25			
	Midday									110			
	P.M.									73			
Visalia Pwy/ Mooney	Storage	180	*	TBD	175	*	S	240	*	S	295	*	215
	A.M.	**307**	175	45	**367**	297		147	366		39	205	15
	Midday	**604**	230	51	**298**	408		227	471		163	364	58
	P.M.	**601**	266	60	**300**	384		**248**	540		108	327	47

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 11.2 (Continued)
Queuing Analysis Summary – 10-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	S	DNE	TBD
	A.M.	13											40
	Midday	15											23
	P.M.	18											20
North Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	DNE	DNS	DNE	DNE	DNS	DNS
	A.M.			10									
	Midday			38									
	P.M.			28									
South Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	TBD	DNS	DNE	DNE	DNS	DNS
	A.M.			15				28					
	Midday			53				123					
	P.M.			40				93					
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		42	0		0		15	241		15	206	3
	Midday		44	0		0		18	325		22	326	15
	P.M.		45	0		0		15	342		17	341	19
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	21	80		119	54		31	235		75	174	
	Midday	21	46		25	56		19	148		48	146	
	P.M.	26	38		30	116		25	226		30	216	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		213			175		8			0		
	Midday		330			XX		5			3		
	P.M.		198			XX		43			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		30	0		40		79	231		54	245	
	Midday		101	4		24		75	262		53	311	
	P.M.		154	36		28		129	427		78	527	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
XX Where Synchro calculates very high delays and volume-to-capacity ratios, the software is unable to calculate a meaningful queue length. A specific threshold is not indicated as the analysis incorporates various variables.
See Section 1.5 for a list of abbreviations

11.5 – 10-Year Cumulative With Project Transit, Bicycle, and Pedestrian Facilities

The proposed Project is not expected to impede or interfere with existing transit, bicycle, and pedestrian facilities.

11.6 – 10-Year Cumulative With Project Potentially-Significant Impacts and Mitigation Measures

The cumulative 10-year potentially-significant impacts are described below, followed by the recommended mitigation measure or action.

Impact 10-1

At the intersection of Caldwell Avenue and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. and p.m. peak hours and LOS E during the midday peak hour.

Recommendation 10-1

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 10-2

At the intersection of Cameron Avenue and Stonebrook Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 10-2

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 10-3

At the intersection of Cameron Avenue and West Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 10-3

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 10-4

At the intersection of Visalia Parkway and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. peak hour.

Recommendation 10-4

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 10-5

At the intersection of Visalia Parkway and County Center Drive, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 10-5

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 10-6

At the intersection of Visalia Parkway and the Main Site Access, the intersection would operate at LOS F during all three peak hours with two-way stop control.

Recommendation 10-6

Considering the anticipated heavy minor street volumes and heavy turning movements over numerous hours per day, and that the peak-hour traffic signal warrant is expected to be satisfied in the existing-plus-Project condition, it is recommended that traffic signals be installed at the intersection. The proposed driveway should be aligned with the existing driveway on the north side of Visalia Parkway to facilitate signalization. The intersection should be designed to accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the 10-year condition are as follows:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: one left-turn lane and one through lane with a shared right turn
Northbound: one shared left-turn/through and one right-turn lane
Southbound: one shared left-turn/through/right-turn lane (existing driveway)

Impact 10-7

At the intersection of Avenue 272 and Mooney Boulevard, the cumulative effect of the Project and regional growth will exacerbate delays associated with the existing LOS F during all three peak hours.

Recommendation 10-7

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. A roundabout would also mitigate the intersection to acceptable levels of service. An Intersection Control Evaluation Report (ICE) will eventually be required by Caltrans to identify the preferred control; it is recommended that the ICE report not be required as part of the environmental review. The ICE may be deferred until such time as the intersection improvements are imminent. It is noted that Caltrans typically prefers that Sidra software be utilized to analyze roundabouts. In our experience, the Synchro software typically provides delay results that are greater the Sidra results. It is our opinion that, if the Synchro software indicates an acceptable LOS for a roundabout, then a roundabout may be considered as a feasible improvement. The ICE report, when prepared, should utilize Sidra software or the software required by Caltrans at that time. The Project may be required to pay an equitable share of the cost of the future traffic signals or roundabout at the discretion of the City of Visalia.

Impact 10-8

At the intersection of Visalia Parkway and Mooney Boulevard, the cumulative effect of the Project and regional growth will cause LOS E during the midday peak hour and will cause the calculated 95th percentile queues to exceed the existing storage capacity in the left-turn lanes on the eastbound, westbound, and northbound approaches.

Recommendation 10-8

The intersection will require widening to operate at acceptable levels of service. The intersection construction should accommodate the ultimate lane configurations based on the 20-year analyses; however, the minimum lane configurations required in the 10-year with Project condition are as follows:

Eastbound: two left-turn lanes, one through lane, and one right-turn lane
Westbound: two left-turn lanes and one through lane with a shared right turn
Northbound: one left-turn lane and two through lanes with a shared right turn
Southbound: one left-turn lane, three through lanes, and one right-turn lane

11.7 – Summary of 10-Year Cumulative With Project Mitigated Conditions

Tables 11.3 and 11.4 present a summary of the mitigated conditions. The mitigated intersection analyses sheets are presented in Appendix F.

