PLANNING COMMISSION AGENDA

CHAIRPERSON: Marvin Hansen

VICE CHAIRPERSON: Adam Peck

COMMISSIONERS: Mary Beatie, Chris Tavarez, Chris Gomez, Adam Peck, Marvin Hansen

MONDAY, JULY 25, 2022
VISALIA COUNCIL CHAMBERS
LOCATED AT 707 W. ACEQUIA AVENUE, VISALIA, CA
MEETING TIME: 7:00 PM

1. CALL TO ORDER –

2. THE PLEDGE OF ALLEGIANCE –

3. CITIZEN'S COMMENTS – This is the time for citizens to comment on subject matters that are not on the agenda but are within the jurisdiction of the Visalia Planning Commission. You may provide comments to the Planning Commission at this time, but the Planning Commission may only legally discuss those items already on tonight's agenda.

   The Commission requests that a five (5) minute time limit be observed for Citizen Comments. You will be notified when your five minutes have expired.

4. CHANGES OR COMMENTS TO THE AGENDA –

5. CONSENT CALENDAR – All items under the consent calendar are to be considered routine and will be enacted by one motion. For any discussion of an item on the consent calendar, it will be removed at the request of the Commission and made a part of the regular agenda.

   - No items on the Consent Calendar

6. PUBLIC HEARING – Brandon Smith, Principal Planner

   General Plan Amendment No. 2021-03: A request to amend the General Plan land use designations on two parcels totaling 50 acres, resulting in the removal of a Residential Very Low Density land use designation, addition to a Residential Low Density land use designation, and establishment of a Parks/Recreation land use designation.

   Change of Zone No. 2021-04: A request to change the zoning on one parcel totaling 10 acres, resulting in the removal of a R-1-20 (Single-Family Residential 20,000 square foot minimum lot area) zone designation, addition to a R-1-5 (Single-Family Residential 5,000 square foot minimum lot area) zone designation, and establishment of a QP (Quasi-Public) zone designation.

   Shepherds Ranch I Tentative Subdivision Map No. 5581: A request to subdivide 10 acres into a 41-lot single-family residential subdivision with two outlots for landscaping, lighting, and park purposes.

Shepherds Ranch II Tentative Subdivision Map No. 5589: A request to subdivide 40 acres into a 200-lot single-family residential subdivision with three outlots for landscaping, park, and trail purposes.

Tentative Parcel Map No. 2022-03: A request to subdivide 40 acres into three parcels for phasing and financing purposes.

Annexation No. 2022-04: A request to annex approximately 40 acres into the city limits of Visalia. Upon annexation, the area would be zoned R-1-5 (Single-Family Residential 5,000 square foot minimum lot area) and QP (Quasi-Public) zone designations, consistent with the General Plan Land Use Designation of Residential Low Density and Parks/Recreation.

Location: The project site consists of two parcels (located between Shirk Street and Road 88, 300 feet south of W. Pershing Court. (APN: 081-030-046, 080).

7. CITY PLANNER/ PLANNING COMMISSION DISCUSSION –
   a. Next Planning Commission meeting – August 8, 2022.
   b. August 1, 2022, City Council Meeting – GPA No. 2021-10/COZ No. 2021-12 (Tiger Tea House).
   c. July 18, 2022, City Council Meeting - Direction regarding objective design standards for Single-Family Residential zones.

The Planning Commission meeting may end no later than 11:00 P.M. Any unfinished business may be continued to a future date and time to be determined by the Commission at this meeting. The Planning Commission routinely visits the project sites listed on the agenda.

For Hearing Impaired – Call (559) 713-4900 (TTY) 48-hours in advance of the scheduled meeting time to request signing services.

Any written materials relating to an item on this agenda submitted to the Planning Commission after distribution of the agenda packet are available for public inspection in the City Office, 315 E. Acequia Visalia, CA 93291, during normal business hours.

APPEAL PROCEDURE

THE LAST DAY TO FILE AN APPEAL IS THURSDAY, AUGUST 4, 2022, BEFORE 5 PM

According to the City of Visalia Zoning Ordinance Section 17.02.145 and Subdivision Ordinance Section 16.04.040, an appeal to the City Council may be submitted within ten days following the date of a decision by the Planning Commission. An appeal form with applicable fees shall be filed with the City Clerk at 220 N. Santa Fe, Visalia, CA 93291. The appeal shall specify errors or abuses of discretion by the Planning Commission, or decisions not supported by the evidence in the record. The appeal form can be found on the city's website www.visalia.city or from the City Clerk.

THE NEXT REGULAR MEETING WILL BE HELD ON MONDAY, AUGUST 8, 2022

REPORT TO CITY OF VISALIA PLANNING COMMISSION

HEARING DATE: July 25, 2022

PROJECT PLANNER: Brandon Smith, Principal Planner
Phone No.: (559) 713-4636
Email: brandon.smith@visalia.city

SUBJECT: **General Plan Amendment No. 2021-03:** A request to amend the General Plan land use designations on two parcels totaling 50 acres, resulting in the removal of a Residential Very Low Density land use designation, addition to a Low Density Residential land use designation, and establishment of a Parks/Recreation land use designation.

Change of Zone No. 2021-04: A request to change the zoning on one parcel totaling 10 acres, resulting in the removal of a R-1-20 (Single-family Residential 20,000 square foot minimum lot area) zone designation, addition to a R-1-5 (Single-family Residential 5,000 square foot minimum lot area) zone designation, and establishment of a QP (Quasi-Public) zone designation.

Shepherds Ranch I Tentative Subdivision Map No. 5581: A request to subdivide 10 acres into a 41-lot single-family residential subdivision with two out lots for landscaping, lighting, and park purposes.

Shepherds Ranch II Tentative Subdivision Map No. 5589: A request to subdivide 40 acres into a 200-lot single-family residential subdivision with three out lots for landscaping, park, and trail purposes.

Tentative Parcel Map No. 2022-03: A request to subdivide 40 acres into three parcels for phasing and financing purposes.

Annexation No. 2022-04: A request to annex approximately 40 acres into the city limits of Visalia. Upon annexation, the area would be zoned R-1-5 (Single-family Residential 5,000 square foot minimum lot area) and QP (Quasi-Public) zone designations, consistent with the General Plan Land Use Designation of Residential Low Density and Parks/Recreation.

Location: The project site consists of two parcels located between Shirk Street and Road 88, 300 feet south of W. Pershing Court. (APN: 081-030-046, 080)

STAFF RECOMMENDATION

General Plan Amendment No. 2021-03, Change of Zone No. 2021-04, and Annexation No. 2022-04: Staff recommends that the Planning Commission recommend that the City Council approve these entitlements, based on the findings in Resolution Nos. 2021-35, 2021-36, and 2022-34, respectively. Staff's recommendation is based on the conclusion that the requests are consistent with the Visalia General Plan and Zoning Ordinance.

Shepherds Ranch I Tentative Subdivision Map No. 5581, Shepherds Ranch II Tentative Subdivision Map No. 5589, and Tentative Parcel Map No. 2022-03: Staff recommends that the Planning Commission approve these entitlements, as conditioned, based on the findings and conditions in Resolution Nos. 2021-37, 2022-35, and 2022-36, respectively. Staff's recommendation is based on the conclusion that the requests are consistent with the Visalia General Plan, Zoning and Subdivision Ordinances.

RECOMMENDED MOTION

I move to recommend approval of **General Plan Amendment No. 2021-03, Change of Zone No. 2021-04, and Annexation No. 2022-04**, based on the findings in Resolution Nos. 2021-35, 2021-36, and 2022-34.

I move to approve **Shepherds Ranch I Tentative Subdivision Map No. 5581, Shepherds Ranch II Tentative Subdivision Map No. 5589, and Tentative Parcel Map No. 2022-03**, based on the findings and conditions in Resolution Nos. 2021-37, 2022-35, and 2022-36.

PROJECT DESCRIPTION

Project applicant D.R. Horton has filed entitlement applications for Shepherds Ranch (a.k.a. “Project”, see Exhibit “A” and Figure 1 below) to allow for the annexation of 40 acres into the Visalia city limits, the subdivision and development of 241 single-family homes and a 3.59-acre linear park (see conceptual exhibit included as Exhibit “B”) on a combined 50 acres, and changes to land use and zoning designations to facilitate these uses. The Project has two components - Shepherds Ranch I and Shepherds Ranch II – with each component having its own tentative subdivision map. The property containing Shepherds Ranch II is also the subject of a tentative parcel map to divide the property into three parcels for purposes of subdivision phasing and financing.

The Project will be developed across two existing parcels, located approximately 300 feet south of the intersection of Shirk Street and Pershing Court, situated between Shirk Street (an arterial roadway) and Road 88 (Clancy Street, a collector roadway). The parcels are a 10-acre parcel that fronts onto Shirk Street (being developed as Shepherds Ranch I) and a 40-acre parcel that that fronts onto Road 88 (being developed as Shepherds Ranch II). **Annexation No. 2022-04** is being requested to annex the 40-acre parcel – the site of Shepherds Ranch II – into the city limits. The Shepherds Ranch I site that is within the city limits is in Urban Development Boundary Tier I. The Shepherds Ranch II site that is currently outside the city limits is in Urban Development Boundary Tier II and is eligible for annexation and development.

General Plan Amendment No. 2021-03 and **Change of Zone No. 2021-04** have been requested by the applicant to facilitate a uniform residential land use designation together with a park designation on the site. The property currently has a land use designation of Residential Very Low Density (corresponding to a zone designation of Single-family Residential, 20,000 square foot minimum lot size or R-1-20) on approximately 18.8 acres along its north and west

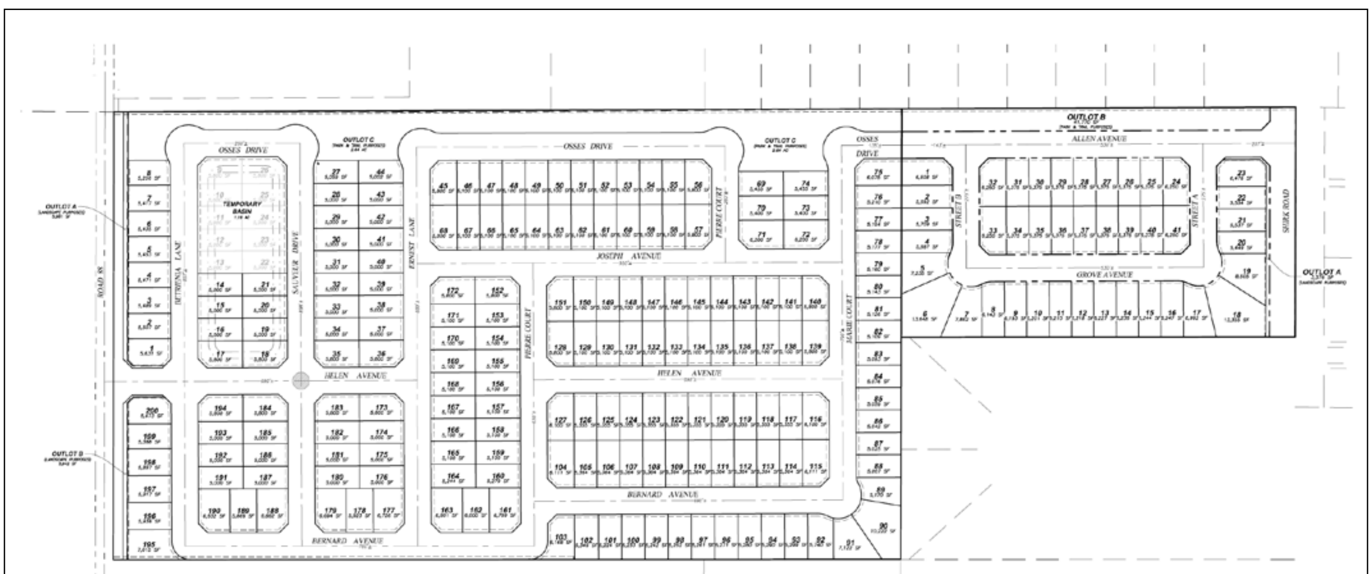


Figure 1: Shepherds Ranch subdivision layout

sides, which abut existing Industrial and Light Industrial land use designations (see Exhibits "F" and "G"). The remaining 32.0 acres of the property currently have a land use designation of Residential Low Density (corresponding to a zone designation of Single-family Residential, 5,000 square foot minimum lot size or R-1-5). The changes in designation will eliminate the Residential Very Low Density Designation, increase the Residential Low Density Designation to 47.2 acres, and establish a 3.6 acre Parks/Recreation designation along the north side of the site adjacent to existing industrial land uses (see Exhibits "H" and "I").

Shepherds Ranch I Tentative Subdivision Map No. 5581 (see Exhibit "C") will divide the 10-acre parcel into 41 residential lots and two outlots that will be maintained by a city landscape and lighting district. Proposed Outlot A will provide a 10-foot wide landscape setback and block wall between Shirk Street and the residential lots, and proposed Outlot B will be a 51-foot deep 0.96-acre lot that constitutes a portion of the greater linear park spanning between the two subdivisions. Access will be obtained through a new public local street (Allen Avenue) that will also provide a connection to the Shepherds Ranch II subdivision to the west. The residential lots will utilize standard R-1-5 zone lot and setback criteria, with standard lot sizes ranging between 5,482 to 6,247 square feet and knuckle lots being as large as 13,648 square feet.

Shepherds Ranch II Tentative Subdivision Map No. 5589 (see Exhibit "D") will divide the 40-acre parcel into 200 residential lots and three outlots that will be maintained by a city landscape and lighting district. Proposed Outlots A and B will provide a 10-foot wide landscape setback and block wall between Road 88 and the residential lots, and proposed Outlot C will be a 2.63-acre lot ranging from 41 to 138 feet in depth that constitutes the remaining portion of the linear park. Access will be obtained from the continuation of Allen Avenue to the east and one new street connection (Helen Avenue) to Road 88. The residential lots will utilize standard R-1-5 zone lot and setback criteria, with standard lot sizes ranging between 5,000 to 6,801 square feet and knuckle lots being as large as 10,222 square feet. Ten contiguous lots within the subdivision are shown to serve as a temporary basin.

On the Shepherds Ranch II project site, **Tentative Parcel Map No. 2022-03** (see Exhibit "E") will divide the 40-acre parcel into three parcels that correspond to the subdivision's phasing plan. The parcel lines are configured to create a public street connection between the west and east sides of the subdivision with the first phase of development.

As part of the subdivision improvements, Shirk Street and Road 88 will have right-of-way dedication and street widening and frontage improvements. The project will extend sewer lines, storm drainage, and other public infrastructure, utilities, and services (i.e., electricity, gas, and water) to serve the proposed residential lots. The linear park will include construction of a 7-foot concrete masonry unit wall along the entire north property line adjacent to industrial uses.

BACKGROUND INFORMATION

Existing General Plan Land Use Designation:	Residential Very Low Density, Residential Low Density
Proposed General Plan Land Use Designation:	Residential Low Density, Parks / Recreation
Existing Zoning Designation:	R-1-5 (Single-family Residential, 5,000 square foot minimum lot size), R-1-20 (Single-family Residential, 20,000 square foot minimum lot size)
Proposed Zoning Designation:	R-1-5 (Single-family Residential, 5,000 square foot minimum lot size), QP (Quasi-Public)

Surrounding Zoning and Land Use:	North:	Light Industrial / Shops & warehouses, outdoor building material storage
	South:	Residential Very Low Density, Residential Low Density, Parks-Recreation, Neighborhood Commercial / Orchards
	East:	Residential Very Low Density, Residential Low Density / Rural residences, vacant
	West:	Industrial / Row crops
Environmental Review:	Initial Study / Mitigated Negative Declaration No. 2021-33, State Clearinghouse #2022060683	
Special Districts:	None	
Site Plan Review:	No. 2021-017 (Shepherds Ranch I); No. 2021-229 (Shepherds Ranch II)	

RELATED PLANS & POLICIES

Please see attached summary of related plans and policies.

RELATED PROJECTS

None.

PROJECT EVALUATION

Staff supports the General Plan Amendment and Change of Zone based on the project's consistency with the Land Use Element of the General Plan. Specifically, these entitlements will facilitate an alternative land use plan on the overall 50-acre site that will still provide for residential housing that incorporates a greater separation and protection from an existing light industrial zoning designation and land uses to the north, while also conforming with the surrounding residential neighborhoods to the south and east.

Furthermore, staff recommends approval of the tentative subdivision maps associated with Shepherds Ranch I and II, and the tentative parcel map associated with the planned phasing for Shepherd's Ranch II, based on their consistency with the Land Use Element of the General Plan, the Zoning Ordinance, and the Subdivision Ordinance as they pertain to these entitlements.

General Plan Land Use and Zoning Designation Consistency

The proposed residential subdivisions require amending the City of Visalia General Plan land use and zoning designations in order to accommodate the subdivision's design pattern and lot pattern consisting of a minimum lot size of 5,000 square feet.

The existing General Plan land use map shows a Residential Very Low Density designation (i.e., 0.1 to 2 dwelling units / gross acre) on the north and west sides of the property, at a depth of approximately 240 feet. The designation is intended to serve as a buffer from the Light Industrial designation to the north and the Industrial designation to the west, wherein residences would be permitted at a lesser density and plotted in a manner that provides an increased setback between industrial and residential structures.

The proposed General Plan land use map replaces the Residential Very Low Density designation with a Parks / Recreation designation that is intended to facilitate a linear park that will serve as a buffer, according to the proposed tentative subdivision maps. The linear park will range in depth from 41 to 138 feet in depth; however, the total separation between the north property line abutting the Light Industrial designation and any residential lot's property line will range between 101 and 138 feet with the inclusion of a 60-foot wide local street in some portions of the buffer. The subdivisions propose, as shown in Exhibit “B”, the entire linear park to contain trees, landscaping, irrigation, and a ½-mile trail extending the entire width from Shirk to Road 88 (i.e., Clancy St.). Playground equipment (tot lot) and a picnic area are also identified in the linear park, and a 7-foot tall block wall will be placed along the abutting north property line.

To the west adjacent to the Industrial designation, the total separation between properties will be 94 feet, comprised of the 88-foot ultimate right-of-way width for Road 88 and a 10-foot landscape lot (Outlot B) between the road and the residential lots. A 6-ft., 8-in. concrete masonry unit block wall is included within Outlot B. It should be noted that the Industrial designated land to the west, located in Growth Tier I, is currently undeveloped and first requires annexation to the City limits.

Staff finds the proposed General Plan Amendment and Change of Zone will maintain consistency with the Land Use Element’s intent. Staff finds that the usage of the Parks / Recreation designation with minimum 100-foot depth can achieve the intended goal of providing a separation between industrial uses and residential uses as was envisioned with the Residential Very Low Density designation.

The Visalia General Plan identifies **Objective LU-O-34** to “ensure compatibility between industrial lands and adjacent dissimilar land uses”. The incorporation of buffering between industrial and residential land uses is further directed by the General Plan in the following **Policy LU-P-103**:

> Require buffering land uses adjacent to existing or planned residential areas adjacent to industrial designations. Such uses may include parks, drainage ponds, open space, or other such uses.

The removal of the Residential Very Low Density (RVLD) designation at this location is not inconsistent with any mandate or guiding principle in the General Plan. Land located east of the project area (i.e., between Shirk and Akers) contains several hundred acres of RVLD land use designations developed with rural residential homesites. Conversely, RVLD land located west of Shirk, which is currently undeveloped, is only positioned adjacent to industrial land use designations. The RVLD designation is also used at the edges of neighborhoods to provide a more gentle transition to rural uses and surrounding agricultural areas, particularly around the perimeter of Visalia’s Urban Growth Boundary, Tier III, in keeping with the following **Policy LU-P-54**:

> Update the Zoning Ordinance to reflect the Very Low Density Residential designation on the Land Use Diagram and create opportunities for residential dwellings at 0.1 to 2 units per gross acre, providing for single-family detached housing on large lots and a rural residential transition to surrounding agricultural areas.

Residential Low Density (RLD) designation (i.e., 2 to 10 dwelling units / gross acre) is identified by the General Plan for this area and for undeveloped land further to the south to Mill Creek and State Highway 198. An existing residential tract immediately to the south of the Shepherds Ranch I subdivision site is developed to rural residential lot standards with approximately ¾-acre lots; however, the Visalia General Plan also designates this area as Residential Low Density. Lots from that subdivision that will abut the existing residential tract to the south will have a greater depth, measuring approximately 124 feet, than the other lots in the subdivision which will range from 107 to 111 feet.

Overall, the two proposed subdivisions are compatible with existing residential and industrial development surrounding the site. The project is consistent with Land Use **Policy LU-P-19**, which states "ensure that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy." Being that the City is operating within the current (Tier II) Urban Development Boundary, the site is eligible for annexation and development. The following table summarizes the two subdivision's growth boundary status and density.

	Shepherds Ranch I	Shepherds Ranch II	**TOTAL**
Growth Area	Tier I	Tier II	--
Lots	41	200	241
Gross Area, excluding linear park	9.35	37.83	47.18
Density	4.39	5.29	5.11
Total Linear Park Area	0.96	2.63	3.59

Annexation No. 2021-03

The project proponents have also filed an application to initiate the annexation of the 40-acre parcel (i.e., Annexation No. 2022-03). The adjacent 10-acre parcel is already inside the City limits and is not impacted by the application to initiate the application. However, being that the entire project is contingent upon the GPA and COZ, the annexation will not move forward unless all other entitlements are approved.

The Annexation can be supported on the basis that the proposed use is consistent with Land Use **Policy LU-P-21**, which allows for the annexation and development of residential land to occur within the Urban Development Boundary Tiers I and II consistent with the City's Land Use Diagram. The site can be serviced with all of the requisite utility and infrastructure available to serve the site upon development. Cities can approve tentative maps prior to final approval of the annexation by the local agency formation commission but cannot approve the final subdivision map until after the land is annexed and the annexation is recorded through the Tulare County Recorder. Staff has included this requirement as Condition No. 11 of the Shepherds Ranch II Tentative Subdivision Map No. 5589 and Condition No. 4 of Tentative Parcel Map No. 2022-03.

Street Improvements and Local Street Connectivity

The developer of the subdivision will be required to construct major street improvements along both Shirk Street and Road 88 (Clancy Street). Improvements along the subdivision frontage for these major streets include improving the corresponding street frontages to their ultimate right-of-way design excepting the Shirk Street median due to vacant lands remaining west of Shirk. This remaining portion of Shirk to the south will receive a raised median at the time of development of the existing vacant lands to the west.

Shirk Street is a designated 110-foot wide arterial street. Improvements along the right of way within the boundaries of the subdivision map include improving the street to its full width on the west side, which requires an approximately 35-foot wide dedication. Full improvements will include a sidewalk, parkway with streetlights, curb, gutter, parking lane, Class II bike lane, two travel lanes, and landscaping. Shirk Street is currently improved with one southbound and one northbound lane, with partial street frontage improvements on the east side. The landscaping frontage is required to be dedicated as part of a Landscape and Lighting District which will be formed with the Shepherds Ranch I subdivision map. The Landscape and Lighting District lots are identified as Outlot "A" on the map (see Exhibit "C"). The establishment of the district provides maintenance of the landscape lots, block walls, street pavement and street lighting.

Also, as noted in the Engineering Division's Site Plan Review comments, all new utilities that will service the residential subdivision will be placed underground.

A separate capital improvement project is planned for the widening of Shirk Street to four lanes between School Avenue (1/4-mile to State Highway 198) and Riggin Avenue. This project will include the installation of a two-way left turn lane, which allows for full turning movements. The project is tentatively scheduled to commence Summer 2023, to be proceeded by the installation of a sewer trunk line in Fall 2022 that is anticipated to take between six to eight months. When the full width of Shirk is constructed a median will be installed that may restrict access to numerous drives. Instead of full turning movements, some access will be limited to right-in / right-out. In some cases, a left-in may occur. These are yet to be determined but will follow the City of Visalia standards and super block connectivity.