Table 11.3
Mitigated Intersection Analysis Summary – 10-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Caldwell / Dans	Signals	10.4	B	9.0	A	10.3	B
Cameron / Stonebrook	Signals	13.8	B	15.9	B	17.1	B
Cameron / West	Signals	10.4	B	13.5	B	15.4	B
Visalia Pwy / Dans	Signals	16.1	B	9.8	A	11.1	B
Visalia Pwy / County Center	Signals	14.2	B	11.3	B	17.3	B
Visalia Pwy / Main Site	Signals	14.3	B	20.8	C	21.2	C
Visalia Pwy / Mooney	Signals	25.1	C	36.5	D	36.2	D
Ave 272 / Mooney	Signals	11.2	B	12.5	B	13.3	B
	Round	9.7	A	14.6	B	19.0	C

Table 11.4
Mitigated Queuing Analysis Summary – 10-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Caldwell / Dans	A.M.	35	184		47	170			41			0	
	Midday	17	284		23	188			23			1	
	P.M.	27	343		35	218			5			7	
Cameron / Stonebrook	A.M.		180	10	244	153		29		35			
	Midday		347	15	207	199		25		44			
	P.M.		478	16	209	224		15		53			
Cameron / West	A.M.	92	136	0	0	228	0		29	0	7	6	28
	Midday	106	446	0	11	338	0		19	0	3	6	32
	P.M.	151	535	0	22	323	0		22	0	11	12	42
Visalia Pwy/ Dans	A.M.	142	190		7	312			0			47	
	Midday	33	247		14	292			6			32	
	P.M.	33	384		12	418			0			32	
Visalia Pwy/ County Center	A.M.	95	113			299					61		28
	Midday	64	139			324					92		30
	P.M.	138	166			487					90		35
Visalia Pwy/ Main Site	A.M.	59	179	12	93	177			58	44		16	
	Midday	101	187	29	172	173			110	49		119	
	P.M.	109	286	17	150	275			84	45		110	
Visalia Pwy/ Mooney	A.M.	161	177	46	158	264		144	326		39	191	35
	Midday	271	229	51	152	325		187	371		139	302	53
	P.M.	250	250	56	156	334		212	438		108	307	44
Ave 272 / Mooney (Signals)	A.M.		48			42		52	303		8	195	
	Midday		47			28		35	390		26	474	
	P.M.		32			21		178	450		28	485	
Ave 272 / Mooney (Round)	A.M.		50			25			100			75	
	Midday		25			0			150			200	
	P.M.		0			0			250			250	

Lanes should be designed to accommodate the calculated queues and should consider the calculated queues in the 20-year scenario. The City of Visalia requires a minimum storage length of 300 feet.
See Section 1.5 for a list of abbreviations

12.0 – 20-YEAR CUMULATIVE NO-PROJECT CONDITIONS

12.1– 20-Year Cumulative No-Project Lane Configurations and Intersection Control

The 20-year cumulative no-Project lane configurations and intersection control are presented in Figure 12.1, 20-Year Cumulative No-Project Lane Configurations and Intersection Control. The 20-year analyses include the assumption that Stonebrook Avenue is constructed between Visalia Parkway and Caldwell Avenue because it is identified as an 11 to 25-year arterial in the 2014 City of Visalia General Plan, suggesting that it is expected to be constructed prior to the year 2039.

12.2 – 20-Year Cumulative No-Project Traffic Volumes

The Tulare County Association of Governments (TCAG) maintains a travel model that is typically used to forecast future traffic volumes. An increment method was utilized to forecast traffic volumes for future conditions by determining the growth projected by the model between the base year and the analysis year. This growth is added to the existing traffic volumes and the result is the predicted future traffic volume. The TCAG travel model output is included in Appendix E. Where travel model data is not directly available, such as locations where streets are not included in the model or where the analysis scenario (midday) are not included in the model, an annual growth rate was applied to the existing volumes based on information available in the model. The results were to reviewed to ensure that the pending and approved projects are accommodated in the 20-year traffic volumes.

Where the increment method was applied, forecasts of future turning movements were based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled *"Highway Traffic Data for Urbanized Area Project Planning and Design."*

The 20-year cumulative no-Project traffic volumes are presented in the following figures:

Figure 12.2a: 20-Year Cumulative No-Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)
Figure 12.2b: 20-Year Cumulative No-Project Peak Hour Traffic Volumes (Midday Peak Hour)

12.3 – 20-Year Cumulative No-Project Intersection LOS Analysis

The results of the 20-year cumulative no-Project intersection LOS analyses are summarized in Table 12.1. The intersection analysis sheets are presented in Appendix C. Levels of service and delays worse than the target LOS D or indicated in bold type.

12.4 – 20-Year Cumulative No-Project Queuing Analysis

The results of the 20-year cumulative no-Project queuing analyses are summarized in Table 12.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 12.1
Intersection Analysis Summary – 20-Year No-Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	28.2	C	19.5	B	24.5	C
Whitendale / Mooney	Signals	20.5	C	30.5	C	24.5	C
Sunnyside / Mooney	Signals	13.5	C	22.1	C	23.6	C
Orchard / Mooney	Signals	9.9	A	16.2	B	15.7	B
Caldwell / Demaree	Signals	28.9	C	25.6	C	34.9	C
Caldwell / Dans	TWS	**74.9**	**F**	34.4	D	**71.4**	**F**
Caldwell / County Center	Signals	17.8	B	24.1	C	30.0	C
Caldwell / Shady	Signals	13.2	B	14.2	B	14.5	B
Caldwell / Mooney	Signals	20.6	C	34.6	C	34.8	C
Caldwell / Fairway	Signals	13.2	B	16.7	C	19.5	B
Caldwell / Stonebrook	Signals	25.3	C	14.9	B	29.0	C
Cameron / County Center	OWS	17.4	C	21.5	C	29.8	D
Cameron / Mooney	Signals	16.8	B	32.8	C	27.8	C
Cameron / Stonebrook	OWS	**>300**	**F**	**>300**	**F**	**>300**	**F**
Cameron / West	TWS	**78.8**	**F**	**66.0**	**F**	**144.9**	**F**
Visalia Pwy / Demaree	Signals	27.5	C	19.8	B	23.8	C
Visalia Pwy / Dans	TWS	**54.0**	**F**	18.1	C	27.3	D
Visalia Pwy / County Center	OWS	**42.9**	**E**	27.5	D	**156.0**	**F**
Visalia Pwy / Outlot 1	DNE						
Visalia Pwy / Main Site	OWS	12.9	B	17.1	C	22.1	C
Visalia Pwy / East Site	DNE						
Visalia Pwy / Mooney	Signals	33.8	C	40.6	D	48.6	D
Visalia Pwy / Stonebrook	OWS	**46.5**	**E**	**98.1**	**F**	**>300**	**F**
North Site / Mooney	DNE						
South Site / Mooney	DNE						
Midvalley / Mooney	Signals	5.5	A	6.2	A	5.7	A
Ave 272 / Road 108	Signals	14.0	B	12.2	B	14.3	B
Ave 272 / Mooney	TWS	**>300**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.7	A	10.4	B	18.8	B

Table 12.2
Queuing Analysis Summary – 20-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	162	299	23	47	263	0	107	178	0	69	174	34
	Midday	54	213	0	55	202	7	59	210	0	79	184	0
	P.M.	96	313	15	87	250	2	86	257	0	62	211	4
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	58	98	44	79	113	18	47	148	39	36	135	0
	Midday	89	114	111	147	124	34	139	306	69	108	378	11
	P.M.	65	132	67	118	143	0	120	256	64	73	317	2
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	71	22		8	24		100	163		89	168	
	Midday	**211**	52		25	49		234	343		124	508	
	P.M.	**278**	55		18	59		132	336		112	430	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	9	6		28	20		10	151	0	65	106	0
	Midday	48	39		85	58		34	357	0	243	315	0
	P.M.	39	33		89	51		48	296	0	190	313	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	227	256		78	262	52	113	255	0	85	299	
	Midday	195	269		109	239	61	74	190	53	100	218	
	P.M.	**356**	429		136	322	96	111	251	57	162	265	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	P	S
	A.M.	3			5				133			13	
	Midday	0			3				23			23	
	P.M.	3			5				55			45	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	68	176		19	147		103	120	0	64	132	38
	Midday	82	305		20	231		181	149	0	124	139	18
	P.M.	125	362		32	232		207	169	0	136	151	31
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	38	155		29	137			39			11	0
	Midday	58	179		63	164			35			28	0
	P.M.	63	220		77	183			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	71	112		56	108		47	136	6	37	123	15
	Midday	192	216		179	161		198	281	45	145	454	45
	P.M.	193	273		162	186		181	300	69	150	392	46
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	54	89		70	116		19	30		28	21	
	Midday	84	130		109	142		53	67		**59**	52	
	P.M.	113	195		150	168		65	74		**116**	51	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	*	S	S	540	540
	A.M.	27	100	18	253	155	0		62			56	3
	Midday	51	179	27	133	168	25		76			51	5
	P.M.	82	586	33	216	214	24		223			97	13

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 12.2 (Continued)
Queuing Analysis Summary – 20-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				13		18				15		
	Midday				18		53				25		
	P.M.				45		58				30		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	75	75		93	95		9	144	20	49	105	0
	Midday	344	178		192	127		69	301	0	**237**	339	92
	P.M.	223	202		201	153		60	319	50	187	251	50
Cameron / Stonebrook	Storage	TBD	DNS	S	TBD	DNS	S	150+	890	S	TBD	*	S
	A.M.	3			35			XX	613		XX	473	
	Midday	5			20			XX	555		XX	460	
	P.M.	10			25			XX	**970**		XX	715	
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	13			0				58	3	3	3	30
	Midday	8			0				23	0	0	3	23
	P.M.	13			3				43	3	10	10	33
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	54	282	0	48	87	7	77	193		123	147	
	Midday	35	130	0	109	57	23	46	144		142	128	
	P.M.	29	271	0	48	76	41	77	197		160	174	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	20			0				8			148	
	Midday	3			0				0			15	
	P.M.	3			0				3			25	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									70		43
	Midday	5									50		18
	P.M.	15									200		35
Visalia Pwy/ Outlot 1	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	DNS	S	DNE	DNE	DNE	P	DNE	S
	A.M.		3								5		
	Midday		5								28		
	P.M.		5								40		
Visalia Pwy/ East Site	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Visalia Pwy/ Mooney	Storage	180	*	S	175	*	S	240	*	S	295	*	215
	A.M.	113	283		**383**	214		126	409		48	161	0
	Midday	**186**	382		**346**	277		161	435		154	220	8
	P.M.	**189**	450		**342**	283		164	647		130	237	0

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 12.2 (Continued)
Queuing Analysis Summary – 20-Year No-Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	TBD	DNE	TBD
	A.M.	23									85		103
	Midday	20									175		28
	P.M.	30									**395**		40
North Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
South Site / Mooney	Storage	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
	A.M.												
	Midday												
	P.M.												
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		37	0		0		15	208		15	182	0
	Midday		34	0		0		18	259		22	267	10
	P.M.		37	0		0		15	295		17	294	15
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	25	83		19	56		32	248		78	177	
	Midday	21	44		28	56		20	146		50	143	
	P.M.	29	37		31	122		26	228		31	220	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		145			168		8			0		
	Midday		270			168		5			3		
	P.M.		173			105		43			3		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		30	0		39		78	210		53	219	
	Midday		104	5		25		79	221		54	268	
	P.M.		157	36		27		133	378		80	423	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
XX Where Synchro calculates very high delays and volume-to-capacity ratios, the software is unable to calculate a meaningful queue length. A specific threshold is not indicated as the analysis incorporates various variables.
See Section 1.5 for a list of abbreviations

12.5 – 20-Year Cumulative No-Project Deficiencies

The following intersections are expected to operate at levels of service worse than the target LOS D in the 20-year no-Project scenario:

- Caldwell Avenue / Dans Street
- Cameron Avenue / Stonebrook Street
- Cameron Avenue / West Street
- Visalia Parkway / Dans Street
- Visalia Parkway / County Center Drive
- Visalia Parkway / Stonebrook Street
- Avenue 272 / Mooney Boulevard.