Clancy Street (Road 88) is a designated 84-foot wide collector street. Currently the roadway has no other outlets besides Goshen Avenue though the Circulation Element calls in the future for Hurley Avenue to be developed between Kelsey and Shirk Streets, at which point it will provide additional outlets for Road 88. The intersection of Goshen Avenue and Road 88 allows currently for all turning movements, and the project's Traffic Impact Study (ref.: Iron Ridge Residential Development Traffic Impact Study. VRPA Technologies, Inc., June 27, 2022) does not propose any improvements to this intersection or to other unimproved portions of Road 88 north of the subdivision access. Any future intersection improvements would be made on the City's own traffic counts and evaluation of the intersection over time.

Full improvements will include a sidewalk, parkway with streetlights, curb, gutter, parking lane, Class II bike lane, travel lane, two-way left turn lane, and landscaping. Road 88 is currently improved with unmarked asphalt paving that is able to accommodate two passing cars. Improvements along the right of way within the boundaries of the subdivision map include improving the street to its full width on the east side, which requires an approximately 22-foot wide dedication. This will allow for construction of the two travel lanes, center left-turn lane, and the east side frontage improvements.

The landscaping frontage is required to be dedicated as part of a Landscape and Lighting District which will be formed with the Shepherds Ranch I subdivision map. The Landscape and Lighting District lots are identified as Outlots "A" and "B" on the map (see Exhibit "D"). The establishment of the district provides maintenance of the landscape lots, block walls, street pavement and street lighting.

Local Street Connectivity: Immediately south of the Shepherds Ranch II subdivision site is vacant land that is designated for residential, park, and commercial uses. The proposed subdivision can incorporate a local street connection to future residential development to the south along Bernard Avenue, which abuts the southern property line.

Traffic Impact Study

A Traffic Impact Study was prepared for the proposed project (ref.: Iron Ridge Residential Development Traffic Impact Study. VRPA Technologies, Inc., June 27, 2022). The purpose of the study is to analyze traffic conditions related to the development of the subdivision and its projected level of service (LOS) at opening year and at five-year increments, and the corresponding environmental impact as required by the California Environmental Quality Act (CEQA).

The TIS identified four intersections in the project vicinity that would experience unacceptable LOS in the long term.

Specifically, the intersections of Shirk & Hillsdale and Shirk & School are forecasted to operate at unacceptable levels under the existing (a.m. only) and opening year scenarios, however, these intersections do not meet traffic signal warrants because the local streets do not carry enough traffic to justify signalization. The future planned widening of Shirk Street will assist in improving traffic flow and safety.

The intersection of Shirk Street and the State Route 198 Eastbound ramp are forecasted to operate at unacceptable levels under the opening year scenario and at 5-year horizons. The intersection of Shirk Street and the State Route 198 Westbound ramp is currently operating at unacceptable levels, even without the project. Per discussions with Caltrans, a signalization improvement project is currently being planned, while an entire reconstruction of the interchange is planned in the long term (i.e., over 10 years out). The TIS and the environmental study's mitigation measures therefore recommend that the project contribute to the City's traffic impact fee program, which will directly or indirectly contribute to the intersection improvements.

A Vehicle Miles Traveled (VMT) analysis was also conducted by comparing the project's expected VMT per capita to regional averages. Since the study concluded that the project's VMT will be 32.8% less than the regional average, meeting the 16% level of significance threshold, the impacts to VMT are concluded to be less than significant.

Acoustical Analysis

An Acoustical Analysis was prepared for the proposed project (ref.: Environmental Noise & Vibration Assessment, Iron Ridge Development I & II. Bollard Acoustical Consultants, March 29, 2022). The purpose of the study is to determine the proposed project's noise generating impacts pertaining to construction and additional traffic generation, and the corresponding environmental impact as required by the California Environmental Quality Act (CEQA).

In addition, the study was also to determine if existing noise levels associated with the adjacent industrial operations to the north would comply with the City's applicable noise level standards upon the proposed single-family residential uses. However, CEQA does not require an analysis of off-site impacts on the project itself.

The analysis concluded that an exterior noise level in excess of the daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, specified in the City's Noise Element, exists on the project site. The study identified one current noise generator in the industrial park, identified on a map (i.e., Figure 5) within the acoustical analysis, that attributed to exceeding the noise level requirements at the recording source. The noise level would be 58 dB at the property line of the nearest single-family residence proposed within the development, not accounting for the addition of a 7'-tall concrete wall as required by the City Zoning Ordinance. To ensure that residents within the subdivision are familiar with the excess of City standards for noise, the developer will be required to record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the project site. This requirement is addressed as Condition No. 7 of both tentative subdivision maps.

An additional mitigation measure is included within the project's environmental review for CEQA purposes, supported by the acoustical analysis, to address impacts from construction activities.

An additional condition of approval (i.e. Condition No. 12 of the Shepherds Ranch I site) is being recommended to address the interior noise levels standards based on future traffic noise along Shirk Street, supported by the acoustical analysis. To satisfy the 45 dB DNL interior noise level standard, taking into consideration the inclusion of a factor of safety, second-story windows of residences that have a view of (i.e. front onto) Shirk Street shall be upgraded to have a STC rating of 32.

Development Standards

The proposed subdivision's lots will utilize standard single-family residential standards for lot size and setbacks. The lots will be required to meet R-1-5 zone setback standards, including a 15-foot setback to living space, a 22-foot setback to a front-loading garage, a 5-foot setback to an interior side property line, a 10-foot setback to a street side property line, and a 20 to 25-foot setback to rear property lines.

All lots will have lot depths ranging from approximately 95 feet to 124 feet, excepting lots located on cul-de-sac or knuckle street bulbs that account for approximately 5% of the total lot count (i.e. approximately 12 lots). These lots will also be required to utilize standard single-family residential setback standards but are permitted to have a 20-foot setback for front-loading garages as identified in Section 17.12.080.C of the Zoning Ordinance.

Park / Open Space

The subdivision will include the construction of a linear park over its phased construction (see Phasing Plan discussion below). The park will be maintained by a Landscaping & Lighting District assessment similar to pocket parks in other subdivisions, despite the fact that the total park area (over 3 acres) is significantly largest than most pocket park sizes (generally 0.5 to 2 acres). A public park is designated by the General Plan to be located directly south of the project, though there is no certain timeframe for annexation and development of this site. The nearest existing public parks to this site are Willow Glen Park and Lions Park, located 1.0 and 1.25 miles to the northeast and east.

Phasing Plan

The applicant intends to phase development of the entire project, starting with the development of Shepherds Ranch I (intended to be developed as a single phase) and progressing toward the west with Shepherds Ranch II being developed in three phases. According to the Shepherds Ranch II maps shown in Exhibits “D” and “E”, Phase 1 will include extending a local street to Road 88 to provide a secondary access to the subdivision, with Phases 2 and 3 filling out both sides of this local street connection. Staff is supportive of the planned phasing and is further recommending conditions of approval (refer to Condition No. 10 on both subdivision maps) to ensure that the development will take access from Shirk Street first and Road 88 second, with the first phase of development.

The linear park and 7-foot block wall span the two subdivisions, though portions will be developed with each respective subdivision map. Thus, with Shepherds Ranch I, only the linear park and wall encompassed within Outlot B will be constructed. With Shepherds Ranch II, the linear park and block wall is shown in Exhibits “D” and “E” to be developed in Phase 2. However, staff is recommending that the portion of the park and wall located adjacent to the three Phase 1 lots – Lots 69, 74, and 75 – be developed with the Phase 1 improvements. Condition No. 3 of Shepherds Ranch II recommends the linear park and wall to be split over phases. As such, the Phase 1 improvements must be completed with Phase 1 and shall include construction of the tot lot playground. Staff is amenable to not requiring development of the entire linear park with the Phase 1, since Phase 1 will include construction of the local street connection to Road 88 and since the park area located outside of Phase 1 is not directly visible or accessible to the public.

Landscape and Lighting District and Block Walls

A Landscaping and Lighting District (LLD) will be required for the long-term maintenance of the out lot, including the linear park, which include blocks walls, streetlights, landscaping, and all park amenities as noted on Exhibits "C" and "D".

The block walls along street frontages will be typical City standard block walls. The subdivision map block wall heights will be reduced to three feet where the block wall runs adjacent to the front yard setback areas. The three-foot transition areas are applicable for the corner residential lots within the two subdivisions. Staff has included Map Condition No. 5 in both maps to require the stepped down walls.

Subdivision Map Act Findings

California Government Code Section 66474 lists seven findings for which a legislative body of a city or county shall deny approval of a tentative map if it is able to make any of these findings. These seven "negative" findings have come to light through a recent California Court of Appeal decision (*Spring Valley Association v. City of Victorville*) that has clarified the scope of findings that a city or county must make when approving a tentative map under the California Subdivision Map Act.

Staff has reviewed the seven findings for a cause of denial and finds that all of the findings can be made for approving the project. The seven findings and staff's analysis are below. Recommended finings in response to this Government Code section are included in the recommended findings for the approval of the tentative subdivision map.

GC Section 66474 Finding	Analysis
(a) That the proposed map is not consistent with applicable general and specific plans as specified in Section 65451.	The proposed maps have been found to be consistent with the City's General Plan. This is included as recommended Finding No. 1 of the Tentative Subdivision Maps and Tentative Parcel Map. There are no specific plans applicable to the proposed map.
(b) That the design or improvement of the proposed subdivision is not consistent with applicable general and specific plans.	The proposed design and improvement of the map has been found to be consistent with the City's General Plan. This is included as recommended Finding No. 1 of the Tentative Subdivision Maps and Tentative Parcel Map. There are no specific plans applicable to the proposed map.
(c) That the site is not physically suitable for the type of development.	The site is physically suitable for the proposed map and its affiliated development plan, which is designated as Low Density Residential and developed at a density of 5.11 units per acre. This is included as recommended Finding No. 3 of the Tentative Subdivision Maps and Tentative Parcel Map.
(d) That the site is not physically suitable for the proposed density of development.	The site is physically suitable for the proposed map and its affiliated development plan, subject to City Council approval of the General Plan and Change of Zone, for the proposed Low Density Residential land use designation. This is included as

	recommended Finding No. 4 of the Tentative Subdivision Maps and Tentative Parcel Map.
(e) That the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.	The proposed design and improvement of the map has not been found likely to cause environmental damage or substantially and avoidable injure fish or wildlife or their habitat. This finding is further supported by the project's determination of no new effects under the Guidelines for the Implementation of the California Environmental Quality Act (CEQA), included as recommended Finding No. 6 of the Tentative Subdivision Maps and Tentative Parcel Map.
(f) That the design of the subdivision or type of improvements is likely to cause serious public health problems.	The proposed design of the map has been found to not cause serious public health problems. This is included as recommended Finding No. 2 of the Tentative Subdivision Maps and Tentative Parcel Map.
(g) That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision.	The proposed design of the map does not conflict with any existing or proposed easements located on or adjacent to the subject property. This is included as recommended Finding No. 5 of the Tentative Subdivision Maps and Tentative Parcel Map.

Environmental Review

An Initial Study and Mitigated Negative Declaration were prepared for the proposed project. Initial Study and Mitigated Negative Declaration No. 2021-33 disclosed that environmental impacts are determined to be less than significant with the incorporation of mitigation to address significant impacts to the following resources:

- Eight (8) mitigation measures pertaining to Biological Resources to reduce impacts of the Project to special-status wildlife species (i.e., Swainson's Hawk, San Joaquin Kit Fox, Western Burrowing Owl).
- Two (2) mitigation measures pertaining to Cultural Resources to reduce the impacts of the Project on the potential of exposing historical or archaeological materials during construction.
- One (1) mitigation measure pertaining to submittal of plans for storm water pollution and pollutant discharge to reduce impacts to Soil Erosion or the loss of topsoil at the Project site.
- Two (2) mitigation measures pertaining to Noise to reduce the impacts of the Project related to construction noise and existing nearby industrial uses.
- One (1) mitigation measure pertaining to payment of transportation impact fees to reduce impacts to Traffic at the Project site.

One mitigation measure will result in an impact to future residential property owners within the project, wherein covenants will be recorded on all lots to disclose noise exposure from stationary industrial equipment adjacent to the Project site. With the mitigation incorporated into the project, staff concludes that Initial Study and Mitigated Negative Declaration No. 2021-33 adequately analyzes and addresses the proposed project and reduces environmental impacts to a less than significant level.

RECOMMENDED FINDINGS

General Plan Amendment

1. That the proposed General Plan Amendment is consistent with the goals, objectives, and policies of the General Plan, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed General Plan Amendment changing 18.8 acres of Residential Very Low Density designation to 15.7 acres of Residential Low Density designation and 3.1 acres of Parks / Recreation will not impose new land uses or development that will adversely affect the subject site or adjacent properties.
3. That the proposed land use designations under the proposed General Plan Amendment results in land uses that suitably buffer and provide an efficient transition between the existing and future industrial uses to the north and the proposed residential uses within the project site.
4. That the General Plan Amendment will help facilitate additional residential units within the Tier 1 and 2 Urban Development Boundaries. The proposed subdivision is compatible with the adjacent residential uses.
5. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

Change of Zone

1. That the proposed Change of Zone is consistent with the intent of the General Plan and Zoning Ordinance, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed Change of Zone changing 4.7-acres of R-1-20 (Single-family Residential, 20,000 square feet minimum lot size) zone to 1.0 acre of QP (Quasi-Public) and 3.7 acres of R-1-5 (Single-family Residential, 5,000 square feet minimum lot size) zone, will not impose new land uses or development that will adversely affect the subject site or adjacent properties.
3. That the Change of Zone will help facilitate additional residential units within the Tier 1 Urban Development Boundary. The proposed subdivision is compatible with the adjacent residential uses.
4. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

Annexation

1. That the Annexation is consistent with the intent of the General Plan and Zoning Ordinance, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed Annexation, which will re-designate 40 acres of AE-20 (Agricultural Exclusive 20-acre) County zone district to approximately 2 acres of QP (Quasi-Public) and 38 acres of R-1-5 (Single-family Residential, 5,000 square feet minimum lot size) zone, will not impose new land uses or development that will adversely affect the subject site or adjacent properties.
3. That the parcel is not located within an Agricultural Preserve.
4. That the parcel will be annexed into Voting District 3 per the Council Election Voting District Map.
5. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish, wildlife or their habitat.

Shepherds Ranch I Tentative Subdivision Map No. 5581

1. That the proposed location and layout of the Shepherds Ranch I Tentative Subdivision Map No. 5581, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 10-acre project site, which is the site of the proposed 41 lot single-family residential subdivision, is consistent with Land Use Policy LU-P-19 of the General Plan. Policy LU-P-19 states "ensure that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy."
2. That the proposed Shepherds Ranch I Tentative Subdivision Map No. 5581, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems. The proposed tentative subdivision map will be compatible with adjacent light industrial land uses based on the inclusion of improvements to the north that include a linear park and sound wall. The project site is bordered by existing residential development to the east and south.
3. That the site is physically suitable for the proposed tentative subdivision map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the subdivision itself is designated as Low Density Residential and developed at a density of 4.39 units per acre, excluding the linear park.

4. That the site is physically suitable for the proposed tentative subdivision map and the project's density, which is consistent with the proposed Low Density Residential General Plan Land Use Designation and is being developed at a density of 4.39 units per acre. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The 41-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.

5. That the design of the proposed subdivision and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The 41-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.

6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

Shepherds Ranch II Tentative Subdivision Map No. 5589

1. That the proposed location and layout of the Shepherds Ranch II Tentative Subdivision Map No. 5589, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 40-acre project site, which is the site of the proposed 200 lot single-family residential subdivision, is consistent with Land Use Policy LU-P-19 of the General Plan. Policy LU-P-19 states "ensure that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy."

2. That the proposed Shepherds Ranch II Tentative Subdivision Map No. 5589, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems. The proposed tentative subdivision map will be compatible with adjacent light industrial land uses based on the inclusion of improvements to the north that include a linear park and sound wall. The project site is bordered by existing residential development to the east and south.

3. That the site is physically suitable for the proposed tentative subdivision map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the subdivision itself is designated as Low Density Residential and developed at a density of 5.29 units per acre excluding the linear park.

4. That the site is physically suitable for the proposed tentative subdivision map and the project's density, which is consistent with the proposed Low Density Residential General Plan Land Use Designation and is being developed at a density of 5.29 units per acre. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The 200-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.
5. That the design of the proposed subdivision and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The 200-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.
6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

Tentative Parcel Map No. 2022-03

1. That the proposed location and layout of Tentative Parcel Map No. 2022-03, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 40-acre project site is the site of a proposed 200 lot single-family residential subdivision, and the parcel map would create phasing lots for the subdivision with each lot conforming to City standards.
2. That the proposed Tentative Parcel Map No. 2022-03, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems.
3. That the site is physically suitable for the proposed tentative parcel map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the underlying subdivision (Shepherds Ranch II Tentative Subdivision Map # 5589) is designated as Low Density Residential and developed at a density of 5.29 units per acre excluding the linear park.
4. That the site is physically suitable for the proposed tentative parcel map and the project and density that it will facilitate, which are consistent with the proposed Low Density Residential General Plan Land Use Designation. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The underlying 200-lot subdivision that the parcel map is planning for is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.

5. That the design of the proposed parcel map and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The underlying 200-lot subdivision that the parcel map is planning for is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.
6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the parcel map together with the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

RECOMMENDED CONDITIONS

Shepherds Ranch I Tentative Subdivision Map No. 5581

1. That the Project (Shepherds Ranch I Tentative Subdivision Map # 5581) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-017, incorporated herein by reference.
2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit "C".
3. That the Project incorporate a linear park and 7-foot tall wall in Outlot B of the Shepherds Ranch I Tentative Subdivision Map #5581 as depicted in Exhibit "B" that contains trees, landscaping, irrigation, and trail improvements. A permit application for the improvement plans for the park and wall shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within the subdivision, and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within the subdivision.
4. That all lots that are a minimum of 5,000 square feet in area and shall comply with the R-1-5 (Single-Family Residential 5,000 sq. ft. min. site area) zone district standards for the front, side, street side yard, and rear yard setbacks.
5. That the block walls located within the landscape and lighting district Outlot A shall transition to three-foot height adjacent to the street side yard setbacks for Lot 23 of Exhibit "C".
6. That a concrete block or masonry wall shall be erected and/or improved along the north property line of the Project that is shared with adjacent Light Industrial-designated land uses to a height not less than seven (7) feet.
7. That the mitigation measures found within the Mitigation Monitoring Plan for Mitigated Negative Declaration No. 2021-33 are hereby incorporated as conditions of the Shepherds Ranch I Tentative Subdivision Map # 5581, including but not limited to:
   - Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows:

     "Property owner(s) of lots within the Shepherds Ranch I / Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the City

of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."

8. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.

9. That prior to the issuance of any residential building permit on the site, the applicant / developer shall obtain and provide the City with a valid Will Serve Letter from the California Water Service Company.

10. That the Project shall have its final map recorded (or, if the project is being developed in multiple phases, all final maps associated with the project recorded) prior to the final map recording of any phase of the Shepherds Ranch II Tentative Subdivision Map #5589.

11. That in the event in which a secondary temporary access point is necessary for the subdivision due to requirements by the Visalia Fire Department, such temporary access shall be located on Lot 19 by the extension of Grove Avenue to Shirk Street (as shown on Exhibit "C") and shall be removed upon completion of the westerly street connection of Allen Avenue (as shown on Exhibit "C") to Road 88.

12. That any second-story windows of residences on lots that front onto Shirk Street (Lots 18 thorough 23 of the map shown on Exhibit "C") shall be upgraded to have a STC rating of 32.

13. That all applicable federal, state, regional, and city policies and ordinances be met.

<u>Shepherds Ranch II Tentative Subdivision Map No. 5589</u>

1. That the Project (Shepherds Ranch II Tentative Subdivision Map # 5589) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-229, incorporated herein by reference.

2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit "D".

3. That the Project incorporate a linear park and 7-foot tall wall in Outlot C of the Shepherds Ranch II Tentative Subdivision Map # 5589 as depicted in Exhibit "B" that contains trees, landscaping, irrigation, playground equipment (tot lot), picnic area, and trail improvements. Park improvements shall be installed as follows:

    a. A permit application for the improvement plans for the portion of the park and wall located north of Lots 69, 74, and 75 shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within Phase 1 of the subdivision (as depicted in Exhibit "D"), and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within the subdivision.

    b. A permit application for the improvement plans for the remaining portion of the park and wall located within Phase 2 shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within Phase 2 of the subdivision (as depicted in Exhibit "D"), and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within Phase 2.

4. That all lots that are a minimum of 5,000 square feet in area and shall comply with the R-1-5 (Single-Family Residential 5,000 sq. ft. min. site area) zone district standards for the front, side, street side yard, and rear yard setbacks.

5. That the block walls located within the landscape and lighting district Outlots A and B shall transition to three-foot height adjacent to the street side yard setbacks for Lots 1 and 200 of Exhibit "D".
6. That a concrete block or masonry wall shall be erected and/or improved along the north property line of the Project that is shared with adjacent Light Industrial-designated land uses to a height not less than seven (7) feet.
7. That the mitigation measures found within the Mitigation Monitoring Plan for Mitigated Negative Declaration No. 2021-33 are hereby incorporated as conditions of the Shepherds Ranch II Tentative Subdivision Map # 5589, including but not limited to:
    - Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows:

      "Property owner(s) of lots within the Shepherds Ranch I / Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."
8. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.
9. That prior to the issuance of any residential building permit on the site, the applicant / developer shall obtain and provide the City with a valid Will Serve Letter from the California Water Service Company.
10. That the Project shall have its final maps recorded in the phasing succession (i.e. Phase 1, Phase 2, Phase 3) shown on Exhibit "D", and that no final map shall record prior to the final map recording of all lots associated with the Shepherds Ranch I Tentative Subdivision Map #5581.
11. That approval of the Shepherds Ranch II Tentative Subdivision Map # 5589 shall not become effective unless Annexation No. 2022-04, placing the project site within the corporate limits of the City of Visalia, is approved by the Tulare County Local Agency Formation Commission (LAFCO) and is fully executed to include all conditions contained in the Pre-Annexation Agreement for Annexation No. 2022-04.
12. That all applicable federal, state, regional, and city policies and ordinances be met.

<u>Tentative Parcel Map No. 2022-03</u>

1. That the Project (Tentative Parcel Map No. 2022-03) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-229, incorporated herein by reference.
2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit "E".
3. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.
4. That approval of Tentative Parcel Map No. 2022-03 shall not become effective unless Annexation No. 2022-04, placing the project site within the corporate limits of the City of Visalia, is approved by the Tulare County Local Agency Formation Commission (LAFCO)

and is fully executed to include all conditions contained in the Pre-Annexation Agreement for Annexation No. 2022-04.

5. That all applicable federal, state, regional, and city policies and ordinances be met.

APPEAL INFORMATION

General Plan Amendment, Change of Zone, Annexation

For the General Plan Amendment, Change of Zone, and Annexation, the Planning Commission's recommendations on these matters are advisory only. The final decisions will be by the Visalia City Council following a public hearing. Therefore, the Planning Commission's recommendations in these matters are not appealable.

Shepherds Ranch I and II Tentative Subdivision Maps, Tentative Parcel Map

According to the City of Visalia Subdivision Ordinance Section 16.28.080, an appeal to the City Council may be submitted within ten days following the date of a decision by the Planning Commission. An appeal with applicable fees shall be in writing and shall be filed with the City Clerk at 220 North Santa Fe St., Visalia, CA 93292. The appeal shall specify errors or abuses of discretion by the Planning Commission, or decisions not supported by the evidence in the record. The appeal form can be found on the City's website www.visalia.city or from the City Clerk.