The calculated 95th-percentile queues at the following intersections exceed the storage capacity as described:

- Sunnyside Avenue / Mooney Boulevard (left-turn lane on eastbound approach during the midday and p.m. peak hours);
- Caldwell Avenue / Demaree Street (left-turn lane on eastbound approach during the p.m. peak hour);
- Caldwell Avenue / Fairway Street (left-turn lane on southbound approach during the midday and p.m. peak hours);
- Cameron Avenue / Mooney Boulevard (left-turn lane on southbound approach during the midday peak hour);
- Cameron Avenue / Stonebrook Street (northbound approach during the p.m. peak hour);
- Visalia Parkway / Mooney Boulevard (left-turn lane on the westbound approach during all three peak hours and left-turn lane on eastbound approach during the midday and p.m. peak hours);
- Visalia Parkway / Stonebrook Street (left-turn lane on the southbound approach during the p.m. peak hour).

13.0 – 20-YEAR CUMULATIVE WITH PROJECT CONDITIONS

The 20-year cumulative with Project analyses include the assumption that both Phases 1 and 2 of the Project are constructed, as well as senior housing on Outlot 2 as described in Section 4.5 of this report.

13.1 – 20-Year Cumulative With Project Lane Configurations and Intersection Control

The 20-year cumulative with Project lane configurations and intersection control are presented in Figure 13.1, 20-Year Cumulative With Project Lane Configurations and Intersection Control.

13.2 – 20-Year Cumulative With Project Traffic Volumes

The 20-year cumulative with Project peak-hour traffic volumes are presented in the following figures:

Figure 13.2a: 20-Year Cumulative With Project Peak Hour Traffic Volumes (A.M. and P.M. Peak Hours)
Figure 13.2b: 20-Year Cumulative With Project Peak Hour Traffic Volumes (Midday Peak Hour)

13.3 – 20-Year Cumulative With Project Intersection LOS Analysis

The results of the 20-year with Project intersection LOS analyses are summarized in Table 13.1. The intersection analysis sheets are presented in Appendix C. Project significant impacts are identified in bold type and are underlined.

13.4 – 20-Year Cumulative With Project Queuing Analysis

The results of the 20-year with Project queuing analyses are summarized in Table 13.2. Calculated 95th-percentile queues exceeding the storage capacity are identified in bold type and are underlined. The intersection analysis sheets presented in Appendix C include the queue analysis results.

Table 13.1
Intersection Analysis Summary – 20-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Whitendale / County Center	Signals	28.6	C	19.8	B	24.9	C
Whitendale / Mooney	Signals	21.0	C	32.4	C	25.3	C
Sunnyside / Mooney	Signals	13.6	B	22.7	C	24.3	C
Orchard / Mooney	Signals	10.0	B	16.7	B	16.3	B
Caldwell / Demaree	Signals	29.6	C	26.6	C	36.1	D
Caldwell / Dans	TWS	**93.6**	**F**	**39.6**	**E**	**83.1**	**F**
Caldwell / County Center	Signals	18.6	B	28.4	C	35.1	D
Caldwell / Shady	Signals	13.1	B	14.1	B	14.5	B
Caldwell / Mooney	Signals	21.9	C	40.7	D	38.9	D
Caldwell / Fairway	Signals	13.3	B	16.9	B	19.8	B
Caldwell / Stonebrook	Signals	26.1	C	15.3	B	32.9	C
Cameron / County Center	OWS	18.2	C	23.8	C	33.2	D
Cameron / Mooney	Signals	17.8	B	35.8	D	29.8	C
Cameron / Stonebrook	OWS	**>300**	**F**	**>300**	**F**	**>300**	**F**
Cameron / West	TWS	**122.5**	**F**	**107.6**	**F**	**261.5**	**F**
Visalia Pwy / Demaree	Signals	29.4	C	21.7	C	25.4	C
Visalia Pwy / Dans	TWS	**85.1**	**F**	21.7	C	31.2	D
Visalia Pwy / County Center	OWS	**81.9**	**F**	**72.7**	**F**	**>300**	**F**
Visalia Pwy / Outlot 1	OWS	11.4	B	12.8	B	13.3	B
Visalia Pwy / Main Site	TWS	**116.5**	**F**	**>300**	**F**	**>300**	**F**
Visalia Pwy / East Site	OWS	13.8	B	24.9	C	21.1	C
Visalia Pwy / Mooney	Signals	33.3	C	**60.3**	**E**	**60.4**	**E**
Visalia Pwy / Stonebrook	OWS	**55.4**	**F**	**142.4**	**F**	**>300**	**F**
North Site / Mooney	OWS	12.7	B	19.9	C	19.4	C
South Site / Mooney	OWS	13.0	B	30.9	D	28.0	D
Midvalley / Mooney	Signals	5.9	A	6.9	A	6.3	A
Ave 272 / Road 108	Signals	14.1	B	12.2	B	14.4	B
Ave 272 / Mooney	TWS	**>300**	**F**	**>300**	**F**	**>300**	**F**
Ave 268 / Mooney	Signals	8.7	A	10.8	B	21.7	C