Attachments:

- Related Plans and Policies
- Resolution No. 2021-35 – General Plan Amendment No. 2021-03
- Resolution No. 2021-36 – Change of Zone No. 2021-04
- Resolution No. 2022-34 – Annexation No. 2022-04
- Resolution No. 2021-37 – Shepherds Ranch I Tentative Subdivision Map #5581
- Resolution No. 2022-35 – Shepherds Ranch II Tentative Subdivision Map #5589
- Resolution No. 2022-36 – Tentative Parcel Map No. 2022-03
- Exhibit "A" – Overall Development Plan
- Exhibit “B” – Linear Park Conceptual Exhibit
- Exhibit “C” – Subdivision Map: Shepherds Ranch I
- Exhibit “D” – Subdivision Map: Shepherds Ranch II
- Exhibit “E” – Parcel Map: Shepherds Ranch II site
- Exhibit “F” – Existing General Plan land use designation map
- Exhibit “G” – Existing zoning designation map
- Exhibit “H” – Proposed General Plan land use designation map
- Exhibit “I” – Proposed zoning designation map
- Exhibit “J” – Project Description
- Exhibit “K” – Annexation Area
- Initial Study / Mitigated Negative Declaration [Appendices included as electronic attachments: Air Quality/GHG, Biological, Cultural Resources, Noise / Acoustical Analysis, Traffic Impact Study]
- Site Plan Review Item No. 2021-017 Comments
- Site Plan Review Item No. 2021-229 Comments
- General Plan Land Use Map
- Zoning Map
- Aerial Map
- Location Map

RELATED PLANS AND POLICIES

General Plan and Zoning: The following General Plan and Zoning Ordinance policies apply to the proposed project:

General Plan Land Use Objectives / Policies:

LU-P-19: Ensure that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy. The General Plan Land Use Diagram establishes three growth rings to accommodate estimated City population for the years 2020 and 2030. The Urban Development Boundary I (UDB I) shares its boundaries with the 2012 city limits. The Urban Development Boundary II (UDB II) defines the urbanizable area within which a full range of urban services will need to be extended in the first phase of anticipated growth with a target buildout population of 178,000. The Urban Growth Boundary (UGB) defines full buildout of the General Plan with a target buildout population of 210,000. Each growth ring enables the City to expand in all four quadrants, reinforcing a concentric growth pattern.

LU-P-21: Allow annexation and development of residential, commercial, regional retail, and industrial land to occur within the Urban Development Boundary (Tier II) and the Urban Growth Boundary (Tier III) consistent with the City's Land Use Diagram, according to the following phasing thresholds: • "Tier II": Tier II supports a target buildout population of approximately 178,000. The expansion criteria for land in Tier II is that land would only become available for development when building permits have been issued in Tier I at the following levels, starting from April 1, 2010:

Residential: after permits for 5,850 housing units have been issued.

LU-P-54: Update the Zoning Ordinance to reflect the Very Low Density Residential designation on the Land Use Diagram and create opportunities for residential dwellings at 0.1 to 2 units per gross acre, providing for single-family detached housing on large lots and a rural residential transition to surrounding agricultural areas.

LU-P-55: Update the Zoning Ordinance to reflect the Low Density Residential designation on the Land Use Diagram for development at 2 to 10 dwelling units per gross acre, facilitating new planned neighborhoods and infill development in established areas. This designation is intended to provide for single-family detached housing with densities typical of single-family subdivisions. Duplex units, townhouses, and small-lot detached housing may be incorporated as part of Low Density Residential developments. Development standards will ensure that a desirable single-family neighborhood character is maintained.

LU-O-34 Ensure compatibility between industrial lands and adjacent dissimilar land uses.

LU-P-103 Require buffering land uses adjacent to existing or planned residential areas adjacent to industrial designations. Such uses may include parks, drainage ponds, open space, or other such uses.

Zoning Ordinance Chapter for R-1 Zone

Chapter 17.12

R-1 SINGLE-FAMILY RESIDENTIAL ZONE

17.12.010 Purpose and intent.

In the R-1 single-family residential zones (R-1-5, R-1-12.5, and R-1-20), the purpose and intent is to provide living area within the city where development is limited to low density concentrations of one-family dwellings where regulations are designed to accomplish the following: to promote and encourage a suitable environment for family life; to provide space for community facilities needed to compliment urban residential areas and for institutions that require a residential environment; to minimize traffic congestion and to avoid an overload of utilities designed to service only low density residential use.

17.12.015 Applicability.

The requirements in this chapter shall apply to all property within R-1 zone districts.

17.12.050 Site area.

The minimum site area shall be as follows:

Zone	Minimum Site Area
R-1-5	5,000 square feet
R-1-12.5	12,500 square feet
R-1-20	20,000 square feet

A. Each site shall have not less than forty (40) feet of frontage on the public street. The minimum width shall be as follows:

Zone	Interior Lot	Corner Lot
R-1-5	50 feet	60 feet
R-1-12.5	90 feet	100 feet
R-1-20	100 feet	110 feet

B. Minimum width for corner lot on a side on cul-de-sac shall be eighty (80) feet, when there is no landscape lot between the corner lot and the right of way.

17.12.060 One dwelling unit per site.

In the R-1 single-family residential zone, not more than one dwelling unit shall be located on each site, with the exception to Section 17.12.020(J).

17.12.080 Front yard.

A. The minimum front yard shall be as follows:

Zone	Minimum Front Yard
R-1-5	Fifteen (15) feet for living space and side-loading garages and twenty-two (22) feet for front-loading garages or other parking facilities, such as, but not limited to, carports, shade canopies, or porte cochere. A Porte Cochere with less than twenty-two (22) feet of setback from property line shall not be counted as covered parking, and garages on such sites shall not be the subject of a garage conversion.
R-1-12.5	Thirty (30) feet
R-1-20	Thirty-five (35) feet

B. On a site situated between sites improved with buildings, the minimum front yard may be the average depth of the front yards on the improved site adjoining the side lines of the site but need not exceed the minimum front yard specified above.

C. On cul-de-sac and knuckle lots with a front lot line of which all or a portion is curvilinear, the front yard setback shall be no less than fifteen (15) feet for living space and side-loading garages and twenty (20) feet for front-loading garages.

17.12.090 Side yards.

A. The minimum side yard shall be five feet in the R-1-5 and R-1-12.5 zone subject to the exception that on the street side of a corner lot the side yard shall be not less than ten feet and twenty-two (22) feet for front loading garages or other parking facilities, such as, but not limited to, carports, shade canopies, or porte cocheres.

B. The minimum side yard shall be ten feet in the R-1-20 zone subject to the exception that on the street side of a corner lot the side yard shall be not less than twenty (20) feet.

C. On a reversed corner lot the side yard adjoining the street shall be not less than ten feet.

D. On corner lots, all front-loading garage doors shall be a minimum of twenty-two (22) feet from the nearest public improvement or sidewalk.

E. Side yard requirements may be zero feet on one side of a lot if two or more consecutive lots are approved for a zero lot line development by the site plan review committee.

F. The placement of any mechanical equipment, including but not limited to, pool/spa equipment and evaporative coolers shall not be permitted in the five-foot side yard within the buildable area of the lot, or within five feet of rear/side property lines that are adjacent to the required side yard on adjoining lots. This provision shall not apply to street side yards on corner lots, nor shall it prohibit the surface mounting of utility meters and/or the placement of fixtures and utility lines as approved by the building and planning divisions.

17.12.100 Rear yard.

In the R-1 single-family residential zones, the minimum yard shall be twenty-five (25) feet, subject to the following exceptions:

A. On a corner or reverse corner lot the rear yard shall be twenty-five (25) feet on the narrow side or twenty (20) feet on the long side of the lot. The decision as to whether the short side or long side is used as the rear yard area shall be left to the applicant's discretion as long as a minimum area of one thousand five hundred (1,500) square feet of usable rear yard area is maintained. The remaining side yard to be a minimum of five feet.

B. Accessory structures not exceeding twelve (12) feet may be located in the required rear yard but not closer than three feet to any lot line provided that not more than twenty (20) percent of the area of the required rear yard shall be covered by structures enclosed on more than one side and not more than forty (40) percent may be covered by structures enclosed on only one side. On a reverse corner lot an accessory structure shall not be located closer to the rear property line than the required side yard on the adjoining key lot. An accessory structure shall not be closer to a side property line adjoining key lot and not closer to a side property line adjoining the street than the required front yard on the adjoining key lot.

C. Main structures may encroach up to five feet into a required rear yard area provided that such encroachment does not exceed one story and that a usable, open, rear yard area of at least one thousand five hundred (1,500) square feet shall be maintained. Such encroachment and rear yard area shall be approved by the city planner prior to issuing building permits.

17.12.110 Height of structures.

In the R-1 single-family residential zone, the maximum height of a permitted use shall be thirty-five (35) feet, with the exception of structures specified in Section 17.12.100(B).

17.12.120 Off-street parking.

In the R-1 single-family residential zone, subject to the provisions of Chapter 17.34.

17.12.130 Fences, walls and hedges.

In the R-1 single-family residential zone, fences, walls and hedges are subject to the provisions of Section 17.36.030.

RESOLUTION NO. 2021-35

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA, RECOMMENDING APPROVAL OF **GENERAL PLAN AMENDMENT NO. 2021-03:** A REQUEST TO AMEND THE GENERAL PLAN LAND USE DESIGNATIONS ON TWO PARCELS TOTALING 50 ACRES, RESULTING IN THE REMOVAL OF A RESIDENTIAL VERY LOW DENSITY LAND USE DESIGNATION, ADDITION TO A LOW DENSITY RESIDENTIAL LAND USE DESIGNATION, AND ESTABLISHMENT OF A PARKS/RECREATION LAND USE DESIGNATION. THE PROJECT SITE CONSISTS OF TWO PARCELS LOCATED BETWEEN SHIRK STREET AND ROAD 88, 300 FEET SOUTH OF W. PERSHING COURT. (APN: 081-030-046, 080)

WHEREAS, General Plan Amendment No. 2021-03 is a request to amend the General Plan land use designations on two parcels totaling 50 acres, resulting in the removal of a Residential Very Low Density land use designation, addition to a Low Density Residential land use designation, and establishment of a Parks/Recreation land use designation. The project site consists of two parcels located between Shirk Street and Road 88, 300 feet south of W. Pershing Court. (APN: 081-030-046, 080); and,

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice, held a public hearing before said Commission on July 25, 2022; and,

WHEREAS, the Planning Commission of the City of Visalia considered General Plan Amendment No. 2021-03 to be in accordance with Section 17.54.070 of the Zoning Ordinance of the City of Visalia and on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends that the City Council adopt Mitigated Negative Declaration No. 2021-33 for General Plan Amendment No. 2021-03 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Visalia recommends approval to the City Council of General Plan Amendment No. 2021-03 based on the following specific findings and evidence presented:

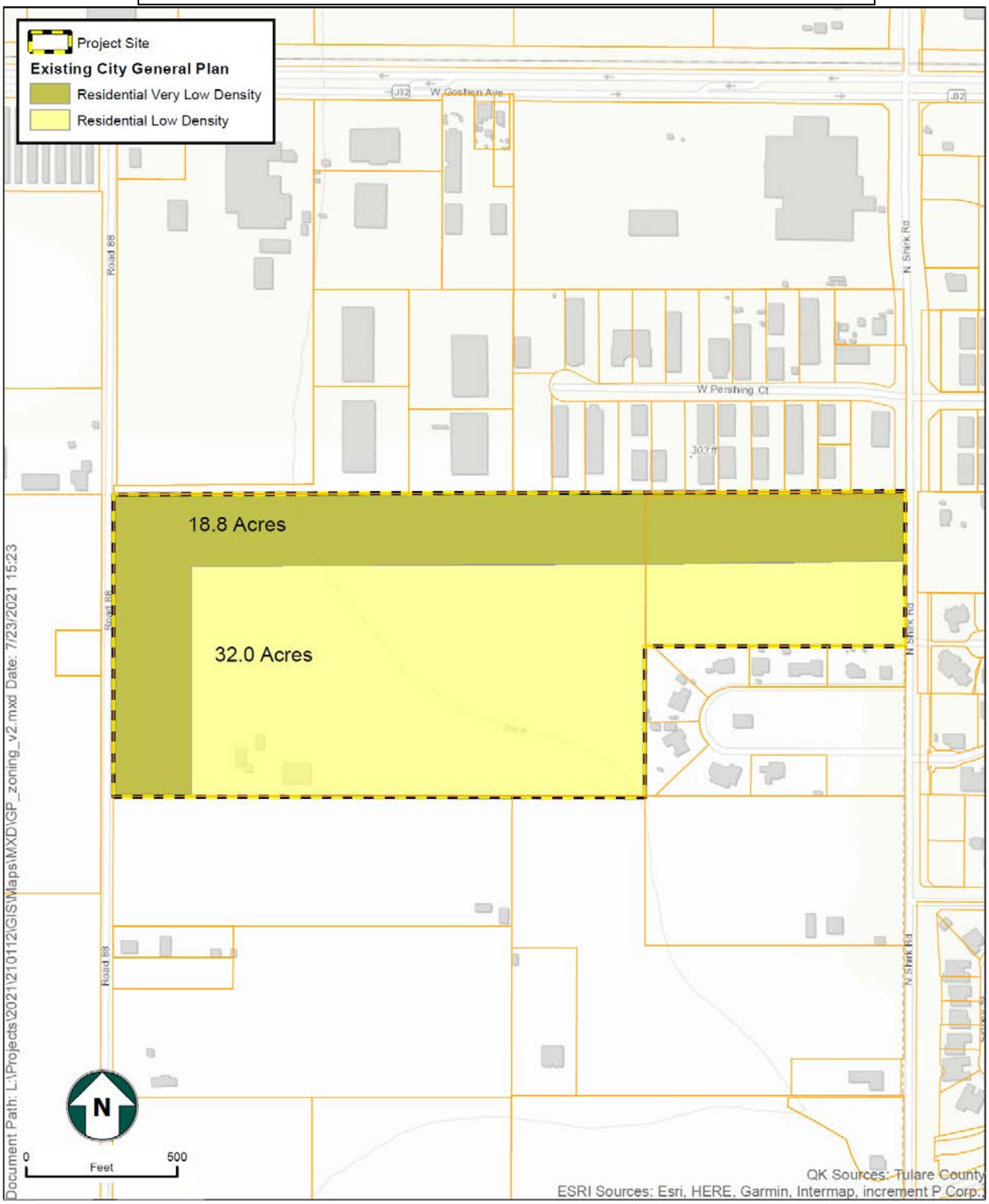
1. That the proposed General Plan Amendment is consistent with the goals, objectives, and policies of the General Plan, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed General Plan Amendment changing 18.8 acres of Residential Very Low Density designation to 15.7 acres of Residential Low Density designation and 3.1 acres of Parks / Recreation will not impose new land uses or development that will adversely affect the subject site or adjacent properties.

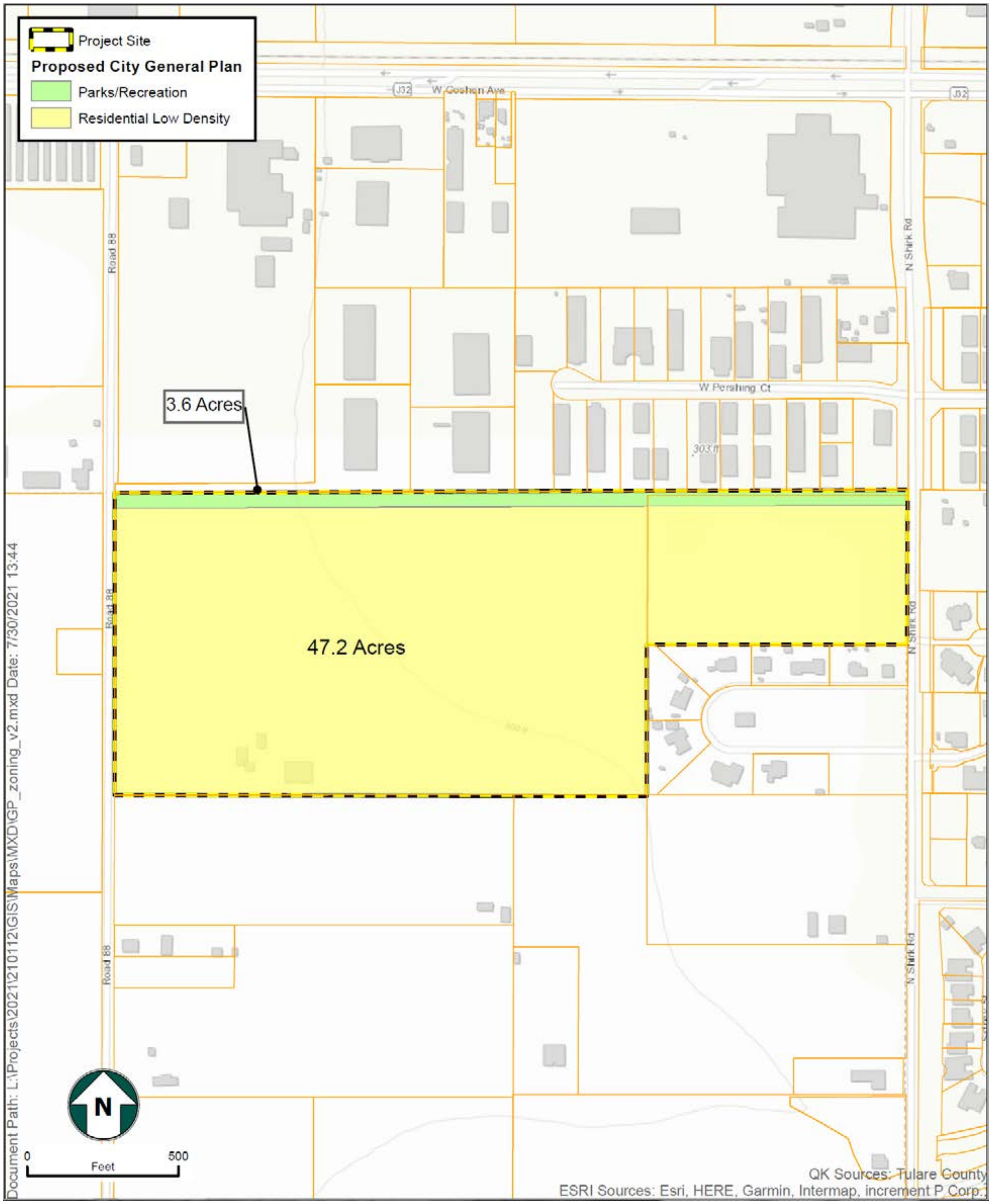
3. That the proposed land use designations under the proposed General Plan Amendment results in land uses that suitably buffer and provide an efficient transition between the existing and future industrial uses to the north and the proposed residential uses within the project site.
4. That the General Plan Amendment will help facilitate additional residential units within the Tier 1 and 2 Urban Development Boundaries. The proposed subdivision is compatible with the adjacent residential uses.
5. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

BE IT FURTHER RESOLVED that the Planning Commission of the City of Visalia recommends approval to the City Council of General Plan Amendment No. 2021-03, as depicted per Exhibit “A”, on the real property described herein, in accordance with the terms of this resolution and under the provisions of Section 17.54.070 of the Ordinance Code of the City of Visalia.

Exhibit "A"

GENERAL PLAN AMENDMENT NO. 2021-03
Planning Commission
Resolution No. 2021-35





Project Site
Proposed City General Plan
Parks/Recreation
Residential Low Density
W Goshen Ave
J32
Road 88
N Shirk Rd
W Pershing Ct
3.6 Acres
47.2 Acres
N
0
Feet
500
Document Path: L:\Projects\2021\210112\GIS\Maps\MXD\GP_zoning_v2.mxd Date: 7/30/2021 13:44
QK Sources: Tulare County
ESRI Sources: Esri, HERE, Garmin, Intermap, increment P Corp.

RESOLUTION NO. 2021-36

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA, RECOMMENDING APPROVAL OF **CHANGE OF ZONE NO. 2021-04:** A REQUEST TO CHANGE THE ZONING ON ONE PARCEL TOTALING 10 ACRES, RESULTING IN THE REMOVAL OF A R-1-20 (SINGLE-FAMILY RESIDENTIAL 20,000 SQUARE FOOT MINIMUM LOT AREA) ZONE DESIGNATION, ADDITION TO A R-1-5 (SINGLE-FAMILY RESIDENTIAL 5,000 SQUARE FOOT MINIMUM LOT AREA) ZONE DESIGNATION, AND ESTABLISHMENT OF A QP (QUASI-PUBLIC) ZONE DESIGNATION. THE PROJECT SITE CONSISTS OF ONE PARCEL LOCATED ON THE WEST SIDE OF SHIRK STREET, 300 FEET SOUTH OF W. PERSHING COURT. (APN: 081-030-046)

WHEREAS, Change of Zone No. 2021-04 is a request to change the zoning on one parcel totaling 10 acres, resulting in the removal of a R-1-20 (Single-family Residential 20,000 square foot minimum lot area) zone designation, addition to a R-1-5 (Single-family Residential 5,000 square foot minimum lot area) zone designation, and establishment of a QP (Quasi-Public) zone designation. The project site consists of one parcel located on the west side of Shirk Street, 300 feet south of W. Pershing Court. (APN: 081-030-046); and

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice, held a public hearing before said Commission on July 25, 2022; and

WHEREAS, the Planning Commission of the City of Visalia considered Change of Zone No. 2021-04 to be in accordance with Section 17.44.070 of the Zoning Ordinance of the City of Visalia and on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends that the City Council adopt Mitigated Negative Declaration No. 2021-33 for Change of Zone No. 2021-04 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Visalia recommends approval to the City Council of Change of Zone No. 2021-04 based on the following specific findings and evidence presented:

1. That the proposed Change of Zone is consistent with the intent of the General Plan and Zoning Ordinance, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed Change of Zone changing 4.7-acres of R-1-20 (Single-family Residential, 20,000 square feet minimum lot size) zone to 1.0 acre of QP (Quasi-Public) and 3.7 acres of R-1-5 (Single-family Residential, 5,000 square feet

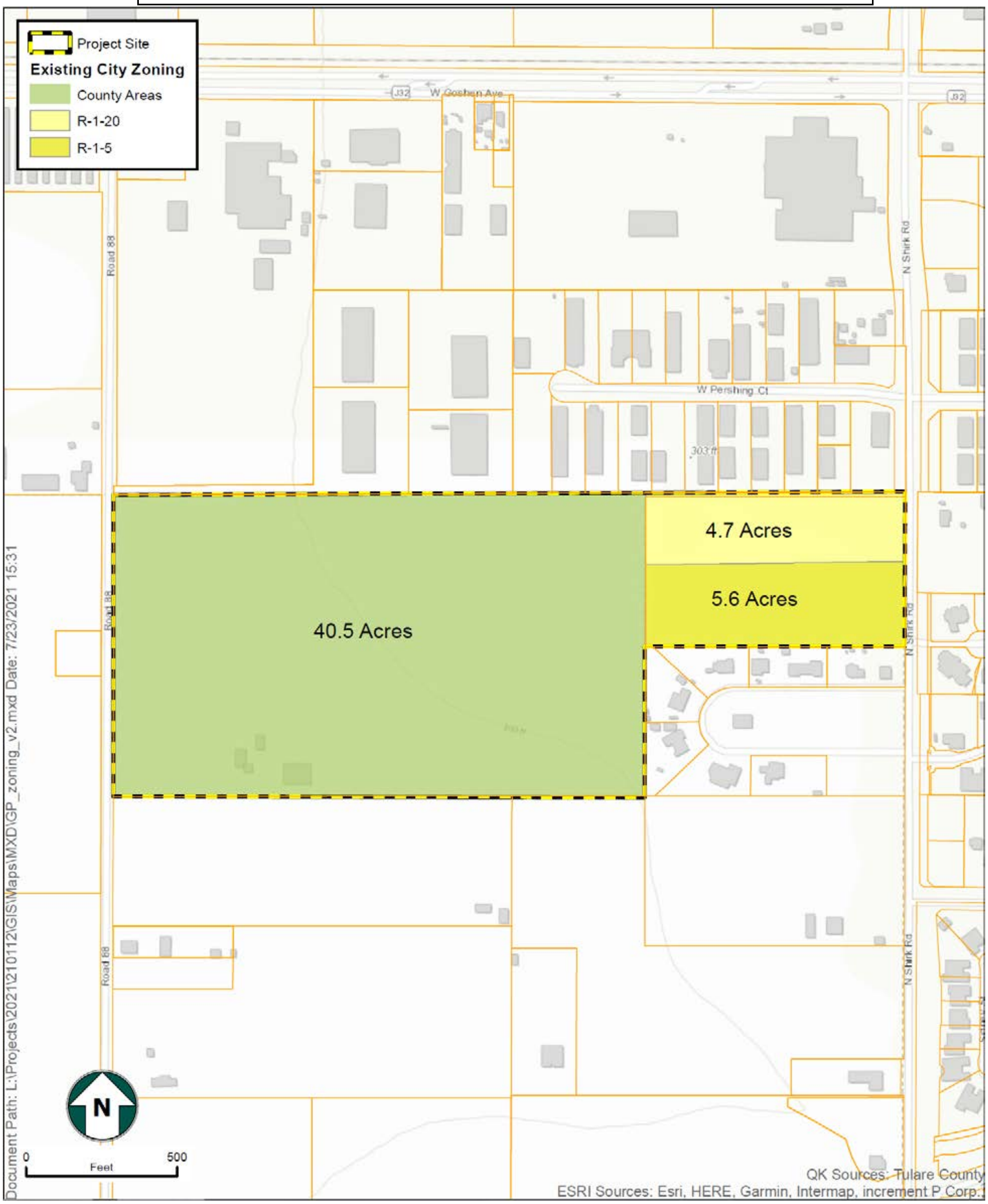
minimum lot size) zone, will not impose new land uses or development that will adversely affect the subject site or adjacent properties.