Table 13.2
Queuing Analysis Summary – 20-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Whitendale / County Center	Storage	100+	*	35	100+	*	35	100+	*	50	100+	*	50
	A.M.	162	306	23	47	269	0	107	178	0	69	174	34
	Midday	54	241	0	55	213	7	59	210	0	79	184	0
	P.M.	96	324	15	87	263	2	86	257	0	62	211	4
Whitendale / Mooney	Storage	150	*	260	250	*	240	335	740	125	465	*	190
	A.M.	60	102	46	85	116	18	51	160	43	37	150	0
	Midday	90	114	129	159	124	34	148	346	83	109	424	11
	P.M.	68	139	72	130	150	0	132	281	74	77	348	1
Sunnyside / Mooney	Storage	170	*	S	100	*	S	400	*	S	290	750	S
	A.M.	73	24		13	25		104	178		92	188	
	Midday	**211**	53		31	49		237	384		124	562	
	P.M.	**278**	55		30	59		135	372		112	471	
Orchard / Mooney	Storage	125+	125+	S	105	780	S	125	540	100	275	*	100
	A.M.	10	10		33	20		12	166	0	67	120	0
	Midday	54	45		102	61		42	419	0	264	364	0
	P.M.	41	38		100	54		54	340	0	202	349	0
Caldwell / Demaree	Storage	260	*	S	265	*	135	240	*	125	255	*	S
	A.M.	229	280		79	279	52	117	258	0	86	303	
	Midday	205	307		114	270	64	82	204	54	105	234	
	P.M.	**358**	465		136	349	100	116	255	57	163	271	
Caldwell / Dans	Storage	+	DNS	S	+	DNS	S	S	*	S	S	200	S
	A.M.	3			5				150			15	
	Midday	0			3				28			28	
	P.M.	3			5				63			53	
Caldwell / County Center	Storage	105+	*	S	145+	*	S	105+	*	45	100+	*	50
	A.M.	68	187		19	157		120	126	0	86	140	38
	Midday	84	342		21	266		207	160	0	157	150	17
	P.M.	125	387		32	272		226	180	0	162	162	31
Caldwell / Shady	Storage	250	*	S	250	700	S	S	*	S	S	500	125
	A.M.	38	164		29	144			40			12	0
	Midday	58	194		63	178			35			28	0
	P.M.	63	235		77	195			50			25	0
Caldwell / Mooney	Storage	350	715	S	350	750	S	300	*	165	275	535	270
	A.M.	76	127		71	115		62	155	38	39	148	15
	Midday	199	236		208	152		234	321	63	148	522	50
	P.M.	197	293		187	182		210	333	90	152	441	46
Caldwell / Fairway	Storage	200	750	S	290	*	S	120	375	S	55	*	S
	A.M.	57	94		71	122		19	30		29	22	
	Midday	91	141		113	154		56	70		**61**	55	
	P.M.	120	208		154	181		67	75		**120**	56	
Caldwell / Stonebrook	Storage	255	*	100	300	*	NS	S	*	S	S	540	540
	A.M.	30	104	18	261	162	0		65			58	4
	Midday	55	190	27	136	181	25		78			52	10
	P.M.	86	531	26	275	236	25		230			98	17

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 13.2 (Continued)
Queuing Analysis Summary – 20-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cameron / County Center	Storage	DNE	DNE	DNE	*	DNE	105	DNE	DNS	DNS	150	DNS	DNE
	A.M.				15		18				15		
	Midday				20		60				25		
	P.M.				50		63				30		
Cameron / Mooney	Storage	155+	*	S	300	*	S	240	*	150	210	*	150
	A.M.	82	87		118	104		17	180	32	54	142	0
	Midday	344	186		251	127		81	402	34	**237**	439	117
	P.M.	225	210		240	152		70	401	55	188	318	65
Cameron / Stonebrook	Storage	TBD	DNS	S	TBD	DNS	S	150+	890	S	TBD	*	S
	A.M.	3			40			XX	720		XX	515	
	Midday	8			25			XX	715		XX	513	
	P.M.	10			30			XX	**>1000**		XX	748	
Cameron / West	Storage	100+	DNS	DNS	95+	DNS	DNS	S	550	NS	110+	*	NS
	A.M.	13			0				78	3	3	3	35
	Midday	10			0				38	0	0	3	30
	P.M.	15			3				63	3	13	13	40
Visalia Pwy/ Demaree	Storage	190	*	250	145	*	NS	300	*	S	300	*	S
	A.M.	54	296	0	54	90	12	77	195		139	147	
	Midday	35	144	0	125	62	33	46	145		168	128	
	P.M.	29	290	0	55	81	44	77	210		169	174	
Visalia Pwy/ Dans	Storage	195	DNS	S	75+	DNS	S	S	350	S	S	*	S
	A.M.	20			0				10			198	
	Midday	3			0				0			23	
	P.M.	3			0				3			35	
Visalia Pwy/ County Center	Storage	200+	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	195+	DNE	775
	A.M.	10									140		48
	Midday	8									160		20
	P.M.	15									365		40
Visalia Pwy/ Outlot 1	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									0			
	Midday									5			
	P.M.									8			
Visalia Pwy/ Main Site	Storage	S	*	DNE	DNE	725	S	S	P	S	S	P	S
	A.M.		5			10			350			10	
	Midday		8			18			**<1000**			635	
	P.M.		10			15			**975**			643	
Visalia Pwy/ East Site	Storage	DNE	DNS	S	DNE	DNS	DNE	DNE	DNE	P	DNE	DNE	DNE
	A.M.									23			
	Midday									83			
	P.M.									60			
Visalia Pwy/ Mooney	Storage	180	*	TBD	175	*	S	240	*	S	295	*	215
	A.M.	**312**	176	45	**414**	315		151	388		48	221	19
	Midday	**652**	253	58	**294**	416		**259**	436		190	326	55
	P.M.	**643**	271	60	**364**	441		**241**	593		133	332	53