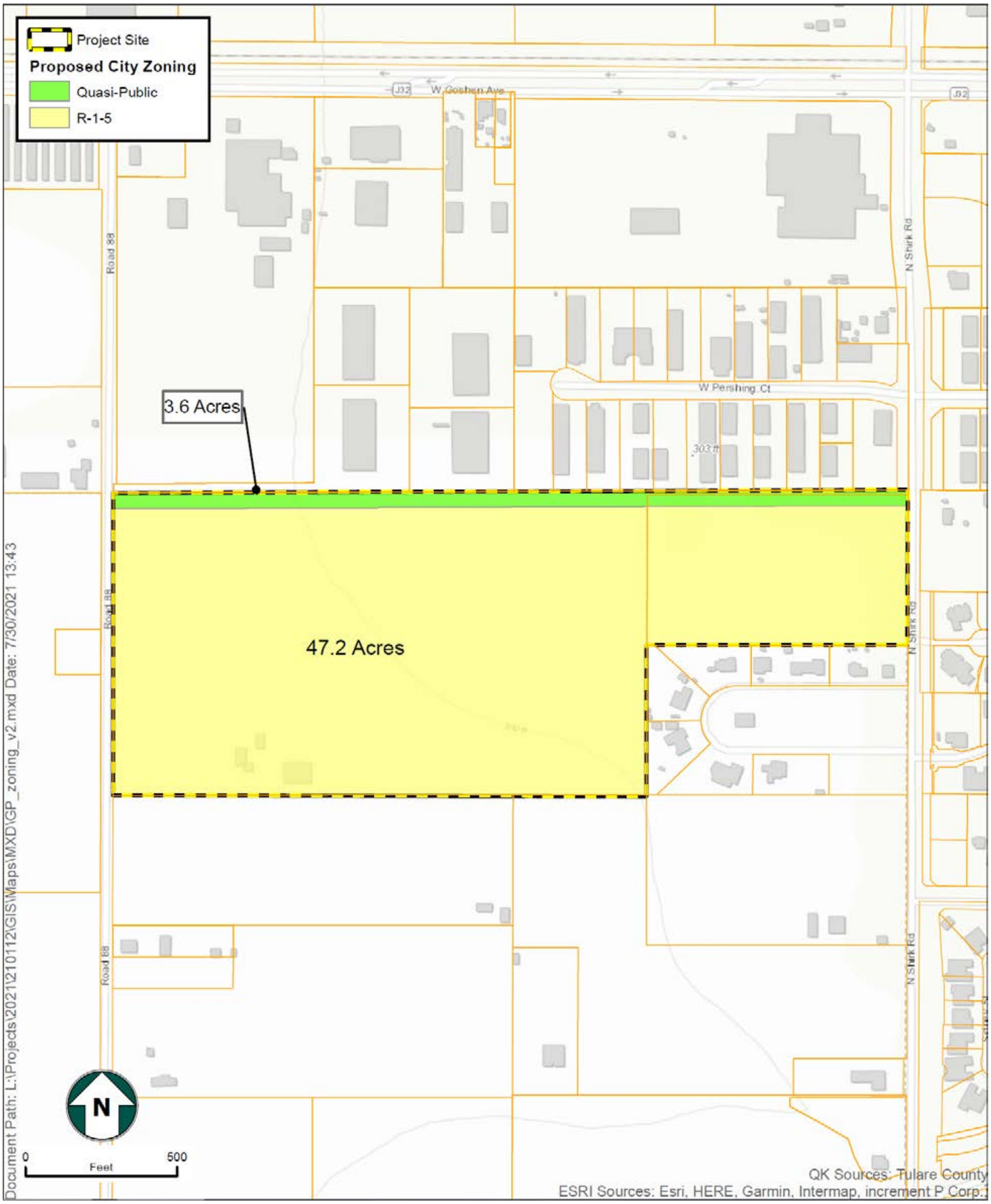
3. That the Change of Zone will help facilitate additional residential units within the Tier 1 Urban Development Boundary. The proposed subdivision is compatible with the adjacent residential uses.
4. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

BE IT FURTHER RESOLVED that the Planning Commission of the City of Visalia recommends approval to the City Council of Change of Zone No. 2021-04, as depicted per Exhibit "A", on the real property described herein, in accordance with the terms of this resolution and under the provisions of Section 17.44.070 of the Ordinance Code of the City of Visalia.

Exhibit “A”

CHANGE OF ZONE NO. 2021-04
Planning Commission
Resolution No. 2021-36




Project Site
Proposed City Zoning
Quasi-Public
R-1-5
W Goshen Ave
J32
Road 88
N Shirk Rd
W Pershing Ct
3.6 Acres
47.2 Acres
Document Path: L:\Projects\2021\210112\GIS\Maps\MXD\GP_zoning_v2.mxd Date: 7/30/2021 13:43
N
0
500
Feet
QK Sources: Tulare County
ESRI Sources: Esri, HERE, Garmin, Intermap, increment P Corp.

RESOLUTION NO. 2022-34

A RESOLUTION BY THE PLANNING COMMISSION OF THE CITY OF VISALIA RECOMMENDING APPROVAL OF ANNEXATION NO. 2022-04 AND DETACHMENT OF PROPERTY FROM COUNTY SERVICE AREA NO. 1, PERTAINING TO ONE PARCEL TOTALING 40 ACRES INTO THE CITY LIMITS OF VISALIA. UPON ANNEXATION, THE SITE SHALL BE ZONED R-1-5 (SINGLE-FAMILY RESIDENTIAL 5,000 SQUARE FOOT MINIMUM) AND QP (QUASI-PUBLIC), WHICH IS CONSISTENT WITH THE GENERAL PLAN LAND USE DESIGNATION OF LOW DENSITY RESIDENTIAL AND PARKS / RECREATION. THE PROJECT SITE CONSISTS OF ONE PARCEL LOCATED ON THE EAST SIDE OF ROAD 88, ¼ MILE SOUTH OF W. GOSHEN AVENUE. (APN: 081-030-080)

WHEREAS, the project proponents approve to initiate proceedings for annexation to said city of territory described on the attached legal description included as Attachment "A" of this resolution; and

WHEREAS, the Planning Commission of the City of Visalia, after a duly published notice, did hold a public hearing on July 25, 2022, and

WHEREAS, the proponent desires to annex said territory to the City of Visalia for the following reasons: 1) The annexation will contribute to and facilitate orderly growth and development of both the City and the territory proposed to be annexed; 2) Will facilitate and contribute to the proper and orderly layout, design and construction of streets, gutters, sanitary and storm sewers and drainage facilities, both within the City and within the territory proposed to be annexed; and 3) Will provide and facilitate proper overall planning and zoning of lands and subdivision of lands in said City and said territory in a manner most conducive of the welfare of said City and said territory; and

WHEREAS, this proposal is made pursuant to the Cortese-Knox-Hertzburg Local Government Reorganization Act of 2000, commencing with Section 56000 of the Government Code of the State of California; and

WHEREAS, the territory proposed to be annexed is uninhabited; and

WHEREAS, the territory proposed to be annexed is located in Voting District 3 as identified in the Election District Map adopted by the City Council on February 22, 2022 per Resolution No. 2022-11; and

WHEREAS, the Planning Commission reviewed this proposal on July 25, 2022, and found it to be consistent with the General Plan; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures; and

WHEREAS, the Planning Commission hereby makes the following findings with regard to the project:

1. That the Annexation is consistent with the intent of the General Plan and Zoning Ordinance, and is not detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed Annexation, which will re-designate 40 acres of AE-20 (Agricultural Exclusive 20-acre) County zone district to approximately 2 acres of QP (Quasi-Public) and 38 acres of R-1-5 (Single-family Residential, 5,000 square feet minimum lot size) zone, will not impose new land uses or development that will adversely affect the subject site or adjacent properties.
3. That the parcel is not located within an Agricultural Preserve.
4. That the parcel will be annexed into Voting District 3 per the Council Election Voting District Map.
5. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision and the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish, wildlife or their habitat.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends that the City Council adopt Mitigated Negative Declaration No. 2021-33 for Annexation No. 2022-04 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the Planning Commission of the City of Visalia recommends approval to the City Council of the Annexation described herein, subject to the following condition:

1. Upon annexation, the territory shall be zoned Single-Family Residential, 5,000 square foot minimum site area (R-1-5) and Quasi-Public (QP) consistent with the pre-zoning designated by the General Plan Land Use Map which designates the site as Low Density Residential and Parks / Recreation.
2. That the applicant(s) enter into a Pre-Annexation Agreement with the City which memorializes the required fees, policies, and other conditions applicable to the annexation. The agreement is subject to final approval by the City Council of the City of Visalia.

ATTACHMENT “A”

City of Visalia
Annexation No. ___

ANNEXATION TO THE CITY OF VISALIA AND DETACHMENT FROM TULARE COUNTY SERVICE AREA #__

Description for Annexation

That portion of the Southeast Quarter of the Northeast Quarter of Section 28, Township 18 South, Range 24 East, Mount Diablo Base and Meridian, in the County of Tulare, State of California, more particularly described as follows:

COMMENCING at the East Quarter corner of above said Section 28, as shown on the map filed in Book 20 of Parcel Maps, at Page 9, Tulare County Records; thence, along the east line of said Section 28, North 00°09’28” East, a distance of 329.81 feet, more or less; thence, parallel with the south line of the Northeast Quarter of said Section 28, said parallel line also being the south line of Parcel 2 shown on above said parcel map, South 89°58’18” West, a distance of 879.93 feet, more or less, to the southwest corner of said Parcel 2 and the **TRUE POINT OF BEGINNING**; thence,

C1) continuing southerly along said course, South 89°58’18” West, a distance of 1760.26 feet, more or less, to the point of intersection with the west line of the Northeast Quarter of said Section 28; thence,

C2) northerly along said west line, North 00°05’16” East, a distance of 997.78 feet, more or less, to the southwest corner of Lot 36 of Kelsey Tract No. 1 as shown on the map filed in Book 16 of Maps, at Page 4, Tulare County Records, said point also being a point on the existing City Limit line; thence,

C3) easterly along the south line of Lots 36, 35 and 34 of said Kelsey Tract No. 1 and the City Limit line, North 89°46’20” East , a distance of 1761.50 feet, more or less, to the point of intersection with the northerly prolongation of the west line of Parcel 1 as shown on the map filed in Book 20 of Parcel Maps, at Page 9, Tulare County Records, said point also being a point on the existing City Limit line; thence,

C4) southerly along said west line and City Limit line and the west line of Parcel 2 shown on above said parcel map, South 00°09’28” West, a distance of 1003.91 feet, more or less, to the **TRUE POINT OF BEGINNING**.

Containing 40.46 acres, more or less.

PROFESSIONAL LAND SURVEYOR
ANTONIO S. WESTERLUND
P.L.S. 9399
STATE OF CALIFORNIA

6/20/2022

RESOLUTION NO 2021-37

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA APPROVING **SHEPHERDS RANCH I TENTATIVE SUBDIVISION MAP NO. 5581:** A REQUEST TO SUBDIVIDE 10 ACRES INTO A 41-LOT SINGLE-FAMILY RESIDENTIAL SUBDIVISION WITH TWO OUT LOTS FOR LANDSCAPING, LIGHTING, AND PARK PURPOSES. THE PROJECT SITE CONSISTS OF ONE PARCEL LOCATED ON THE WEST SIDE OF SHIRK STREET, 300 FEET SOUTH OF W. PERSHING COURT. (APN: 081-030-046)

WHEREAS, Shepherds Ranch I Tentative Subdivision Map No. 5581 is a request to subdivide 10 acres into a 41-lot single-family residential subdivision with two out lots for landscaping, lighting, and park purposes. The project site consists of one parcel located on the west side of Shirk Street, 300 feet south of W. Pershing Court. (APN: 081-030-046); and

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice held a public hearing before said Commission on July 25, 2022; and

WHEREAS, the Planning Commission of the City of Visalia finds the tentative subdivision map in accordance with Chapter 16.16 of the Subdivision Ordinance of the City of Visalia, based on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission hereby adopts Mitigated Negative Declaration No. 2021-33 for Shepherds Ranch I Tentative Subdivision Map No. 5581 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT FURTHER RESOLVED, that the Planning Commission of the City of Visalia approves the proposed tentative subdivision map based on the following specific findings and based on the evidence presented:

1. That the proposed location and layout of the Shepherds Ranch I Tentative Subdivision Map No. 5581, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 10-acre project site, which is the site of the proposed 41 lot single-family residential subdivision, is consistent with Land Use Policy LU-P-19 of the General Plan. Policy LU-P-19 states “ensure

that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy."

2. That the proposed Shepherds Ranch I Tentative Subdivision Map No. 5581, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems. The proposed tentative subdivision map will be compatible with adjacent light industrial land uses based on the inclusion of improvements to the north that include a linear park and sound wall. The project site is bordered by existing residential development to the east and south.

3. That the site is physically suitable for the proposed tentative subdivision map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the subdivision itself is designated as Low Density Residential and developed at a density of 4.39 units per acre, excluding the linear park.

4. That the site is physically suitable for the proposed tentative subdivision map and the project's density, which is consistent with the proposed Low Density Residential General Plan Land Use Designation and is being developed at a density of 4.39 units per acre. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The 41-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.

5. That the design of the proposed subdivision and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The 41-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.

6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

BE IT FURTHER RESOLVED that the Planning Commission hereby approves Shepherds Ranch I Tentative Subdivision Map No. 5581 on the real property hereinabove described in accordance with the terms of this resolution under the provisions of Section 16.16.110 of the Ordinance Code of the City of Visalia, subject to the following conditions:

1. That the Project (Shepherds Ranch I Tentative Subdivision Map # 5581) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-017, incorporated herein by reference.
2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit “C”.
3. That the Project incorporate a linear park and 7-foot tall wall in Outlot B of the Shepherds Ranch I Tentative Subdivision Map #5581 as depicted in Exhibit “B” that contains trees, landscaping, irrigation, and trail improvements. A permit application for the improvement plans for the park and wall shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within the subdivision, and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within the subdivision.
4. That all lots that are a minimum of 5,000 square feet in area and shall comply with the R-1-5 (Single-Family Residential 5,000 sq. ft. min. site area) zone district standards for the front, side, street side yard, and rear yard setbacks.
5. That the block walls located within the landscape and lighting district Outlot A shall transition to three-foot height adjacent to the street side yard setbacks for Lot 23 of Exhibit “C”.
6. That a concrete block or masonry wall shall be erected and/or improved along the north property line of the Project that is shared with adjacent Light Industrial-designated land uses to a height not less than seven (7) feet.
7. That the mitigation measures found within the Mitigation Monitoring Plan for Mitigated Negative Declaration No. 2021-33 are hereby incorporated as conditions of the Shepherds Ranch I Tentative Subdivision Map # 5581, including but not limited to:
   - Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows:

     “Property owner(s) of lots within the Shepherds Ranch I / Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively.”
8. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.

9. That prior to the issuance of any residential building permit on the site, the applicant / developer shall obtain and provide the City with a valid Will Serve Letter from the California Water Service Company.
10. That the Project shall have its final map recorded (or, if the project is being developed in multiple phases, all final maps associated with the project recorded) prior to the final map recording of any phase of the Shepherds Ranch II Tentative Subdivision Map #5589.
11. That in the event in which a secondary temporary access point is necessary for the subdivision due to requirements by the Visalia Fire Department, such temporary access shall be located on Lot 19 by the extension of Grove Avenue to Shirk Street (as shown on Exhibit “C”) and shall be removed upon completion of the westerly street connection of Allen Avenue (as shown on Exhibit “C”) to Road 88.
12. That any second-story windows of residences on lots that front onto Shirk Street (Lots 18 thorough 23 of the map shown on Exhibit “C”) shall be upgraded to have a STC rating of 32.
13. That all applicable federal, state, regional, and city policies and ordinances be met.

RESOLUTION NO 2022-36

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA APPROVING **TENTATIVE PARCEL MAP NO. 2022-03**: A REQUEST TO SUBDIVIDE 40 ACRES INTO THREE PARCELS FOR PHASING AND FINANCING PURPOSES. THE PROJECT SITE CONSISTS OF ONE PARCEL LOCATED ON THE EAST SIDE OF ROAD 88, ¼ MILE SOUTH OF W. GOSHEN AVENUE. (APN: 081-030-080)

WHEREAS, Tentative Parcel Map No. 2022-03 is a request to subdivide 40 acres into three parcels for phasing and financing purposes. The project site consists of one parcel located on the east side of Road 88, ¼ mile south of W. Goshen Avenue. (APN: 081-030-080); and

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice held a public hearing before said Commission on July 25, 2022; and

WHEREAS, the Planning Commission of the City of Visalia finds the tentative parcel map in accordance with Section 16.28.070 of the Subdivision Ordinance of the City of Visalia, based on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission hereby adopts Mitigated Negative Declaration No. 2021-33 for Tentative Parcel Map No. 2022-03 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT FURTHER RESOLVED, that the Planning Commission of the City of Visalia approves the proposed tentative subdivision map based on the following specific findings and based on the evidence presented:

1. That the proposed location and layout of Tentative Parcel Map No. 2022-03, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 40-acre project site is the site of a proposed 200 lot single-family residential subdivision, and the parcel map would create phasing lots for the subdivision with each lot conforming to City standards.
2. That the proposed Tentative Parcel Map No. 2022-03, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems.

3. That the site is physically suitable for the proposed tentative parcel map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the underlying subdivision (Shepherds Ranch II Tentative Subdivision Map # 5589) is designated as Low Density Residential and developed at a density of 5.29 units per acre excluding the linear park.
4. That the site is physically suitable for the proposed tentative parcel map and the project and density that it will facilitate, which are consistent with the proposed Low Density Residential General Plan Land Use Designation. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The underlying 200-lot subdivision that the parcel map is planning for is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.
5. That the design of the proposed parcel map and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The underlying 200-lot subdivision that the parcel map is planning for is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.
6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the parcel map together with the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

BE IT FURTHER RESOLVED that the Planning Commission hereby approves Tentative Parcel Map No. 2022-03 on the real property hereinabove described in accordance with the terms of this resolution under the provisions of Section 16.28.070 of the Ordinance Code of the City of Visalia, subject to the following conditions:

1. That the Project (Tentative Parcel Map No. 2022-03) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-229, incorporated herein by reference.
2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit "E".
3. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.

4. That approval of Tentative Parcel Map No. 2022-03 shall not become effective unless Annexation No. 2022-04, placing the project site within the corporate limits of the City of Visalia, is approved by the Tulare County Local Agency Formation Commission (LAFCO) and is fully executed to include all conditions contained in the Pre-Annexation Agreement for Annexation No. 2022-04.
5. That all applicable federal, state, regional, and city policies and ordinances be met.

RESOLUTION NO 2022-35

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA APPROVING **SHEPHERDS RANCH II TENTATIVE SUBDIVISION MAP NO. 5589**: A REQUEST TO SUBDIVIDE 40 ACRES INTO A 200-LOT SINGLE-FAMILY RESIDENTIAL SUBDIVISION WITH THREE OUT LOTS FOR LANDSCAPING, PARK, AND TRAIL PURPOSES. THE PROJECT SITE CONSISTS OF ONE PARCEL LOCATED ON THE EAST SIDE OF ROAD 88, ¼ MILE SOUTH OF W. GOSHEN AVENUE. (APN: 081-030-080)

WHEREAS, Shepherds Ranch II Tentative Subdivision Map No. 5589 is a request to subdivide 40 acres into a 200-lot single-family residential subdivision with three out lots for landscaping, park, and trail purposes. The project site consists of one parcel located on the east side of Road 88, ¼ mile south of W. Goshen Avenue. (APN: 081-030-080); and

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice held a public hearing before said Commission on July 25, 2022; and

WHEREAS, the Planning Commission of the City of Visalia finds the tentative subdivision map in accordance with Chapter 16.16 of the Subdivision Ordinance of the City of Visalia, based on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project with the incorporation of mitigation measures.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission hereby adopts Mitigated Negative Declaration No. 2021-33 for Shepherds Ranch II Tentative Subdivision Map No. 5589 that was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT FURTHER RESOLVED, that the Planning Commission of the City of Visalia approves the proposed tentative subdivision map based on the following specific findings and based on the evidence presented:

1. That the proposed location and layout of the Shepherds Ranch II Tentative Subdivision Map No. 5589, its improvement and design, and the conditions under which it will be maintained, is consistent with the policies and intent of the General Plan, Zoning Ordinance, and Subdivision Ordinance. The 40-acre project site, which is the site of the proposed 200 lot single-family residential subdivision, is consistent with Land Use Policy LU-P-19 of the General Plan. Policy LU-P-19 states "ensure

that growth occurs in a compact and concentric fashion by implementing the General Plan's phased growth strategy."

2. That the proposed Shepherds Ranch II Tentative Subdivision Map No. 5589, its improvement and design, and the conditions under which it will be maintained will not be detrimental to the public health, safety, or welfare, nor materially injurious to properties or improvements in the vicinity, nor is it likely to cause serious public health problems. The proposed tentative subdivision map will be compatible with adjacent light industrial land uses based on the inclusion of improvements to the north that include a linear park and sound wall. The project site is bordered by existing residential development to the east and south.

3. That the site is physically suitable for the proposed tentative subdivision map. The project is consistent with the intent of the General Plan and Zoning Ordinance and Subdivision Ordinance, and is not detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity. The project site is adjacent to land zoned for residential development, and the subdivision itself is designated as Low Density Residential and developed at a density of 5.29 units per acre excluding the linear park.

4. That the site is physically suitable for the proposed tentative subdivision map and the project's density, which is consistent with the proposed Low Density Residential General Plan Land Use Designation and is being developed at a density of 5.29 units per acre. The design of the proposed subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. The 200-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording for new street improvements, including the construction of curb, gutter, curb return, sidewalk, parkway landscaping, and pavement.

5. That the design of the proposed subdivision and the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision. The 200-lot subdivision is designed to comply with the City's Engineering Improvement Standards. Areas of dedication will be obtained as part of the tentative map recording.

6. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2021-33, is hereby adopted. Furthermore, the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

BE IT FURTHER RESOLVED that the Planning Commission hereby approves Shepherds Ranch II Tentative Subdivision Map No. 5589 on the real property hereinabove described in accordance with the terms of this resolution under the provisions of Section 16.16.110 of the Ordinance Code of the City of Visalia, subject to the following conditions:

1. That the Project (Shepherds Ranch II Tentative Subdivision Map # 5589) be developed in substantial compliance with the comments and conditions of the Site Plan Review Committee as set forth under Site Plan Review No. 2021-229, incorporated herein by reference.
2. That the Project be prepared in substantial compliance with the subdivision map as Exhibit “D”.
3. That the Project incorporate a linear park and 7-foot tall wall in Outlot C of the Shepherds Ranch II Tentative Subdivision Map # 5589 as depicted in Exhibit “B” that contains trees, landscaping, irrigation, playground equipment (tot lot), picnic area, and trail improvements. Park improvements shall be installed as follows:
   a. A permit application for the improvement plans for the portion of the park and wall located north of Lots 69, 74, and 75 shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within Phase 1 of the subdivision (as depicted in Exhibit “D”), and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within the subdivision.
   b. A permit application for the improvement plans for the remaining portion of the park and wall located within Phase 2 shall be submitted to the City prior to the issuance of the first building permit for a dwelling unit within Phase 2 of the subdivision (as depicted in Exhibit “D”), and the permit application shall be issued and installation of improvements shall commence prior to the final of the first building permit for a dwelling unit within Phase 2.
4. That all lots that are a minimum of 5,000 square feet in area and shall comply with the R-1-5 (Single-Family Residential 5,000 sq. ft. min. site area) zone district standards for the front, side, street side yard, and rear yard setbacks.
5. That the block walls located within the landscape and lighting district Outlots A and B shall transition to three-foot height adjacent to the street side yard setbacks for Lots 1 and 200 of Exhibit “D”.
6. That a concrete block or masonry wall shall be erected and/or improved along the north property line of the Project that is shared with adjacent Light Industrial-designated land uses to a height not less than seven (7) feet.
7. That the mitigation measures found within the Mitigation Monitoring Plan for Mitigated Negative Declaration No. 2021-33 are hereby incorporated as conditions of the Shepherds Ranch II Tentative Subdivision Map # 5589, including but not limited to:
   - Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the

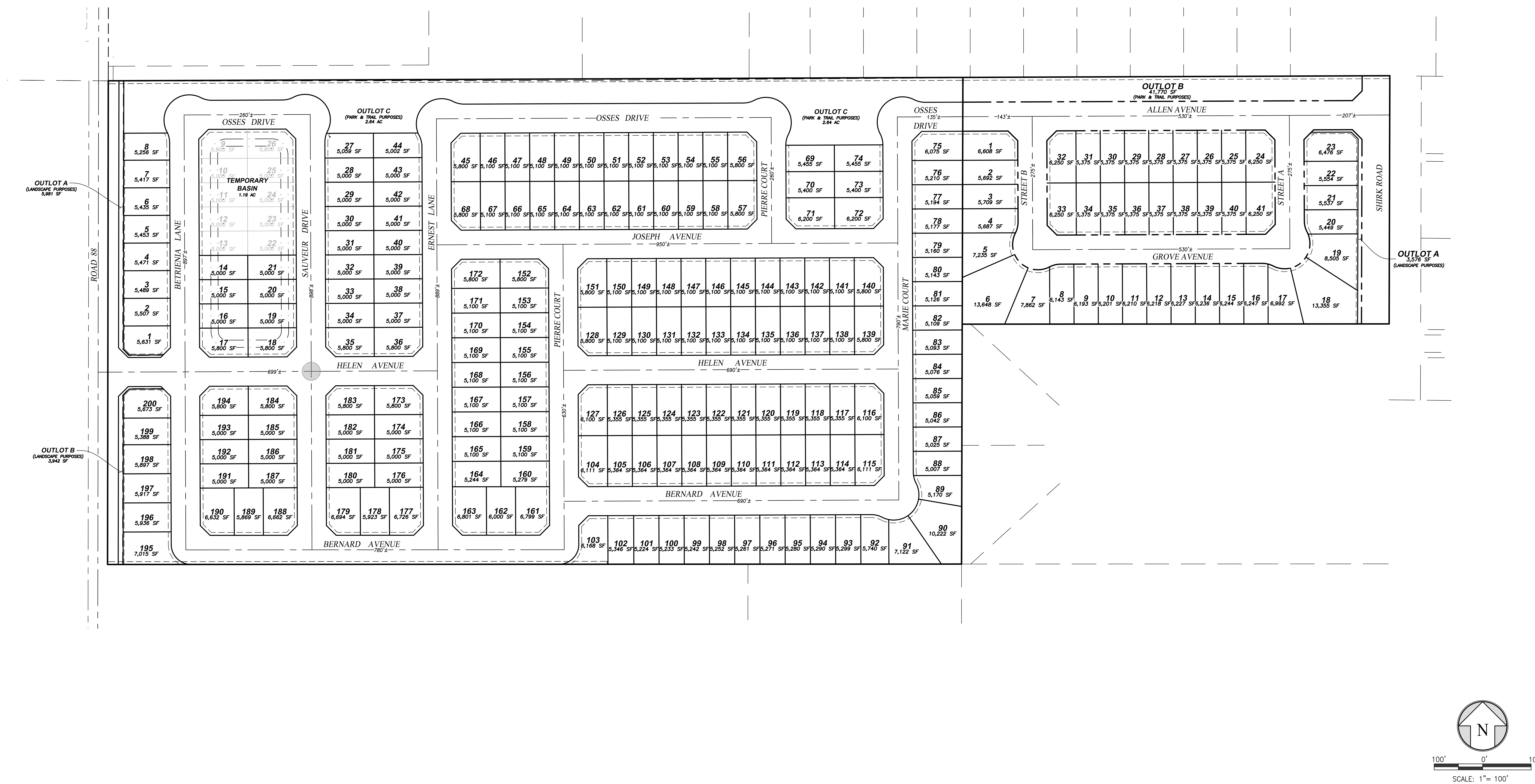
Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows:

"Property owner(s) of lots within the Shepherds Ranch I / Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."

8. That the Project be null and void unless General Plan Amendment No. 2021-03 and Change of Zone No. 2021-04 are approved by the City of Visalia.
9. That prior to the issuance of any residential building permit on the site, the applicant / developer shall obtain and provide the City with a valid Will Serve Letter from the California Water Service Company.
10. That the Project shall have its final maps recorded in the phasing succession (i.e. Phase 1, Phase 2, Phase 3) shown on Exhibit "D", and that no final map shall record prior to the final map recording of all lots associated with the Shepherds Ranch I Tentative Subdivision Map #5581.
11. That approval of the Shepherds Ranch II Tentative Subdivision Map # 5589 shall not become effective unless Annexation No. 2022-04, placing the project site within the corporate limits of the City of Visalia, is approved by the Tulare County Local Agency Formation Commission (LAFCO) and is fully executed to include all conditions contained in the Pre-Annexation Agreement for Annexation No. 2022-04.
12. That all applicable federal, state, regional, and city policies and ordinances be met.

VESTING
TENTATIVE SUBDIVISION MAP
SHEPHERDS RANCH

A PORTION OF THE NORTHEAST QUARTER OF SECTION 28, T.18S., R.24E., MOUNT DIABLO BASE AND MERIDIAN, IN THE UNINCORPORATED AREA OF THE COUNTY OF TULARE, STATE OF CALIFORNIA.



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NOTE: LINEAR PARK TO BE MAINTAINED THROUGH THE CITY'S LIGHTING AND LANDSCAPE DISTRICT (AS NOTED ONE ATTACHED). LINEAR PARK IS FOR CONCEPTUAL PURPOSED ONLY, PLAN WILL BE SUBJECT TO CHANGE DURING FINAL ENGINEERING DRAWINGS.

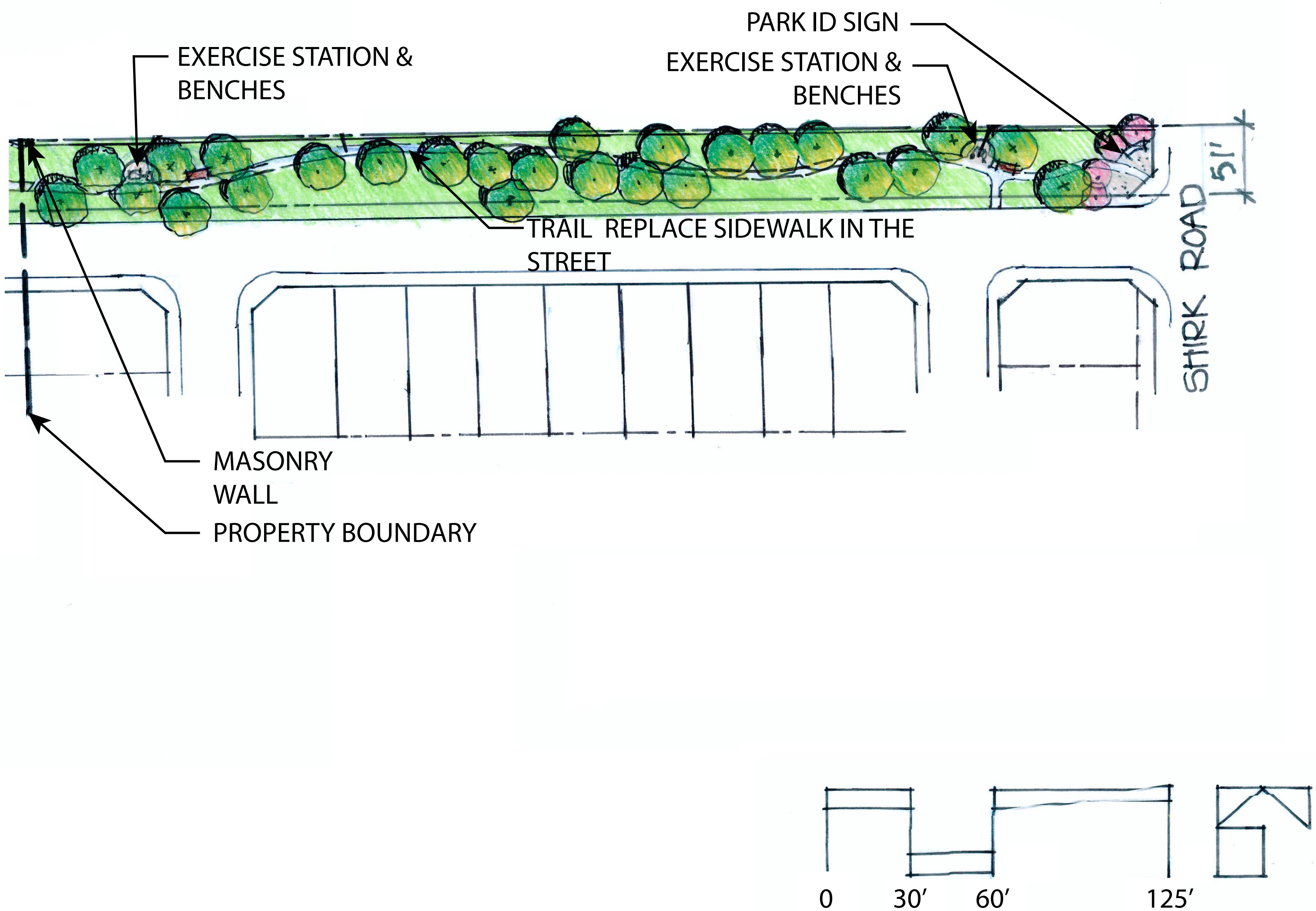
IRON RIDGE I & II and LINEAR PARK
CONCEPTUAL EXHIBIT

VISALIA, CA

DATE: 06-02-2022 Not-To-Scale

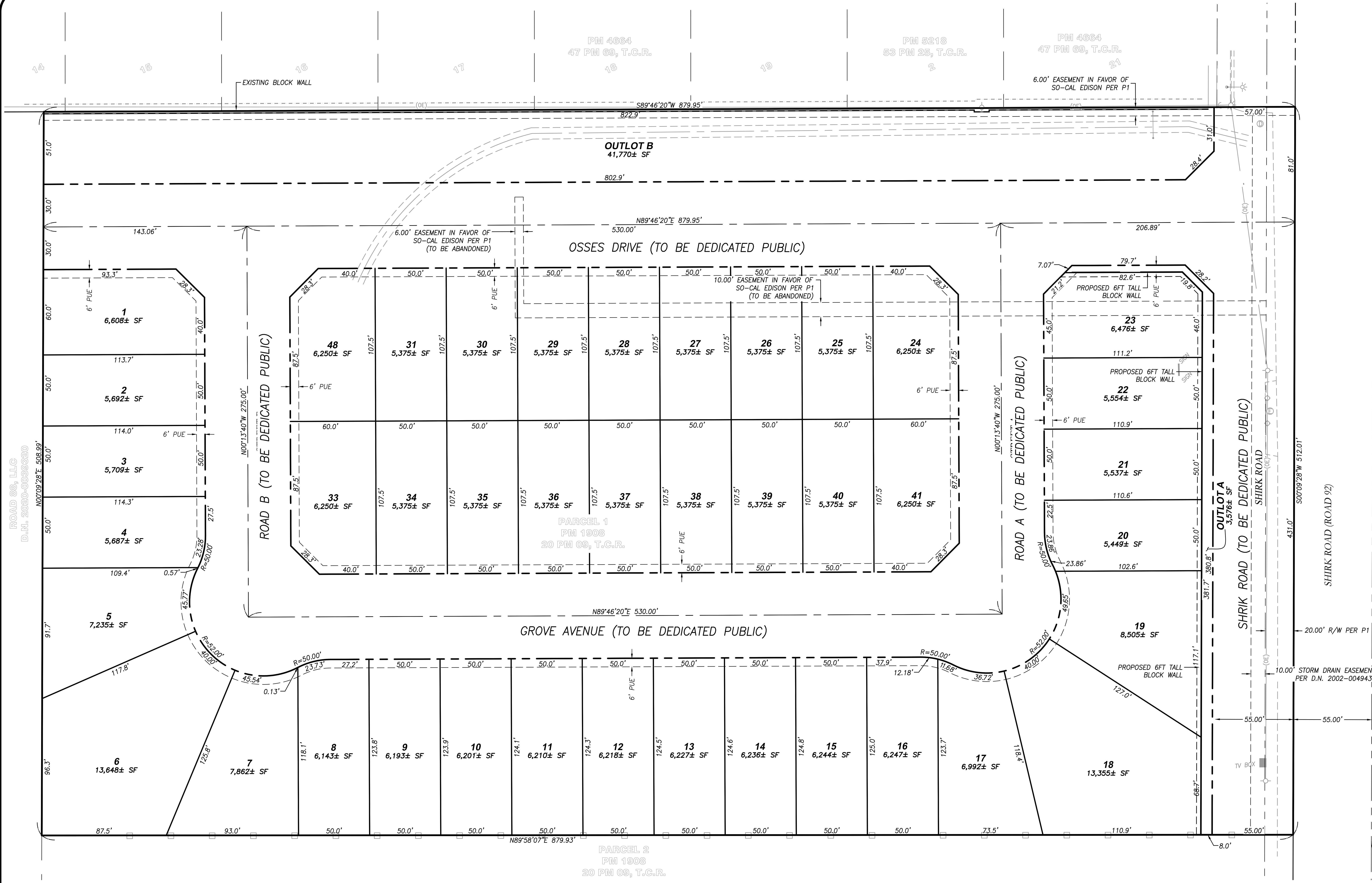
N

LINEAR PARK CONCEPT
Iron Ridge
Visalia, California



SHEPHERDS RANCH I
TENTATIVE MAP

A PORTION OF THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 18 SOUTH, RANGE 24 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE CITY OF VISALIA, COUNTY OF TULARE, STATE OF CALIFORNIA.



LEGAL DESCRIPTION:

REAL PROPERTY IN THE CITY OF VISALIA, COUNTY OF TULARE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL ONE:

PARCEL NO. 1 OF PARCEL MAP NO. 1908, IN THE COUNTY OF TULARE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 20, PAGE 09 OF PARCEL MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BEING A PORTION OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 18 SOUTH, RANGE 24 EAST, MOUNT DIABLO BASE AND MERIDIAN.

PARCEL TWO:

THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 18 SOUTH, RANGE 24 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE COUNTY OF TULARE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 28, A DISTANCE OF 1320 FEET NORTH OF THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER, SAID POINT BEING THE NORTHEAST CORNER OF THE LAND CONVEYED TO MANUEL P. MENDES, ET UX, BY DEED RECORDED AUGUST 5, 1938 AS DOCUMENT NO. 12834; THENCE SOUTH 89° 48' 56" WEST ALONG THE NORTH LINE THEREOF, A DISTANCE OF 880 FEET; THENCE NORTH 0° 00' 04" WEST, A DISTANCE OF 13.64 FEET TO A POINT ON THE SOUTH LINE OF PARCEL NO. 2 OF PARCEL MAP 1320 FILED IN BOOK 14, PAGE 21 OF TULARE COUNTY PARCEL MAPS; THENCE EASTERLY ALONG SAID SOUTH LINE AND ITS EASTERLY PROLONGATION TO A POINT ON THE EAST LINE OF SAID SECTION 28; THENCE SOUTH ALONG SAID EAST LINE, A DISTANCE OF 16.71 FEET TO THE POINT OF BEGINNING.

PROJECT SITE INFORMATION

APRIL 2021

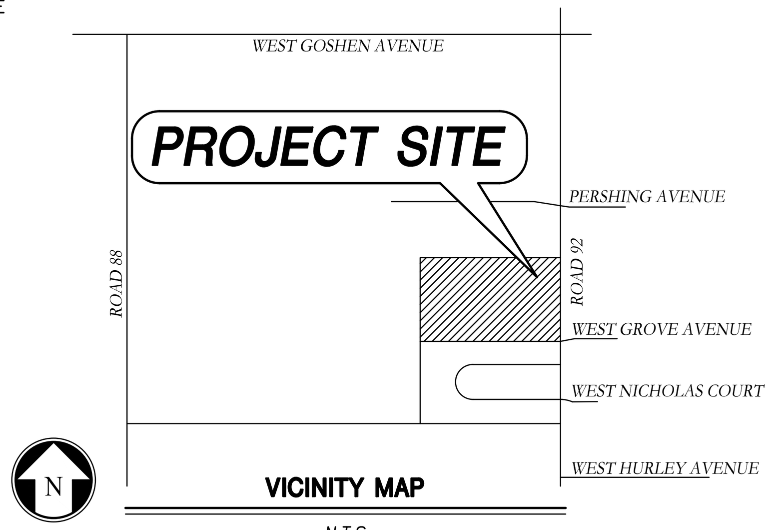
APN:
081-030-046-000

ADDRESS:
945 NORTH SHIRK ROAD
VISALIA, CA 93291

RECORD OWNERSHIP:
TULARE COUNTY PROPERTIES, INC.
AND MICHAEL L. SILVA //
AUTHORIZED SIGNER JOE W. RUSSELL
13603 AVENUE 352
VISALIA, CA 93292

SUBDIVIDER:
D.R. HORTON CA3, INC.
419 W. MURRAY AVENUE
VISALIA, CA 93291
(559) 636-9850

BY: QK
601 POLLASKY AVE., STE. 301 TEL: (559) 449-2400
CLOVIS, CA 93612 WWW.QKINC.COM
LAND SURVEYOR: ANTONIO WESTERLUND, PLS



VICINITY MAP

N.T.S

UTILITIES

SOUTERN CALIFORNIA EDISON:
MISAEL IBARRA
2425 S. BLACKSTONE STREET, TULARE, CA 93274
O: 559-684-3532
C: 559-801-1272
misael.ibarra@sce.com

SOUTHERN CALIFORNIA GAS COMPNAY:
JUAN MEJORADO
404 N. TIPTON STREET, VISALIA, CA 93292
O: 559-739-2317
JMMejorado@socalgas.com

AT&T:
ERIN PECTOL
217 W. ACEQUIA AVENUE, VISALIA, CA 93291
O: 559-739-6649
C: 559-737-1637
ep8545@att.com

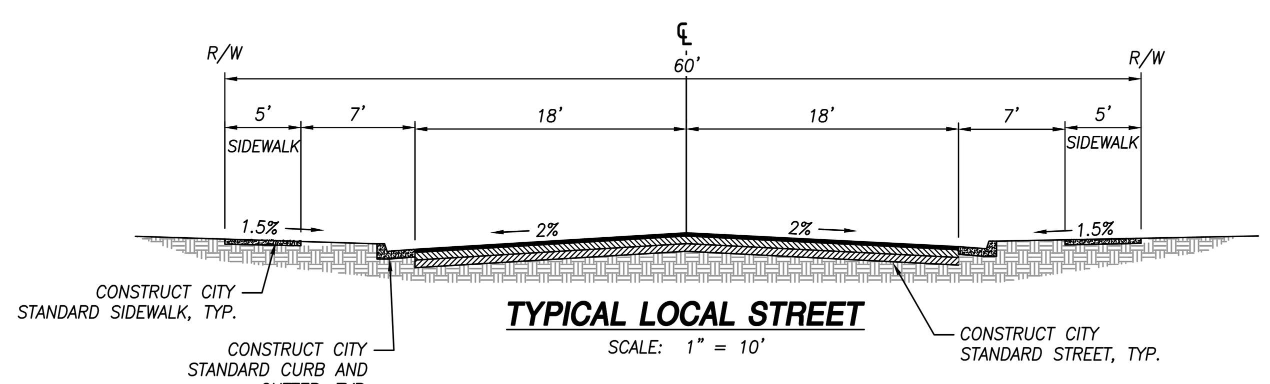
COMCAST:
MICHAEL CORRAL
1031 N. PLAZA DRIVE, VISALIA, CA 93291
O: 559-735-2104
C: 559-217-9003
Michael_Corral@comcast.com

PHASING

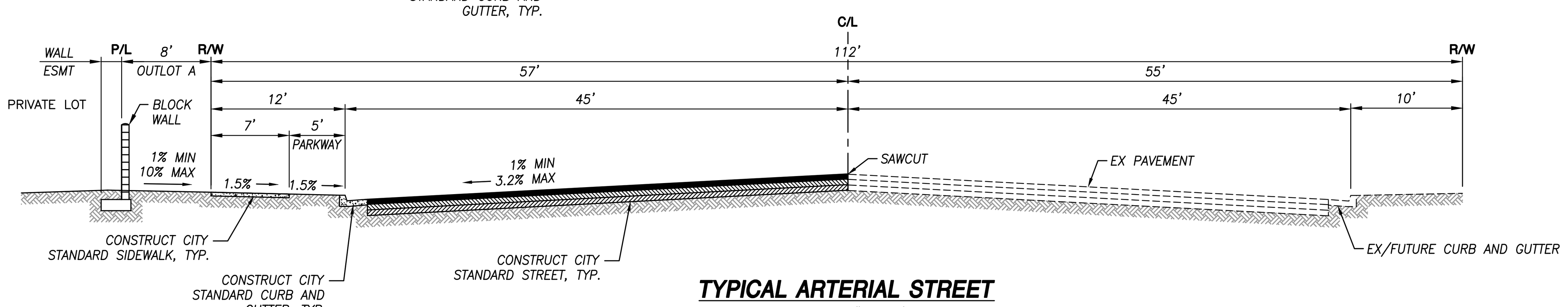
THE APPLICANT RESERVES THE RIGHT TO FILE MULTIPLE FINAL MAPS PURSUANT TO SECTION 66456.1 OF THE SUBDIVISION MAP ACT.