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
See Section 1.5 for a list of abbreviations

Table 13.2 (Continued)
Queuing Analysis Summary – 20-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Visalia Pwy/ Stonebrook	Storage	TBD	DNS	DNE	DNE	DNS	S	DNE	DNE	DNE	TBD	DNE	TBD
	A.M.	25									98		118
	Midday	25									210		35
	P.M.	33									**425**		48
North Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	DNE	DNS	DNE	DNE	DNS	DNS
	A.M.			13									
	Midday			40									
	P.M.			30									
South Site / Mooney	Storage	DNE	DNE	P	DNE	DNE	DNE	TBD	DNS	DNE	DNE	DNS	DNS
	A.M.			15				28					
	Midday			55				135					
	P.M.			43				103					
Midvalley / Mooney	Storage	S	*	25	S	*	S	475	*	S	470	*	145
	A.M.		42	0		0		15	248		15	214	3
	Midday		44	0		0		18	337		22	345	15
	P.M.		45	0		0		15	362		17	361	19
Ave 272 / Road 108	Storage	185	*	S	175	*	S	230	*	S	260	*	S
	A.M.	25	85		19	57		32	253		78	179	
	Midday	21	49		28	58		20	150		50	147	
	P.M.	29	40		31	125		26	232		31	223	
Ave 272 / Mooney	Storage	S	*	S	S	*	S	470	DNS	S	480	DNS	S
	A.M.		295			208		3			0		
	Midday		373			XX		8			3		
	P.M.		XX			XX		53			5		
Ave 268 / Mooney	Storage	S	800	NS	S	*	S	480	*	S	475	*	S
	A.M.		32	0		42		84	237		57	255	
	Midday		104	5		25		79	272		54	330	
	P.M.		159	37		28		133	454		80	560	

* Greater than 1,000 feet to next signalized or all-way stop controlled intersection.
\+ Connects to a two-way left-turn lane that provides additional storage.
XX Where Synchro calculates very high delays and volume-to-capacity ratios, the software is unable to calculate a meaningful queue length. A specific threshold is not indicated as the analysis incorporates various variables.
See Section 1.5 for a list of abbreviations

13.5 – 20-Year Cumulative With Project Transit, Bicycle, and Pedestrian Facilities

The proposed Project is not expected to impede or interfere with existing transit, bicycle, and pedestrian facilities.

13.6 – 20-Year Cumulative With Project Potentially-Significant Impacts and Mitigation Measures

The cumulative 20-year potentially-significant impacts are described below, followed by the recommended mitigation measure or action.

Impact 20-1

At the intersection of Caldwell Avenue and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. and p.m. peak hours and LOS E during the midday peak hour.

Recommendation 20-1

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-2

At the intersection of Cameron Avenue and Stonebrook Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 20-2

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-3

At the intersection of Cameron Avenue and West Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 20-3

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-4

At the intersection of Visalia Parkway and Dans Street, the cumulative effect of the Project and regional growth will cause LOS F during the a.m. peak hour.

Recommendation 20-4

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted and if the City desires traffic signals closely spaced from County Center Drive. If the City anticipates installation of traffic signals in the future, the Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-5

At the intersection of Visalia Parkway and County Center Drive, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 20-5

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-6

At the intersection of Visalia Parkway and the Main Site Access, the intersection would operate at LOS F during all three peak hours with two-way stop control.

Recommendation 20-6

Considering the anticipated heavy minor street volumes and heavy turning movements over numerous hours per day, and that the peak-hour traffic signal warrant is expected to be satisfied in the existing-plus-Project condition, it is recommended that traffic signals be installed at the intersection. The proposed driveway should be aligned with the existing driveway on the north side of Visalia Parkway to facilitate signalization. The intersection should be designed to accommodate the ultimate planned lane configurations; however, the minimum lane configurations required in the 20-year condition are as follows:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: one left-turn lane and one through lane with a shared right turn
Northbound: one shared left-turn/through and one right-turn lane
Southbound: one shared left-turn/through/right-turn lane (existing driveway)

The main site access intersection was analyzed as a full opening as proposed by the Project; and preventing left turns at the intersection is not recommended. It is noted that the proposed main site access is opposite an existing driveway at the Target Shopping Center to the north, and there is another existing Target Shopping Center driveway located east of the proposed main site access. These two existing driveways are currently full access openings with a total left-turn volume exiting the shopping center and turning left to eastbound Visalia Parkway of 153 vehicles during the midday peak hour and 135 vehicles during the p.m. peak hour. The proposed median on Visalia Parkway will eliminate left turns from the eastern existing Target driveway, and a ¾ access opening at the main site access would also eliminate left turns out from a second Target driveway. Completely eliminating left turns out of both Target driveways will redirect the vehicles currently turning left, and is likely to result in a very high number of U-turns at the main site access from westbound to eastbound. The U-turn volume is likely to be on the order of 150 vehicles per hour, and since U-turns generally occur more slowly than left turns, the equivalent left turn volume may be on the order of 225 to 300 vehicles. This would be in addition to the Project trips that are expected to turn left into the proposed Project at the main site access (203 during the midday peak hour and 161 during the p.m. peak hour). It is our opinion that a ¾ access at the proposed main site access would result in an overwhelming number of left and U-turns from westbound Visalia Parkway.