LEGEND

- CENTERLINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- EXISTING RIGHT OF WAY
- EXISTING LOT LINES
- PUBLIC UTILITY EASEMENT
- PROPOSED WALL
- EXISTING WALL
- EXISTING WOOD FENCE
- EXISTING EDGE OF PAVEMENT/ROAD
- EXISTING CURB AND GUTTER
- EXISTING OVERHEAD ELECTRICAL
- EXISTING STREETLIGHT
- EXISTING GUY ANCHOR
- EXISTING POWER POLE
- EXISTING STORM DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING ELECTRIC MANHOLE
- EXISTING SIGN
- EXISTING VENT PIPE
- EXISTING STAND PIPE
- EXISTING RISER



TYPICAL LOCAL STREET
SCALE: 1" = 10'



TYPICAL ARTERIAL STREET
SCALE: 1" = 10'
SHIRK ROAD (ROAD92)

SETBACKS

FRONT: 15' TO LIVING
22' TO GARAGE

SIDE: 10' FOR CORNER LOTS
5' EVERYWHERE ELSE

REAR: 25'

40' 0' 40'
SCALE: 1"= 40'

ACREAGE AND LAND USE

	NO. OF UNITS	GROSS AREA	GROSS DENSITY UNITS/ACRE	PROPOSED ZONE
RESIDENTIAL LOTS (50' X 100' MIN.):	41	5.980 ACRES	N/A	R-1-5
PUBLIC STREETS (INCLUDING SHIRK ROAD):	5	3.291 ACRES	N/A	N/A
PARK/TRAIL/LANDSCAPE (PUBLIC)- OUTLOT B:	1	41,770 SF	N/A	VARIOUS
LANDSCAPE (PUBLIC) - OUTLOT A:	1	3,576 SF	N/A	VARIOUS
TOTALS:	48	10.313 ACRES	3.97	

REFERENCES

P1 PARCEL MAP NO. 1908, 20 PM 09, T.C.R.

TOPOGRAPHIC SURVEY

TOPOGRAPHIC INFORMATION SHOWN ON THIS MAP WAS CONDUCTED ON MARCH 9 AND MARCH 10, 2021.

FLOOD NOTE

THE SUBJECT SITE IS WITHIN FLOOD ZONES AE AND X AS SHOWN ON FEMA FIRM PANEL 06107C0928E, EFFECTIVE 6/16/2009.

ABBREVIATIONS

D.N.	DENOTES RECORD DOCUMENT NUMBER, TULARE COUNTY RECORDS
PUE	PUBLIC UTILITY EASEMENT
R/W & ROW	RIGHT OF WAY
T.C.R.	TULARE COUNTY RECORDS
R	RADIUS

L:\PROJECTS\2021\210112\ACAD\TENTATIVE MAP\210112-TSM.DWG 7/21/2022 9:55 AM

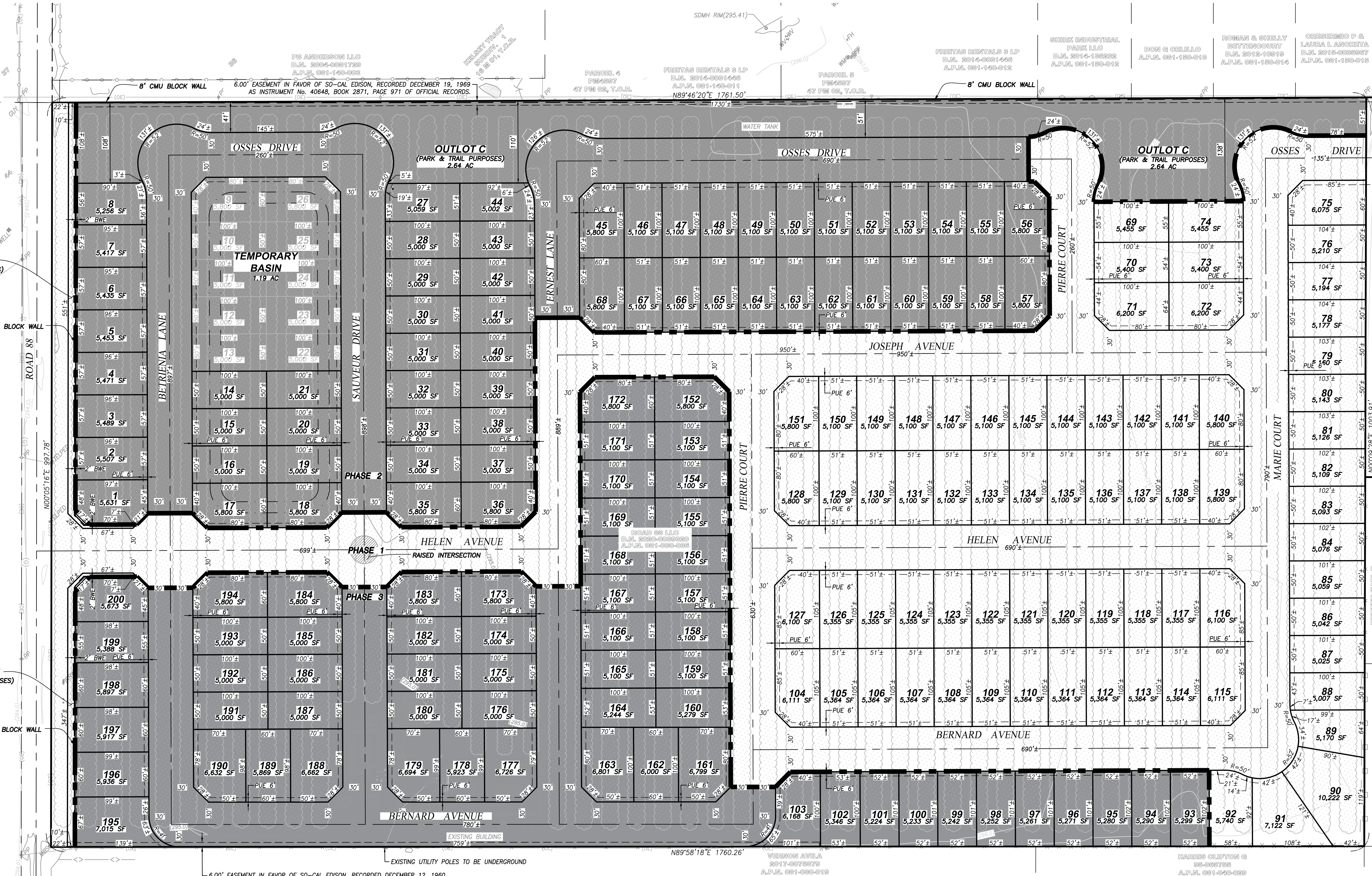
TENTATIVE SUBDIVISION MAP

SHEPHERDS RANCH II

A PORTION OF THE NORTHEAST QUARTER OF SECTION 28, T.18S., R.24E., MOUNT DIABLO BASE AND MERIDIAN, IN THE UNINCORPORATED AREA OF THE COUNTY OF TULARE, STATE OF CALIFORNIA.

BY: QK

601 POLLASKY AVE., STE. 301 TEL: (559) 449-2400
CLOVIS, CA 93612 WWW.QKINC.COM
LAND SURVEYOR: ANTONIO WESTERLUND, PLS



PROJECT SITE INFORMATION

APN:
081-030-080-000

RECORD OWNERSHIP:
ROAD 88, LLC
P.O. BOX 964
VISALIA, CA 93279

SUBDIVIDER/APPLICANT:
D.R. HORTON CA3, INC.
419 W. MURRAY AVENUE
VISALIA, CA 93291
(559) 636-9850

LEGAL DESCRIPTION

PER PRELIMINARY TITLE REPORT ORDER NO. 0131-624447-II DATED MAY 16, 2022:
REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF TULARE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEING A PORTION OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 18 SOUTH, RANGE 24 EAST, MOUNT DIABLO BASE AND MERIDIAN, COUNTY OF TULARE, STATE OF CALIFORNIA:

COMMENCING AT THE EAST QUARTER CORNER OF ABOVE SAID SECTION 28, AS SHOWN ON THE MAP FILED IN BOOK 20 OF PARCEL MAPS, AT PAGE 9, TULARE COUNTY RECORDS: THENCE NORTH 0°00'04" WEST ALONG THE EAST LINE OF SAID SECTION 28, A DISTANCE OF 330.00 FEET; THENCE SOUTH 89°48'56" WEST PARALLEL WITH THE SOUTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 28, SAID PARALLEL LINE ALSO BEING THE SOUTH LINE OF PARCEL 2 SHOWN ON ABOVE SAID PARCEL MAP, A DISTANCE OF 880.00 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 2 AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING SOUTH 89°48'56" WEST, A DISTANCE OF 1,760.11 FEET TO THE POINT OF INTERSECTION WITH WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 28; THENCE NORTH 0°03'55" WEST, A DISTANCE OF 997.48 FEET TO THE SOUTHWEST CORNER OF LOT 36 OF KELSEY TRACT NO. 1 AS SHOWN ON THE MAP FILED IN BOOK 16 OF MAPS, AT PAGE 4, TULARE COUNTY RECORDS; THENCE NORTH 89°39'56" EAST ALONG THE SOUTH LINE OF LOTS 36, 35 AND 34 OF SAID KELSEY TRACT NO. 1, A DISTANCE OF 1,761.26 FEET TO THE POINT OF INTERSECTION WITH THE NORTHERLY PROJECTION OF THE WEST LINE OF PARCEL 1 AS SHOWN ON THE MAP FILED IN BOOK 20 OF PARCEL MAPS AT PAGE 9, TULARE COUNTY RECORDS; THENCE SOUTH 0°00'04" EAST ALONG THE LAST SAID NORTHERLY PROJECTION AND THE WEST LINE OF PARCELS 1 AND 2 AS SHOWN ON LAST SAID PARCEL MAP, A DISTANCE OF 1,003.64 FEET TO THE POINT OF BEGINNING.

THIS LEGAL DESCRIPTION IS MADE PURSUANT TO THAT CERTAIN CERTIFICATE OF COMPLIANCE RECORDED JANUARY 4, 2022, AS INSTRUMENT NO. 2022-0000663, OF OFFICIAL RECORDS.

APN: 081-030-036-000 (AFFECTS THIS AND OTHER PROPERTIES) AND 081-030-080-000 (NEW APN NOT YET ASSESSED)

UTILITIES

SOUTERN CALIFORNIA EDISON:
MISAEL IBARRA
2425 S. BLACKSTONE STREET, TULARE, CA 93274
O: 559-684-3532
C: 559-801-1272
misael.ibarra@sce.com

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C: 559-737-1637
ep8545@att.com

COMCAST:
MICHAEL CORRAL
1031 N. PLAZA DRIVE, VISALIA, CA 93291
O: 559-735-2104
C: 559-217-9003
Michael_Corral@comcast.com

PHASING & LOT INFORMATION

THE APPLICANT RESERVES THE RIGHT TO FILE MULTIPLE FINAL MAPS PURSUANT TO SECTION 66456.1 OF THE SUBDIVISION MAP ACT. PHASE LINES SHOWN HEREON ARE PLANNED, AND SUBJECT TO CHANGE.

PHASE 1	PHASE 2	PHASE 3
72	68	60

TOTAL LOTS - 200

SETBACKS

5,000 SF LOTS

FRONT: 15' TO LIVING
22' TO GARAGE

SIDE: 10' FOR CORNER LOTS
5' EVERYWHERE ELSE

REAR: 25'

ACREAGE AND LAND USE

	NO. OF UNITS	GROSS ACRES	GROSS DENSITY UNITS/ACRE	PROPOSED ZONE
5,000 SF LOTS:	200	24.673	8.07	R-1-5
OUTLOTS A & B - LANDSCAPE:	2	0.233	N/A	VARIOUS
OUTLOT C - PARK & TRAIL (PUBLIC):	1	2.633	N/A	QP
RIGHT OF WAY:		12.919	N/A	VARIOUS
TOTALS:	203	40.458		

NOTES

1. DATE OF PREPARATION: MARCH 9, 2022 (UPDATED MAY 31, 2022)
2. ALL DISTANCES SHOWN ARE IN FEET & DECIMALS THEREOF AND ARE APPROXIMATE
3. EXISTING LAND USE: AG
4. PROPOSED LAND USE: R-1-5 (100% OF SITE)
5. IMPROVEMENTS TO CONFORM TO APPLICABLE ORDINANCES & STATUTES
6. EASEMENTS FOR PUBLIC UTILITIES TO BE PROVIDED AS REQUIRED
7. AREA OF OUTLOT C = 10.7% OF AREA OF RESIDENTIAL LOTS PLUS OUTLOT C
8. 8' CMU BLOCK WALL AT THE NORTHERN PROPERTY LINE.
9. 6' MIN CMU BLOCK WALL ON THE EAST LINES OF OUTLOTS A AND B. THE BLOCK WALL WILL ALSO WRAP AROUND TO THE SIDE YARDS OF LOTS 1 AND 200.

FLOOD ZONE NOTE

THE SUBJECT SITE IS WITHIN FLOOD ZONES AE AND X AS SHOWN ON FEMA FIRM PANEL 06107C0928E, EFFECTIVE 6/16/2009.

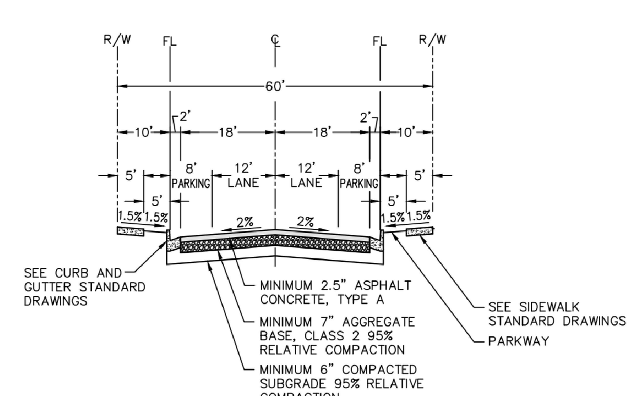
LEGEND

GUY	GUY WIRE
IRRWELL	IRRIGATION WELL
HB	HOSE BIB
MBS	MAILBOX (SINGLE)
PALM	PALM TREE
PP	POWER POLE
SDMH	STORM DRAIN MANHOLE
SP	STAND PIPE
TEL PED	TELEPHONE PEDESTAL
TP	TELEPHONE POLE
TREE	TREE
WELL	DOMESTIC WELL
WV	WATER VALVE
WM	WATER METER
	WALNUT TREE ROW
A.P.N.	ASSESSOR'S PARCEL NUMBER
BWE	BLOCK WALL EASEMENT
CL	CENTERLINE
CMU	CONCRETE MASONRY UNIT
D.N.	DOCUMENT NUMBER PER OFFICIAL RECORDS OF TULARE COUNTY
FL	FLOW LINE
PP	POWER POLE
PUE	PUBLIC UTILITY EASEMENT
R/W	RIGHT OF WAY
T.C.R.	TULARE COUNTY RECORDS
XX M YY	VOLUME XX OF M, PAGE YY, T.C.R.
XX PM YY	BOOK XX OF PARCEL MAPS, PAGE YY, T.C.R.

- CMU BLOCK WALL
- SUBDIVISION BOUNDARY
- PROPOSED PARCEL LINE
- PROPOSED CENTER LINE
- EXISTING RIGHT OF WAY LINE
- ADJACENT PARCEL LINES
- SOUTHERN CALIFORNIA EDISON EASEMENT
- PUBLIC UTILITY EASEMENT
- PHASE LINE
- (252.0) EXISTING CONTOUR
- EXISTING EDGE OF DIRT ROAD
- EXISTING EDGE OF PAVEMENT
- (OE) EXISTING OVERHEAD ELECTRIC LINE
- FENCE, BARBED WIRE
- FENCE, WIRE
- FENCE, CHAINLINK
- FENCE, WOOD
- FENCE, PIPE
- (OE) ELECTRICAL LINE (OVERHEAD)
- (G) HIGH-PRESSURE GAS LINE
- (SD) STORM DRAIN LINE
- (OT) TELEPHONE LINE (OVERHEAD)
- PHASE 1
- PHASE 2
- PHASE 3

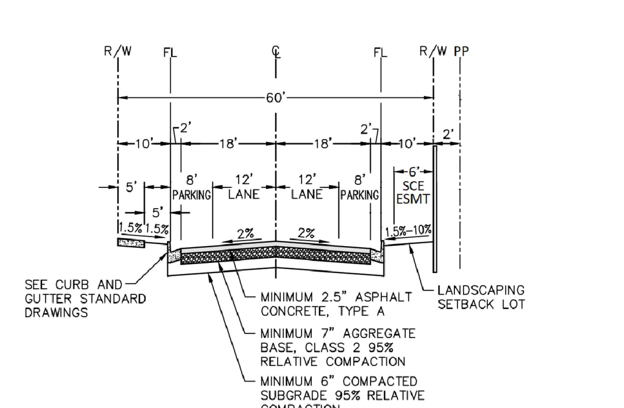
INTERIOR STREETS

NOT TO SCALE
PER CITY STD. P-1



BERNARD AVENUE

NOT TO SCALE



NORTH BOUNDARY DETAIL

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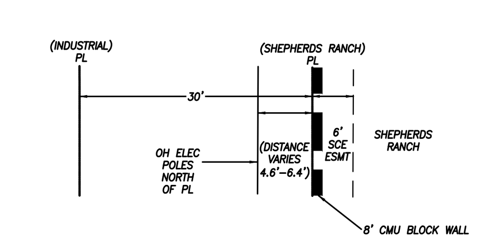

2 LANE COLLECTOR

ROAD 88 (LOOKING NORTH)
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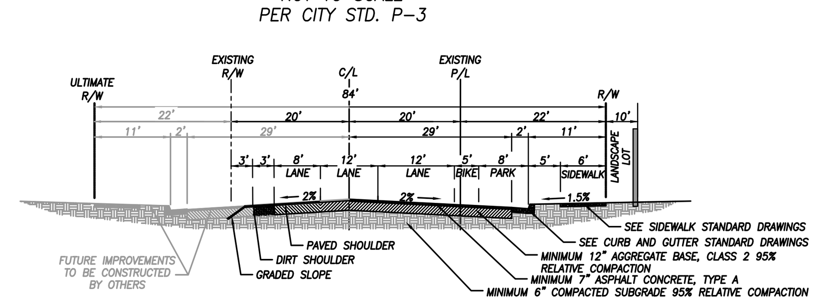
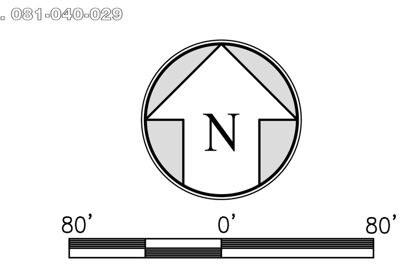
PER CITY STD. P-3





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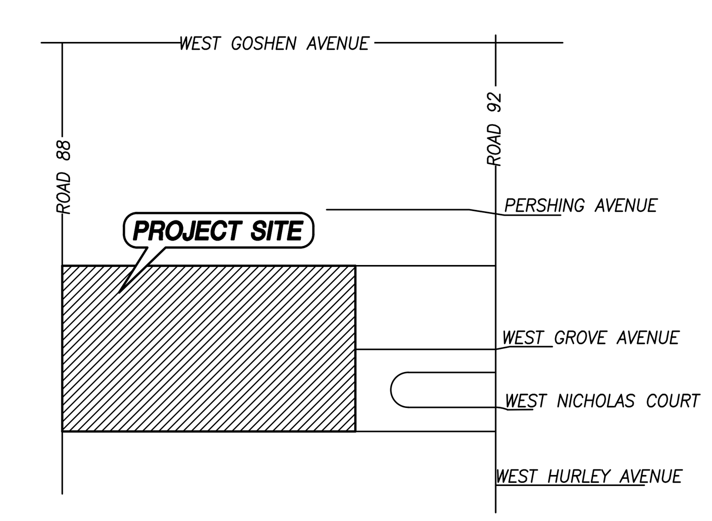

LOCATION MAP

NOT TO SCALE

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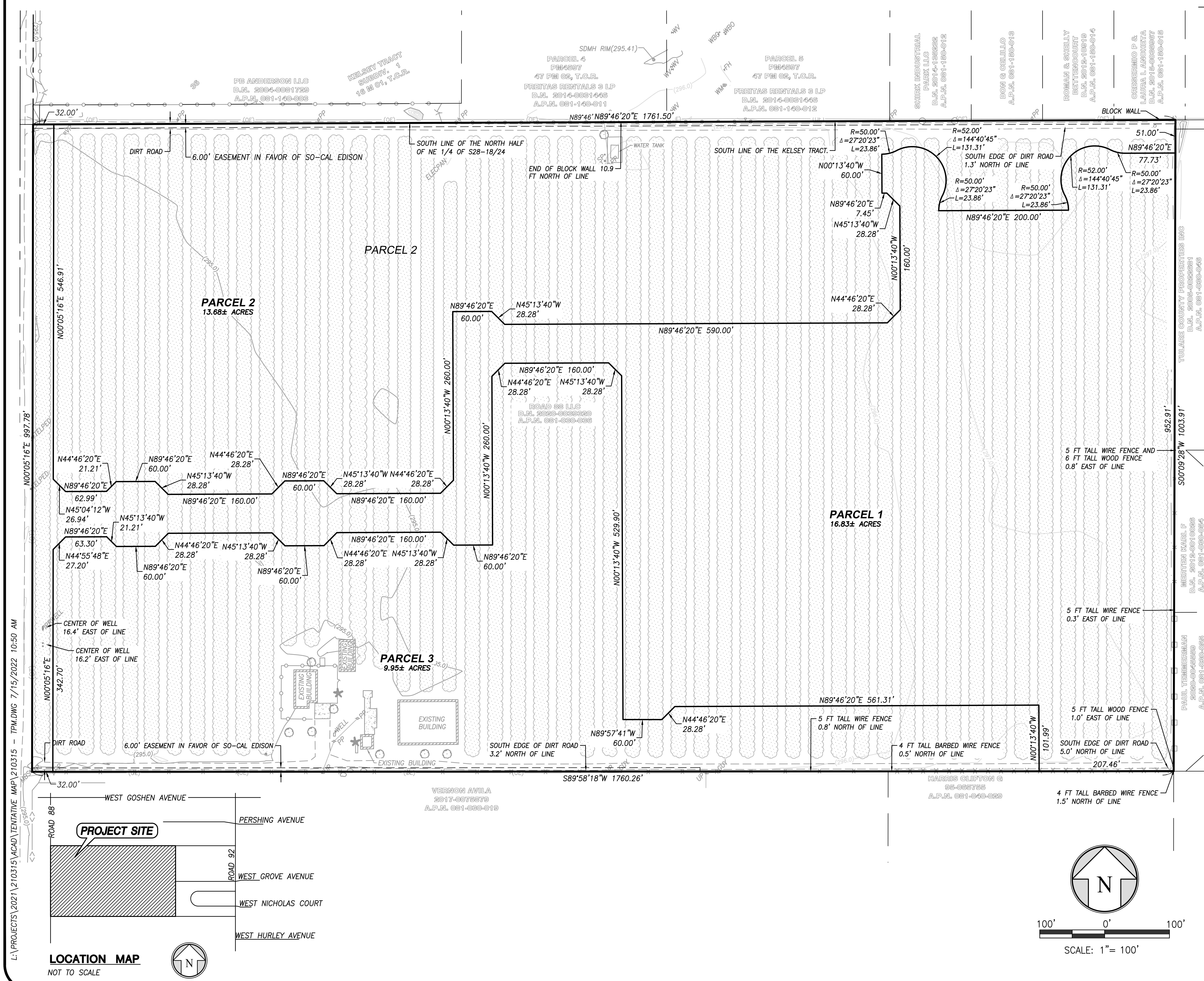
TENTATIVE PARCEL MAP
SHEPHERDS RANCH II

A PORTION OF THE NORTHEAST QUARTER OF SECTION 28, T.18S., R.24E., MOUNT DIABLO BASE AND MERIDIAN, IN THE UNINCORPORATED AREA OF THE COUNTY OF TULARE, STATE OF CALIFORNIA.

FOR:
D.R. HORTON, AMERICA'S BUILDER
419 W. MURRAY AVENUE
VISALIA, CA 93291
(559) 636-9850

BY:
QK
150 WEST MORTON AVENUE
PORTERVILLE, CA 93257
TEL: (559) 781-2700
WWW.QKINC.COM



LEGEND

GUY		GUY WIRE
IRRWELL		IRRIGATION WELL
HB		HOSE BIB
MBS		MAILBOX (SINGLE)
PALM		PALM TREE
PP		POWER POLE
SDMH		STORM DRAIN MANHOLE
SP		STAND PIPE
TEL PED		TELEPHONE PEDESTAL
TP		TELEPHONE POLE
TREE		TREE
WELL		DOMESTIC WELL
WV		WATER VALVE
WM		WATER METER
		WALNUT TREE ROW
A.P.N.		ASSESSOR'S PARCEL NUMBER
D.N.		DOCUMENT NUMBER PER OFFICIAL RECORDS OF TULARE COUNTY
T.C.R.		TULARE COUNTY RECORDS
XX M YY		VOLUME XX OF M, PAGE YY, T.C.R.
T.C.S. XX PM YY		BOOK XX OF PARCEL MAPS, PAGE YY, T.C.R.
		SITE BOUNDARY
		PROPOSED PARCEL LINE
		EXISTING RIGHT OF WAY LINE
		ADJACENT PARCEL LINES
		SECTION LINE
		PUBLIC UTILITY EASEMENT
	(252.0)	EXISTING CONTOUR
		EXISTING EDGE OF DIRT ROAD
		EXISTING EDGE OF PAVEMENT
		EXISTING OVERHEAD ELECTRIC LINE
		FENCE, BARBED WIRE
		FENCE, WIRE
		FENCE, CHAINLINK
	(OE)	ELECTRICAL LINE (OVERHEAD)
	(SD)	STORM DRAIN LINE
	(OT)	TELEPHONE LINE (OVERHEAD)

NOTES

1. DATE: MARCH 10, 2022
2. APN: 081-030-036
3. EXISTING USE: AG
4. PROPOSED USE: SINGLE FAMILY RESIDENTIAL (R-1-5)
5. DOMESTIC WATER: CITY OF VISALIA
6. SEWAGE DISPOSAL: CITY OF VISALIA
7. INUNDATION OR OVERFLOW: FIRM ZONE AE
8. WILLIAMSON ACT CONTRACT: NONE
9. PRELIM. GEOLOGICAL-HYDROLOGICAL REPORT: WAIVER REQUESTED
10. PROPOSED IMPROVEMENTS, PUBLIC UTILITIES, & TIME OF COMPLETION: NONE

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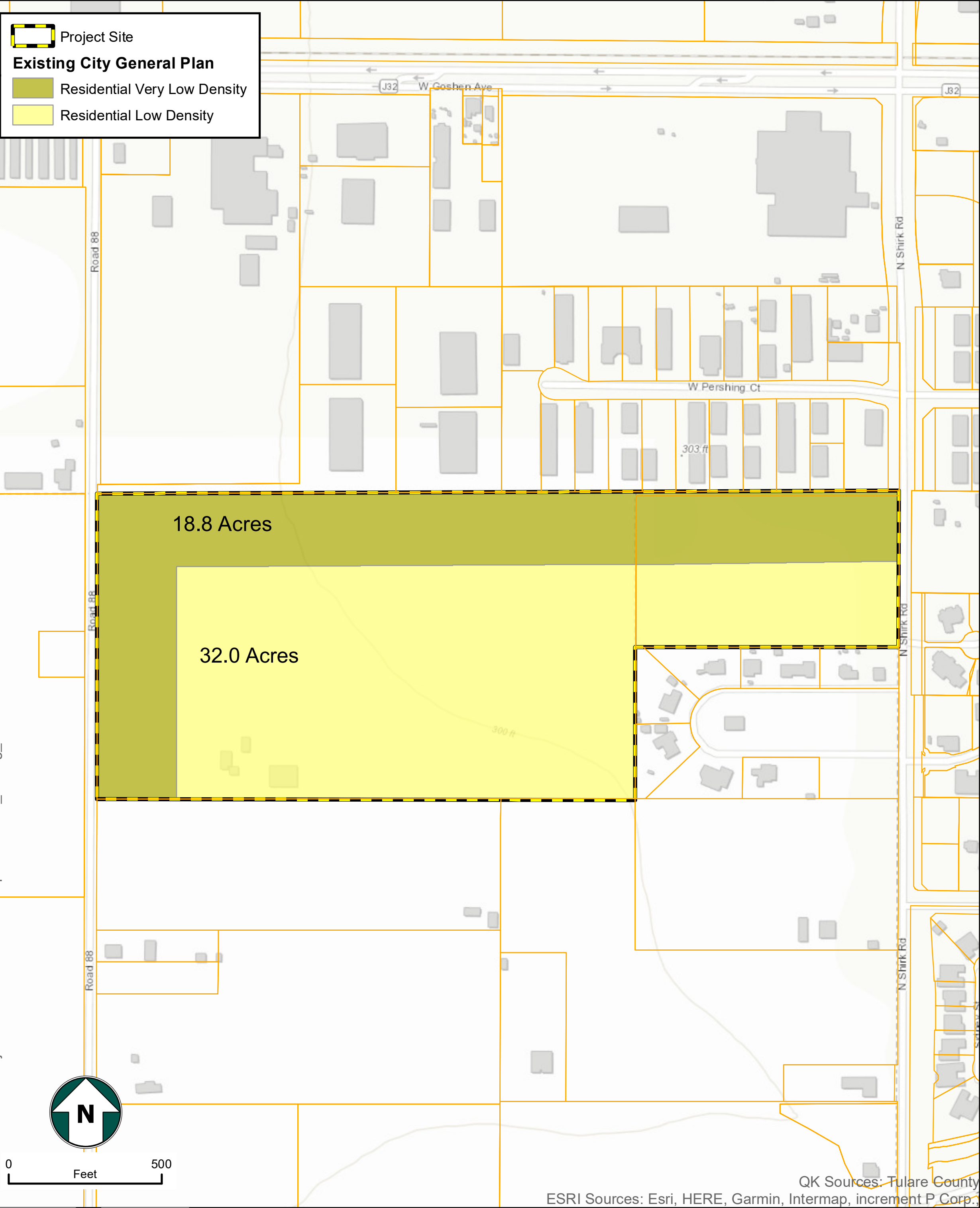
ONE SHEET ONLY



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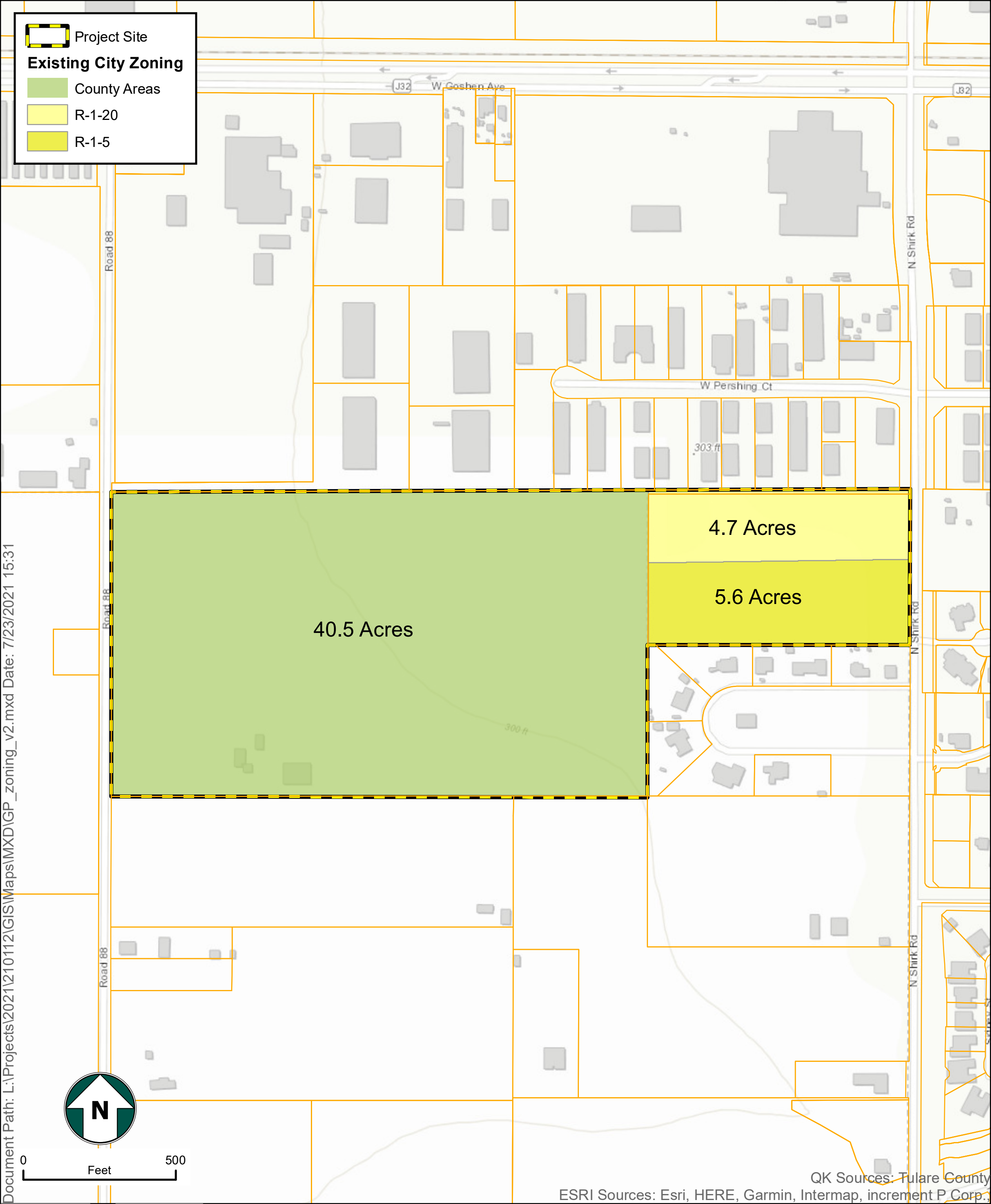
Project Site
Existing City Zoning
County Areas
R-1-20
R-1-5
W Goshen Ave
J32
Road 88
N Shirk Rd
W Pershing Ct
303 ft
300 ft
4.7 Acres
5.6 Acres
40.5 Acres
N
0
500
Feet
QK Sources: Tulare County
ESRI Sources: Esri, HERE, Garmin, Intermap, increment P Corp.
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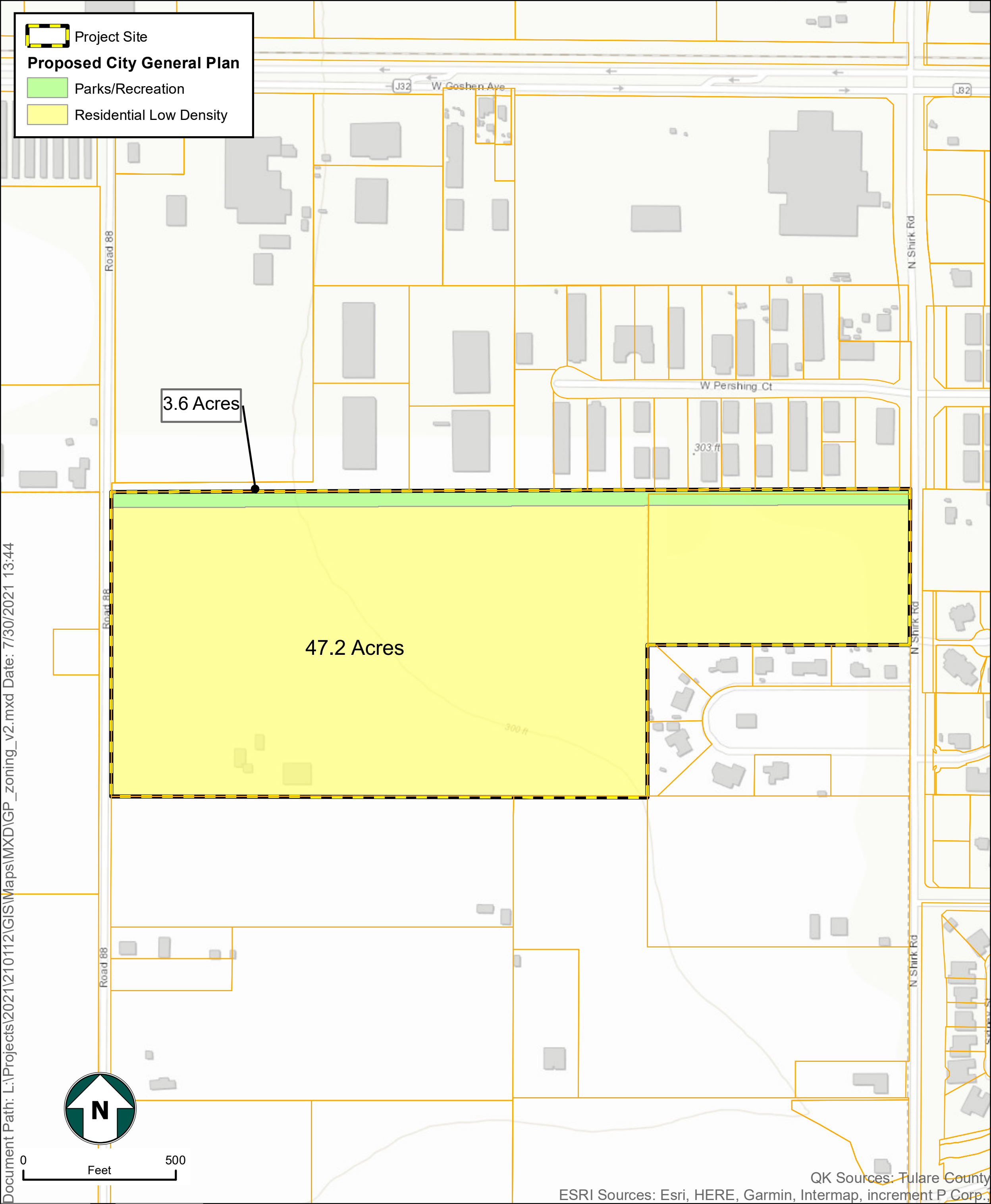
Project Site
Proposed City General Plan
Parks/Recreation
Residential Low Density
J32
W Goshen Ave
J32
Road 88
N Shirk Rd
W Pershing Ct
303 ft
3.6 Acres
47.2 Acres
300 ft
N
0
Feet
500
QK Sources: Tulare County
ESRI Sources: Esri, HERE, Garmin, Intermap, increment P Corp.
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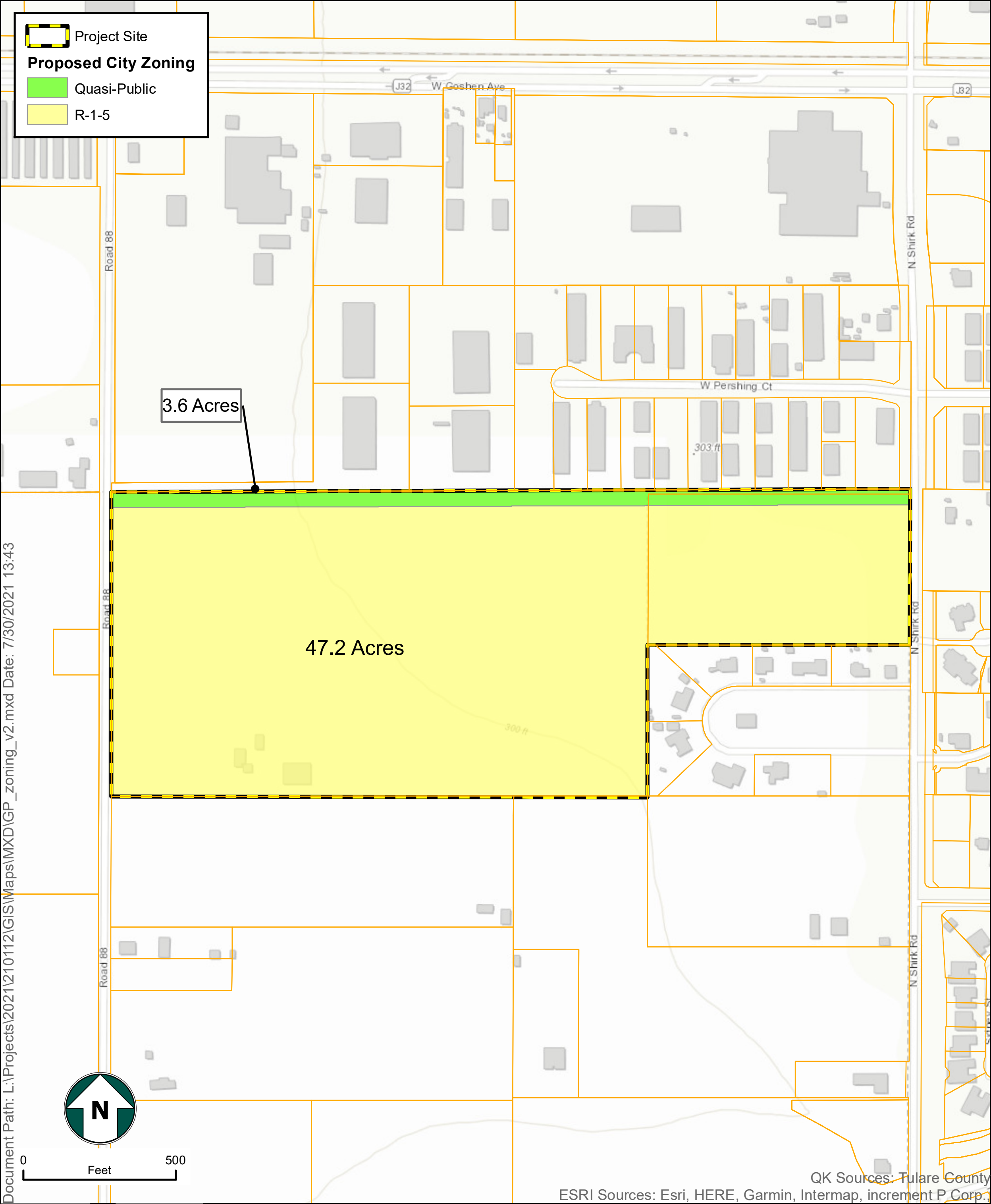

Project Site
Proposed City Zoning
Quasi-Public
R-1-5
W Goshen Ave
J32
Road 88
N Shirk Rd
W Pershing Ct
303 ft
300 ft
3.6 Acres
47.2 Acres
N
0
500
Feet
QK Sources: Tulare County
ESRI Sources: Esri, HERE, Garmin, Intermap, increment P Corp.
Document Path: L:\Projects\2021\210112\GIS\Maps\MXD\GP_zoning_v2.mxd Date: 7/30/2021 13:43

MEMO

Date:	July 8, 2022
To:	City of Visalia Planning Division
From:	Ethan Davis, Associate Planner
Subject:	Shepherds Ranch I and II Project Description

INTRODUCTION/BACKGROUND

The following information pertains to the proposed Shepherds Ranch I (Project 1) and Shepherds Ranch II (Project 2) subdivision projects being filed with the City of Visalia (City) Planning Department. The Shepherds Ranch I project includes a Tentative Subdivision Map, General Plan Amendment, and Change of Zone. Shepherds Ranch II includes an Annexation, General Plan Amendment, Prezone, Tentative Subdivision Map and a Tentative Parcel Map. For the purpose of this project description, the Shepherds Ranch I and II General Plan Amendment and Change of Zone/Prezone will be combined under one application.

This Project description describes the details of the proposal and expands on information not within the development application for the subdivision within the Project site. The proposed Project would allow the applicant, D.R. Horton, the ability to construct a single-family residential community.

The Change of Zone/Prezone and General Plan Amendment that will alter the land use designations and zoning districts of the Project 1 10.31-acre parcel (APN: 081-030-46) and the Project 2, 40.0-acre parcel (APN: 081-030-36) between Road 88 south of Goshen Avenue and Shirk Street, within the Tier One and Tier Two Urban Growth Boundary. The client will process one Tentative Subdivision Map as a part of Project 1. Project 2 will propose a Tentative Parcel Map that will create three parcels due in order to adequately finance restrictions when purchasing property. Direction from the City of Visalia staff includes environmental review of both Projects in a single document to satisfy California Environmental Quality Act (CEQA). The northern half of the 10.3-acre property (Project 1) is currently planned and zoned for Very Low Density (R-1-20) and the southern half is zoned for Low Density (R-1-5). Similarly, Project 2 is currently planned for Very Low Density along the northern and western property boundaries and on the interior, it is planned for Low Density Residential. The General Plan Amendment proposes to change the existing Very Low-Density Residential land use designation to Residential Low Density land use designation. In addition, a park strip will along the entire northern property lines will be designated as Park/Recreation. In order to maintain consistency with the General Plan a Change of Zone/Prezone is also proposed and will result in a change from all R-1-20 to R-1-5 and the addition of the Quasi-Public designation for the park strip, within the projects' site.

The R-1-20 zone was intended to be a buffer between residential development and the Light Industrial lots to the north. We are proposing to use the entry street to the proposed residential development along with a 51-foot wide linear park and landscape buffer (in a Landscaping and Lighting Maintenance District) as the buffer, instead of R-1-20 lots. Our intent is to screen the light industrial uses with a masonry wall, trees, and landscaping.

The western 40-acre parcel (Project 2) abutting Road 88 is located within the City of Visalia's sphere of influence and will require annexation. Once annexed the parcel will be zoned to R-1-5 along with Project 1.

PROJECT LOCATION

The Project 1 is located adjacent to the current City limits in the western portion of the city. The Project is south of developed light industrial properties rural residential/ agricultural land to the east and west and south. The Project 1 area consists of APN 081-030-46.

Project 2 is located within the City of Visalia's sphere of influence on the east side of Road 88 South of Goshen extending to the western portion of Project 1. The combined area of both projects is located south of Goshen between Road 88 and Shirks Avenue. The total Project area consists of APN 081-030-46 and 081-030-36, which is approximately 50 acres.

PROJECT CHARACTERISTICS

The Project intends to create residential lots and the appurtenant infrastructure consistent with the General Plan designation of Residential Low Density. Future zoning designations will be consistent with the aforementioned land use designations, respectively R-1-5. The Project will be evaluated by the city, through the scope of the General Plan, Municipal Code, and subsequently through the building permit submittal.