Furthermore, preventing lefts out from all of the proposed Project driveways would likely result in a substantial number of additional U-turns at Mooney Boulevard from eastbound to westbound on Visalia Parkway. There are currently 102 and 107 left turns from

eastbound Visalia Parkway to northbound Mooney Boulevard during the midday and p.m. peak hours, respectively. With the Project as proposed, it is estimated that these volumes will be on the order of 575 and 474, respectively, in the 20-year scenario, requiring two left turn lanes. Preventing left turns from the proposed Project to westbound Visalia Parkway would likely add 131 and 169 U-turns, respectively, resulting in projected totals of 706 and 643, respectively. Considering that U-turns occur more slowly, these values could operate at conditions equivalent to left-turn volumes as high as 837 and 812, respectively. The queue lengths associated with left-turn volumes in excess of 300 per hour per lane are expected to be substantial. Therefore, a full opening with traffic signals is recommended at the proposed main site access/Target driveway intersection.

Impact 20-7

At the intersection of Visalia Parkway and Stonebrook Street, the cumulative effect of the Project and regional growth will cause LOS F during the peak hours.

Recommendation 20-7

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. The Project may be required to pay an equitable share of the cost of the future traffic signals if they are not already included in the development fee program.

Impact 20-8

At the intersection of Visalia Parkway and Mooney Boulevard, the cumulative effect of the Project and regional growth will cause LOS E during the midday peak hour and will cause the calculated 95th percentile queues to exceed the existing storage capacity in the left-turn lanes on the eastbound, westbound, and northbound approaches.

Recommendation 20-8

The intersection will require widening to the following minimum lane configurations to operate at acceptable levels of service:

Eastbound: two left-turn lanes, one through lane, and one right-turn lane
Westbound: two left-turn lanes, one through lane, and one right-turn lane
Northbound: one left-turn lane, two through lanes, and one right-turn lane
Southbound: one left-turn lane, three through lanes, and one right-turn lane

Impact 20-9

At the intersection of Avenue 272 and Mooney Boulevard, the cumulative effect of the Project and regional growth will exacerbate delays associated with the existing LOS F during all three peak hours.

Recommendation 20-9

Traffic signals are expected to mitigate the intersection to acceptable levels of service, if warranted. A roundabout would also mitigate the intersection to acceptable levels of service. An Intersection Control Evaluation Report (ICE) will eventually be required by Caltrans to identify the preferred control; it is recommended that the ICE report not be required as part of the environmental review. The ICE may be deferred until such time as

the intersection improvements are imminent. It is noted that Caltrans typically prefers that Sidra software be utilized to analyze roundabouts. In our experience, the Synchro software typically provides delay results that are greater the Sidra results. It is our opinion that, if the Synchro software indicates an acceptable LOS for a roundabout, then a roundabout may be considered as a feasible improvement. The ICE report, when prepared, should utilize Sidra software or the software required by Caltrans at that time. The Project may be required to pay an equitable share of the cost of the future traffic signals or roundabout at the discretion of the City of Visalia.

13.7 – Summary of 20-Year Cumulative With Project Mitigated Conditions

Tables 13.3 and 13.4 present a summary of the mitigated conditions. The mitigated intersection analyses sheets are presented in Appendix F.

Table 13.3
Mitigated Intersection Analysis Summary – 20-Year With Project

Intersection	Control	A.M. Peak Hour		Midday Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Caldwell / Dans	Signals	10.5	B	9.2	A	10.8	B
Cameron / Stonebrook	Signals	23.3	C	20.1	C	26.0	C
Cameron / West	Signals	14.2	B	13.2	B	15.9	B
Visalia Pwy / Dans	Signals	18.9	B	9.8	A	10.0	A
Visalia Pwy / County Center	Signals	14.5	B	11.7	B	18.6	B
Visalia Pwy / Main Site	Signals	14.3	B	20.1	C	20.9	C
Visalia Pwy / Mooney	Signals	24.5	C	31.6	C	31.1	C
Visalia Pwy / Stonebrook	Signals	23.2	C	17.7	B	22.4	C
Ave 272 / Mooney	Signals	12.0	B	10.9	B	12.3	B
	Round	10.1	B	15.8	C	21.9	C

Table 13.4
Mitigated Queuing Analysis Summary – 20-Year With Project

Intersection		Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Caldwell / Dans	A.M.	35	194		47	180			42			0	
	Midday	17	311		23	201			23			1	
	P.M.	27	370		35	226			5			7	
Cameron / Stonebrook	A.M.	50	143		278	130		77	81	45	39	158	
	Midday	85	214		196	186		86	76	58	60	162	
	P.M.	115	259		234	167		107	74	57	58	153	
Cameron / West	A.M.	123	194	0	4	244	0		31	0	7	6	28
	Midday	112	458	0	12	341	0		22	0	3	8	36
	P.M.	159	569	0	29	325	0		26	0	12	14	45
Visalia Pwy/ Dans	A.M.	145	192		7	312			0			48	
	Midday	33	245		14	292			6			32	
	P.M.	35	373		13	413			0			35	
Visalia Pwy/ County Center	A.M.	103	113			275					73		30
	Midday	64	139			332					95		29
	P.M.	158	164			567					139		43
Visalia Pwy/ Main Site	A.M.	59	184	12	93	179			58	44		16	
	Midday	101	187	29	172	174			110	49		119	
	P.M.	109	292	17	150	278			84	45		111	
Visalia Pwy/ Mooney	A.M.	159	182	47	161	247	0	143	273	38	48	206	40
	Midday	268	241	55	155	252	15	196	272	57	131	305	52
	P.M.	254	264	58	160	263	0	201	367	57	99	325	52
Visalia Pwy/ Stonebrook	A.M.	195	40			259					62		42
	Midday	250	87			153					89		42
	P.M.	275	125			288					116		48
Ave 272 / Mooney (Signals)	A.M.		51			44		54	318		9	202	
	Midday		58			34		41	345		31	494	
	P.M.		38			26		204	416		33	517	
Ave 272 / Mooney (Round)	A.M.		50			25			100			75	
	Midday		25			0			150			225	
	P.M.		25			0			275			300	

Lanes should be designed to accommodate the calculated queues and should consider the calculated queues in the 20-year scenario. The City of Visalia requires a minimum storage length of 300 feet.
See Section 1.5 for a list of abbreviations

14.0 – SITE CIRCULATION AND ACCESS

As required by the City Procedures, a review of the proposed site plan is performed to identify potential issues related to on-site circulation and site access. The proposed plan appears to provide adequate circulation throughout the site.

Potential concerns include:

- The proximity of the northernmost convenience store internal driveway to the eastern site access driveway at Visalia Parkway, and
- The presence of parking stalls within the throat at the northern access on Mooney Boulevard.

Per the City Procedures, each site access driveway will require a right-turn deceleration lane based on the speed limits and traffic volumes on both Mooney Boulevard and Visalia Parkway.

A detailed analysis of each site access intersection is included in the intersection analysis sections of this report.

15.0 – SUMMARY OF POTENTIALLY-SIGNIFICANT IMPACTS AND RECOMMENDATIONS

Table 15.1 presents the study intersections at which the Project will either cause or contribute to a potentially-significant impact, and presents a summary of the recommendations determined for each analysis scenario.

Table 15.1
Summary of Recommendations

Intersection	Project Scenario			
	Existing Plus Project*	Five-Year	10-Year	20-Year
Caldwell / Dans	2-1: Signals not warranted. Construct no improvements.	5-1: Equitable share if City chooses future signalization.	10-1: Same as Five-Year	20-1: Same as Five-Year
Cameron / Stonebrook	2-2: Signals not warranted. Construct no improvements.	5-2: Equitable share of traffic signals.	10-2: Same as Five-Year	20-2: Same as Five-Year
Cameron / West	2-3: Signals not warranted. Construct no improvements.	5-3: Equitable share of traffic signals.	10-3: Same as Five-Year	20-3: Same as Five-Year
Visalia Pwy / Dans	2-4: Signals not warranted. Construct no improvements.	5-4: Equitable share if City chooses future signalization.	10-4: Same as Five-Year	20-4: Same as Five-Year
Visalia Pwy / County Center	2-5: Signals not warranted. Construct no improvements.	5-5: Equitable share of traffic signals.	10-5: Same as Five-Year	20-5: Same as Five-Year
Visalia Pwy / Main Site	2-6: Install traffic signals.	5-6: Same as Five-Year	10-6: Same as Five-Year	20-6: Same as Five-Year
Visalia Pwy / Stonebrook				20-7: Equitable share of traffic signals.
Visalia Pwy / Mooney	2-7: Install median and widen intersection.	5-7: Same as Five-Year	10-7: Same as Five-Year	20-8: Same as Five-Year with additional lane.
Ave 272 / Mooney	2-8: Signals not warranted. Construct no improvements.	5-8: Equitable share of traffic signals or roundabout.	10-8: Same as Five-Year	20-9: Same as Five-Year

* The conclusions for the existing-plus-Phase 1 scenario are the same as the existing-plus-Phases 1 and 2 scenario.

Where required cumulative improvements are not included in a traffic impact fee to be paid by the Project and the Project is not 100-percent responsible for the improvement, the Project's financial responsibility for the improvement can be determined based on equitable share calculations. Caltrans recommends the following equation as presented in the Caltrans

Guide for the Preparation of Traffic Impact Studies to determine a project's equitable share of the cost of improvements to State facilities:

$$P = \frac{T}{T_B - T_E}$$

where:

P = The equitable share of the project's traffic impact;
T = The project trips generated during the peak hour of the adjacent State Highway facility;
T_B = The forecasted (cumulative with project) traffic volume on the impacted State highway facility;
T_E = The existing traffic on the State Highway facility plus approved projects traffic.

Table 15.2 presents equitable share responsibility calculations for the 20-year recommendations based on p.m. peak hour trips.

Table 15.2
Equitable Share Responsibility Calculations – P.M. Peak Hour

Location	Project Trips	Existing Volume	20-Year Volume	Equitable Share
Caldwell / Dans	91	1,856	2,326	19.4%
Cameron / Stonebrook	117	1,543	2,501	12.2%
Cameron / West	117	1,425	1,790	32.1%
Visalia Pwy / Dans	96	932	1,247	30.5%
Visalia Pwy / County Center	167	1,043	1,597	30.1%
Visalia Pwy / Main Site				100%
Visalia Pwy / Mooney	638	2,640	3,927	49.6%
Visalia Pwy / Stonebrook	53	416	1,501	4.9%
Ave 272 / Mooney	321	2,346	3,226	36.5%

16.0 – CONCLUSIONS

Generally-accepted traffic engineering principles and methods were employed to estimate the number of trips expected to be generated by the Project, to analyze the existing traffic conditions, and to analyze the traffic conditions projected to occur in the future.

The conclusion of the traffic impact analysis is that the Project is likely to cause or contribute to potentially-significant traffic impacts as identified in this report. Recommended mitigation measures or actions are summarized in Table 15.1.

In general, it is recommended that the Project construct traffic signals at the main site access driveway on Visalia Parkway and widening at the intersection of Visalia Parkway and Mooney Boulevard. The Project may also be required to contribute an equitable share to future intersections improvements if those improvements are not included in the City of Visalia development fee program.