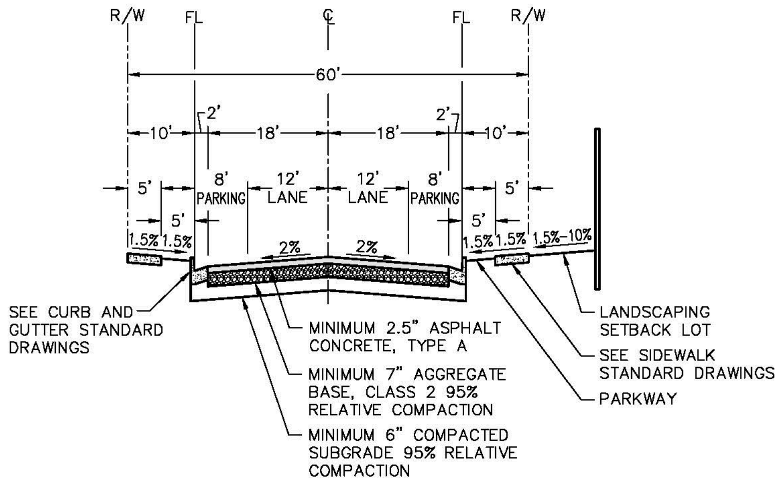
The approximate density for the Project 1 proposed subdivision is 3.97 dwelling units per gross acre. Both Projects propose to remove the Very Low Density Residential (and subsequent R-1-20 zone) and replace it with Low Density Residential (R-1-5 zone) in order to create a homogenous neighborhood. Along the adjacent streets, a ten-foot-wide landscaped strip with masonry wall and required building setbacks will serve as the buffer between residential development and the existing roadways (Road 88 and Shirk Street). The approximate density for the Project 2 proposed subdivision is 4.95 dwelling units per gross acre. In addition, Project 2 proposes to subdivide the overall 40-acre parcel into three separate parcels for the purpose of financing. Phase 1 will be approximately 16.83 acres, Phase 2 will be approximately 13.68 acres, and Phase 3 will be approximately 9.95 acres.

The 2.28-acre linear park will meander across both project sites which will include an approximately 2,000-foot trail with exercise stations. The linear park and adjacent light industrial properties will be separated by a 6-foot block wall as required by the City's Municipal Code.

The closest possible distance from the nearest light industrial structure to a proposed residential dwelling in the Project site, will be approximately 151 feet.

CIRCULATION

Shirk Street is identified in the General Plan as a four-lane arterial roadway. The eastern site (Shepherds Ranch I) is two-thirds of a mile to State Route 198 along Shirk Street. Access to the 10-acre site would be along the main east-west entry drive and Shirk Street on the site's eastern boundary. We intend to include a stub street to the west in order to provide access to unsubdivided land to the west. Access to the western site (Shepherds Ranch II) site would be located on the east side of Road 88, which is identified as a 2-lane collector road in the General Plan. The site entry is approximately 1.25 miles from the nearest access point of State Route 198 along Shirk Street.



NOTES:

1. DESIGN CRITERION: TRAFFIC INDEX SHALL BE 5.5.
2. STRUCTURAL SECTIONS SHALL BE DETERMINED BASED ON T.I. AND R-VALUES AS TABULATED IN THE STREET SECTIONS REQUIREMENTS STANDARD DRAWING.
3. ASPHALT CONCRETE SHALL BE TYPE A, WITH 3/4" AGGREGATE GRADATION AND PG 64-10 LIQUID ASPHALT BINDER PER CITY OF VISALIA STANDARD SPECIFICATIONS.
4. TACK COAT IS REQUIRED AND SHALL BE APPLIED PER CITY STANDARD SPECIFICATIONS.
5. ASPHALT CONCRETE REQUIREMENTS SHALL BE AS STATED IN THE CITY OF VISALIA STANDARD SPECIFICATIONS.
6. ASPHALT CONCRETE SHALL BE PLACED ONLY WHEN THE ATMOSPHERIC TEMPERATURE IS 50° F AND RISING.
7. WITH ADDITIONAL LANDSCAPE EASEMENTS, SIDEWALK MAY BE LOCATED OUTSIDE RIGHT OF WAY TO PROVIDE ADDITIONAL PARKWAY.
8. A FOOTING EASEMENT WILL BE REQUIRED AS NEEDED FOR BLOCK WALL FOOTINGS THAT EXTEND INTO PRIVATE PROPERTY.
9. STREET TREES ARE REQUIRED IN ADDITION TO THE ON-SITE LANDSCAPE REQUIREMENT.
10. FOR PARTIAL WIDTH STREETS A MINIMUM OF 30 FT OF PAVEMENT AND 8 FT SHOULDERS ARE REQUIRED.
11. SOIL ADJACENT TO CONCRETE CURB AND SIDEWALK SHALL BE GRADED 3" BELOW TOP OF CURB TO ALLOW ROOM FOR MULCH.

APPROVED BY: CITY ENGINEER R.P.E. 81734	09/16/16 DATE	CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS	
2 LANE LOCAL – RESIDENTIAL	REVISIONS 09/15/16 BK 2016	P–1	

Figure: 1
City of Visalia Local Street Standard Drawing

UTILITIES

WATER

Water service will be provided by the California Water Service. The City of Visalia will provide sewer and storm drain services to the project. Both sewer and storm drain lines for (Project 1) are located within Shirk Street. Sewer and storm drain lines for (Project 2) will be extended on Road 88 to the project site.

SANITARY SEWER

Project 1 will be served by an existing 8-inch sewer lateral located within Shirk Street. The sewer laterals will be extended north, until it reaches the Project's extent. Since the Project consists of only residential uses, sewer lateral upsizing will not be necessary. City standard 8-inch sewer lines will be required in all local streets depicted within the interior of the Plan Area. Each development proposal will be reviewed by the City of Visalia, and subsequent requirements will be conditioned for the development. These requirements shall supersede the Specific Plan.

Once developed, Project 2 will be required to connect to the nearest sewer lateral located in Road 88.

STORM DRAIN

Storm drainage service is provided by the City of Visalia. There is an existing 12-inch storm drain trunk line in Shirk Street, adjacent to the Project site. The existing trunk line will be extended into the Project site in order to adequately serve each development. Similarly, since there are only residential uses being proposed, storm drain lateral upsizing will not be necessary. Each development proposal will be reviewed by the City of Visalia, and subsequent requirements will be conditioned for the development. These requirements shall supersede the Specific Plan.

In the event, that the project can not connect to the nearest adequately sized storm drain lateral, a onsite storm drain basin will be developed.

SOLID WASTE

City of Visalia will provide Solid Waste removal services for the entire Project site. The standard three trash bin service will be provided.

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

SHEPHERDS RANCH PROJECT

State of California

City of Visalia

JUNE 2022

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

SHEPHERDS RANCH PROJECT

Prepared for:

City of Visalia
Visalia Planning and Zoning Department
315 East Acequia Avenue
Visalia, Ca 93291
Contact Person: Brandon Smith, AICP
Phone: (559) 716-4636

Consultant :

5080 California Avenue, Suite 220
Bakersfield, CA 93309
Contact: Jaymie Brauer
Phone: (661) 616-2600

June 2022

Project #210315

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Mitigated Negative Declaration

As Lead Agency under the California Environmental Quality Act (CEQA), the City of Visalia reviewed the Project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382, "[s]ignificant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Name

Shepherds Ranch

Project Location

The Project is located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia, California.

Project Description

The Project would develop a total of 241 single-family homes and a 3.05-acre linear park on a combined 50.3 acres. The Project has two components called Shepherds Ranch I and Shepherds Ranch II.

Shepherds Ranch I (APN 081-030-46) includes 10.31 acres of undeveloped land located inside the current Visalia city limits on the west side of Shirk Street in the western portion of the City. The site is surrounded by developed light industrial properties to the north, with rural residential homes land to the east and south. This component includes 41 homes.

The Shepherds Ranch II site is to the west of the Shepherds Ranch I site.

The following discretionary actions are required for the proposed Shepherds Ranch I development:

- General Plan Amendment (GPA) - Residential Very Low Density (VLDR) to Residential Low Density (LDR) and Parks / Recreation.
- Change of Zone – from R-1-20 to R-1-5 and QP.
- Tentative Subdivision Map.
- Right-of-way dedication and street improvements for North Shirk Street and Road 88.

Construction will be in a single phase and is anticipated start in October 2023 and take one year to build out all homes.

Shepherds Ranch II (APN 081-030-36) is 40 acres in size and is located outside the city limits but within the City of Visalia's sphere of influence on the east side of Road 88, located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia, California. Shepherds Ranch II is outside the City limits and within unincorporated Tulare County.

The proposed park strip will also be designated as Parks/recreation and zoned as Quasi-Public. Since the parks span both Project components, it will be included in the rezoning of Shepherds Ranch I and included in the pre-zone of Shepherds Ranch II.

The following discretionary actions are required for the proposed development:

- Annexation into the City of Visalia.
- General Plan Amendment – Residential Very Low Density to Residential Low Density and Parks / Recreation.
- Tentative Subdivision Map.
- Tentative Parcel Map.
- Right-of-way dedication and street improvements for Shirk Street and Road 88.

Construction will be in three phases and is anticipated to start in May 2023 and take two years to build out all homes.

For the analysis throughout this document, the Project refers to both Shepherds Ranch I and Shepherds Ranch II unless the component is specifically called out as such.

Mailing Address and Phone Number of Contact Person

Brandon Smith, AICP- Planner
Visalia Planning and Zoning Department
315 East Acequia Avenue
Visalia, CA 93291
(559) 713-4636
Email: brandon.smith@visalia.city

Findings

As Lead Agency, the City of Visalia finds that the Project will not have a significant effect on the environment. The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 - Environmental Checklist*) identified one or more potentially significant effects on the environment, but revisions to the Project have been made before the release of this Mitigated Negative Declaration (MND), or mitigation measures would be implemented that reduce all potentially significant impacts to less than significant levels. The Lead Agency further finds that there is no substantial evidence that this Project would have a significant effect on the environment.

Mitigation Measures Included in the Project to Avoid Potentially Significant Effects

BIO-1: Within 14 days prior to the start of Project ground-disturbing activities, a pre-activity survey with a 500-foot buffer, where land access is permitted, shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the California Department of Fish and Wildlife (CDFW). If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below shall be established. No work shall occur within these buffers unless the biologist approves and monitors the activity. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

Burrowing Owl (active burrows)

- Non-breeding season: September 1 – January 31 – 160 feet
- Breeding season: February 1 – August 31 – 250 feet

American Badger/SJKF

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal Den –Contact CDFW for consultation

BIO-2: A qualified biologist shall remain on-call throughout the construction phase if a burrowing owl, American badger, or San Joaquin kit fox occurs on the site during construction. If one of these species occurs on-site, the biologist shall be contacted immediately to determine whether biological monitoring or the implementation of avoidance buffers may be warranted.

BIO-3: The following avoidance and minimization measures shall be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the U.S. Fish and Wildlife Service (USFWS) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*.

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project Site.

b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the Project Site.

c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project Site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted, and USFWS and California Department of Fish and Wildlife (CDFW) shall be consulted.

d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.

e. No pets, such as dogs or cats, shall be permitted on the Project Sites to prevent harassment, mortality of kit foxes, or destruction of dens.

f. Use of anti-coagulant rodenticides and herbicides in Project Sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe labels and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the Project proponent, who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program, and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to an SJKF during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.

i. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.

j. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

k. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-4: If Project construction activities occur during the Swainson's hawk nesting season (February 15 to August 31), pre-construction activity surveys shall be conducted over the Project area and within 0.5-mile for Swainson's hawk nests in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*, Swainson's Hawk Technical Advisory Committee. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-5: If an active Swainson's hawk nest is discovered at any time within 0.5-mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to the construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed and the level of nest monitoring required. Construction activities shall not occur within 500 feet of an active nest but depending upon conditions at the site, this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist shall have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

BIO-6: If Project construction activities are initiated during the nesting season (February 1 to September 15), a pre-activity nesting bird survey shall be conducted within 14 days prior to the start of construction. The surveys shall encompass the Project footprint and accessible areas or land visible from accessible areas within a 250-foot buffer for songbirds and a 500-foot buffer for raptors. If no active nests are found, no further action is required. However, existing nests may become active, and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress.

If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the adults or the nest, or if breeding attempts have otherwise been unsuccessful. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist shall have the ability to stop construction if nesting adults show any sign of distress. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-7: Within 14 days prior to the start of ground disturbance activities, a pre-activity survey shall be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species with the potential to occur in the vicinity of the Project. All suitable burrows that could support special-status kangaroo rats, Tulare grasshopper mouse, or other special-status wildlife species shall be avoided during construction in accordance with BIO-5 and BIO-6 unless verification surveys have indicated that the species are not present. Consultation with the USFWS and CDFW may be required if listed or fully protected species are detected during the survey. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-8: Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with the construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training program prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. It shall include the components described below:

a. Information on the life history and identification of special-status species that may occur or that may be affected by Project activities. The program shall also discuss the legal protection status of each such species, the definition of “take” under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements.

b. An acknowledgment form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site. A copy of the acknowledgment form shall be submitted to the lead agency as evidence of compliance.

c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and

Education Program, and signed acknowledgment forms, shall be submitted to the City of Tulare Planning Department.

d. A copy of the training transcript, training video, or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.

e. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and coordination with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of a discovery of human remains, at the direction of the county coroner.

GEO-1: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (1) the approved Storm Water Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly.
- Protecting existing storm drain inlets and stabilizing disturbed areas.
- Implementing erosion controls.
- Properly managing construction materials.
- Managing waste, aggressively controlling litter, and implementing sediment controls.

Evidence of the approved SWPPP shall be submitted to the Lead Agency.

GEO-2: Prior to any ground-disturbing activities, the Project owner shall develop and implement a Paleontological Worker Education and Awareness Program. If paleontological resources are discovered during ground-disturbing activities (e.g., during Project construction or decommissioning), all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until a qualified professional paleontologist (meeting the standards of the Society of Vertebrate Paleontology [SVP]) can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage are required, recommendations will be consistent with the Society of Vertebrate Paleontology standards that are current as of the discovery and with currently accepted scientific practice.

NSE-1: The Project developer or contractor shall continuously comply with the following measures throughout construction activities:

a. Pursuant to Visalia Municipal Code Section 8.36.050(C), the operation of construction equipment, including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment shall not be operated on the project site between the weekday hours of 7:00 p.m. and 6:00 a.m., and between the weekend hours of 7:00 p.m. and 9:00 a.m.

b. All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition.

c. All mobile or fixed noise-producing equipment used on the project site that is regulated for noise output by a federal, State, or local agency shall comply with such regulations while in the course of project construction activity.

d. Electrically powered equipment shall be used instead of pneumatic or internal combustion-powered equipment, where feasible.

e. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

f. Project area and site access road speed limits shall be established and enforced during the construction period.

g. Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

NSE-2: Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows:

> *"Property owner(s) of lots within the Shepherds Ranch I/ Shepherds Ranch IIProject are hereby notified that noise levels from adjacent industrial operations may exceed the City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."*

TRA-1: Prior to the issuance of building permits, the developer shall pay its pro-rata share for of the following intersections improvements:

a. Shirk Street at SR 198 EB Ramps:

   5-Year With Project and 10-Year With and Without Project Horizon scenarios:
   - Installation of traffic signal

   20-Year With and Without Project Horizon scenarios:
   - Install traffic signal
   - Widen the eastbound approach to 1 left turn lane, 1 left-through lane, and 1 right turn lane (adding 1 left turn lane)

b. Shirk Street at SR 198 WB Ramps

   Opening Year With and Without Project, 5-Year With and Without Project, and 10-Year Without Project Horizon scenarios:
   - Installation of traffic signal

   10-Year With Project and 20-Year With and Without Project Horizon scenarios:
   - Intall traffic signal
   - Widen the westbound approach to 1 left-through lane and 2 right turn lanes (adding 1 right turn lane)

SECTION 1 - INTRODUCTION

1.1 - Overview

The Project is summarized as the subdivision and development of 241 single-family residences and a 3.05-acre linear park on approximately 50 acres, located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia, California.

1.2 - California Environmental Quality Act

The City of Visalia is the Lead Agency for this Project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 – Initial Study*) provides analysis that examines the potential environmental effects of the construction and operation of the Project. Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared, and a determination can be made that no significant environmental effects will occur because revisions to the Project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less than significant levels. The content of an MND is the same as a Negative Declaration, with the addition of identified mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see *Appendix A – Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that the environmental review for the proposed application can be completed with an MND.

1.3 - Impact Terminology

The following terminology is used to describe the level of significance of impacts.

- A finding of "no impact" is appropriate if the analysis concludes that the Project would not affect a topic area in any way.
- An impact is considered "less than significant" if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered "less than significant with mitigation incorporated" if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.
- An impact is considered "potentially significant" if the analysis concludes that it could have a substantial adverse effect on the environment.

1.4 - Document Organization and Contents

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2– Project Description:* This section describes the Project and provides data on the site's location.
- *Section 3 – Environmental Checklist:* This chapter contains the evaluation of 21 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed Project would have an impact. One of four findings is made, which include: no impact, less than significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable for any of the 21 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – List of Preparers:* This chapter identifies the individuals who prepared the IS/MND.
- *Section 5 – Bibliography:* This chapter contains a full list of references that were used in the preparation of this IS/MND.
- *Appendix A – Mitigation Monitoring and Reporting Program:* This appendix contains the Mitigation Monitoring and Reporting Program.

1.5 - Incorporated by Reference

The following documents and/or regulations are incorporated into this IS/MND by reference:

- City of Visalia 2030 General Plan Update (2014)
- Tulare County General Plan 2030 (2021)
- City of Visalia 2020-2023 Adopted Housing Element (2019)
- Visalia City Improvement Standards (Updated Improvement Standard Implementation 2016)
- Visalia Airport Master Plan (1971)
- Visalia City Improvement Standards (Updated Improvement Standard Implementation 2016)
- Tulare County Comprehensive Airport Land Use Plan (2012)
- Mid-Kaweah GSA Groundwater Sustainability Plan (2019)
- Tulare County Association of Governments (TCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction

The Project is summarized as the subdivision and development of 241 single-family residences and a 3.05-acre linear park on approximately 50 acres, located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia, California.

2.2 - Project Location

The Project is located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia (Figures 2-1 and 2-2). The Project is within Section 28, Township 18S, Range 24E, Mount Diablo Base and Meridian.

2.3 - Surrounding Land Uses

The Project site is bounded by light industrial development to the north, North Shirk Street and residential development to the east, an unnamed dirt road, residential, orchards, and fallow agriculture with non-native grassland to the south, and Road 88 and fallow agriculture to the west.

2.4 - Proposed Project

The Project would develop a total of 241 single-family homes and a 3.05-acre linear park on a combined 50.3 acres. The Project has two components called Shepherds Ranch I and Shepherds Ranch II.

Shepherds Ranch I (APN 081-030-46) includes 10.31 acres of undeveloped land located inside the current Visalia city limits on the west side of Shirk Street in the western portion of the City. The site is surrounded by developed light industrial properties to the north, with rural residential homes land to the east and south. This component includes 41 homes.

The Shepherds Ranch II site is to the west of the Shepherds Ranch I site.

The following discretionary actions are required for the proposed Shepherds Ranch I development:

- General Plan Amendment (GPA) - Residential Very Low Density (VLDR) to Residential Low Density (LDR) and Parks / Recreation.
- Change of Zone – from R-1-20 to R-1-5 and QP.
- Tentative Subdivision Map.
- Right-of-way dedication and street improvements for North Shirk Street and Road 88.

Construction will be in a single phase and is anticipated start in October 2023 and take one year to build out all homes.

Shepherds Ranch II (APN 081-030-36) is 40 acres in size and is located outside the city limits but within the City of Visalia's sphere of influence on the east side of Road 88, located approximately ¼ mile south of the intersection of North Shirk StreetNorth Shirk Street and West Goshen Avenue, Visalia, California. Shepherds Ranch II is outside the City limits and within unincorporated Tulare County.

The proposed park strip will also be designated as Parks/recreation and zoned as Quasi-Public. Since the parks span both Project components, they will be included in the rezoning of Shepherds Ranch I and included in the pre-zone of Shepherds Ranch II.

The following discretionary actions are required for the proposed development:

- Annexation into the City of Visalia.
- General Plan Amendment – Residential Very Low Density to Residential Low Density and Parks / Recreation.
- Tentative Subdivision Map.
- Tentative Parcel Map.
- Right-of-way dedication and street improvements for Shirk Street and Road 88.

Construction will be in three phases and is anticipated to start in May 2023 and take two years to build out all homes.

For the analysis throughout this document, the Project refers to both Shepherds Ranch I and Shepherds Ranch II unless the component is specifically called out as such.

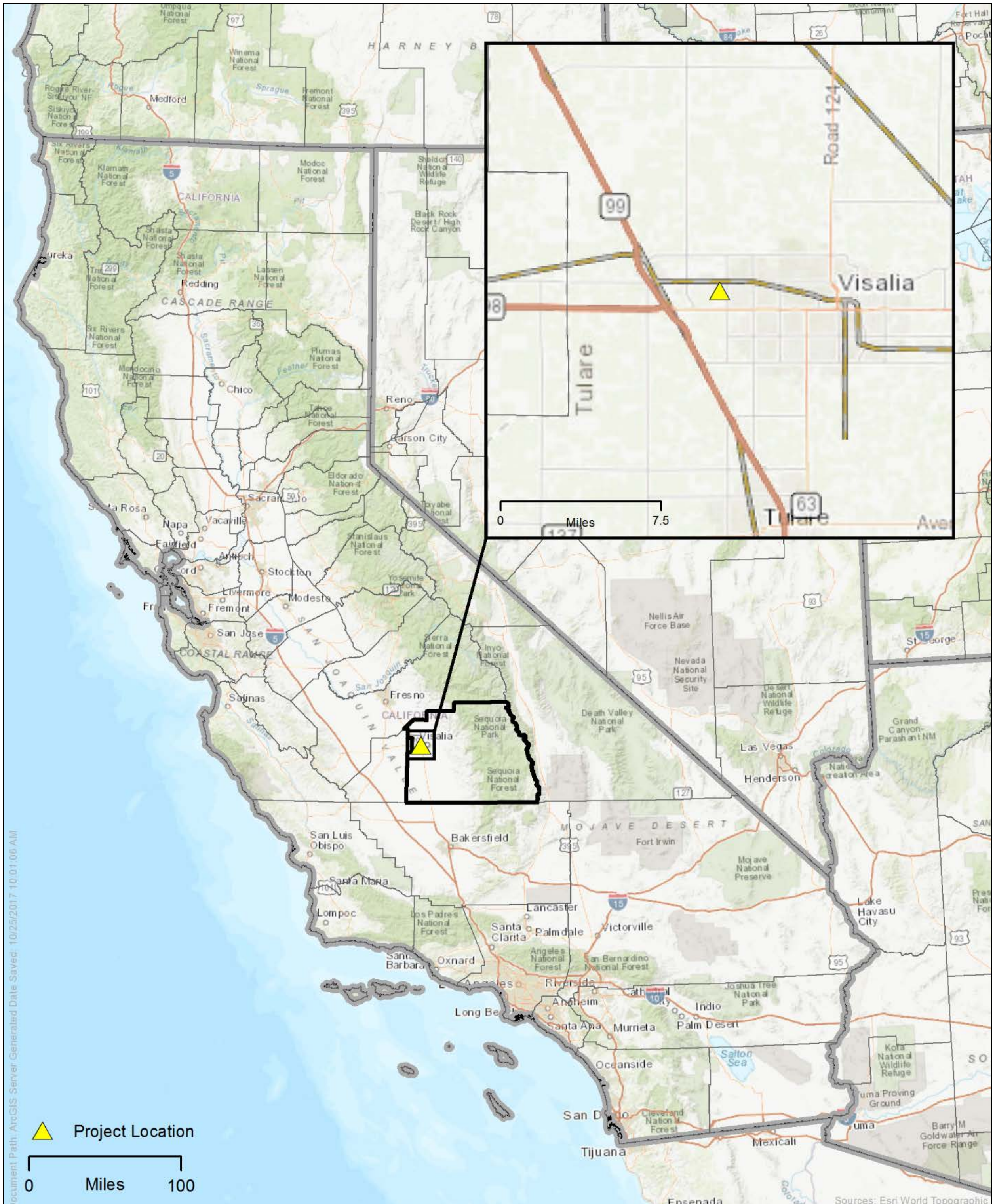

Figure 2-1
Regional Location

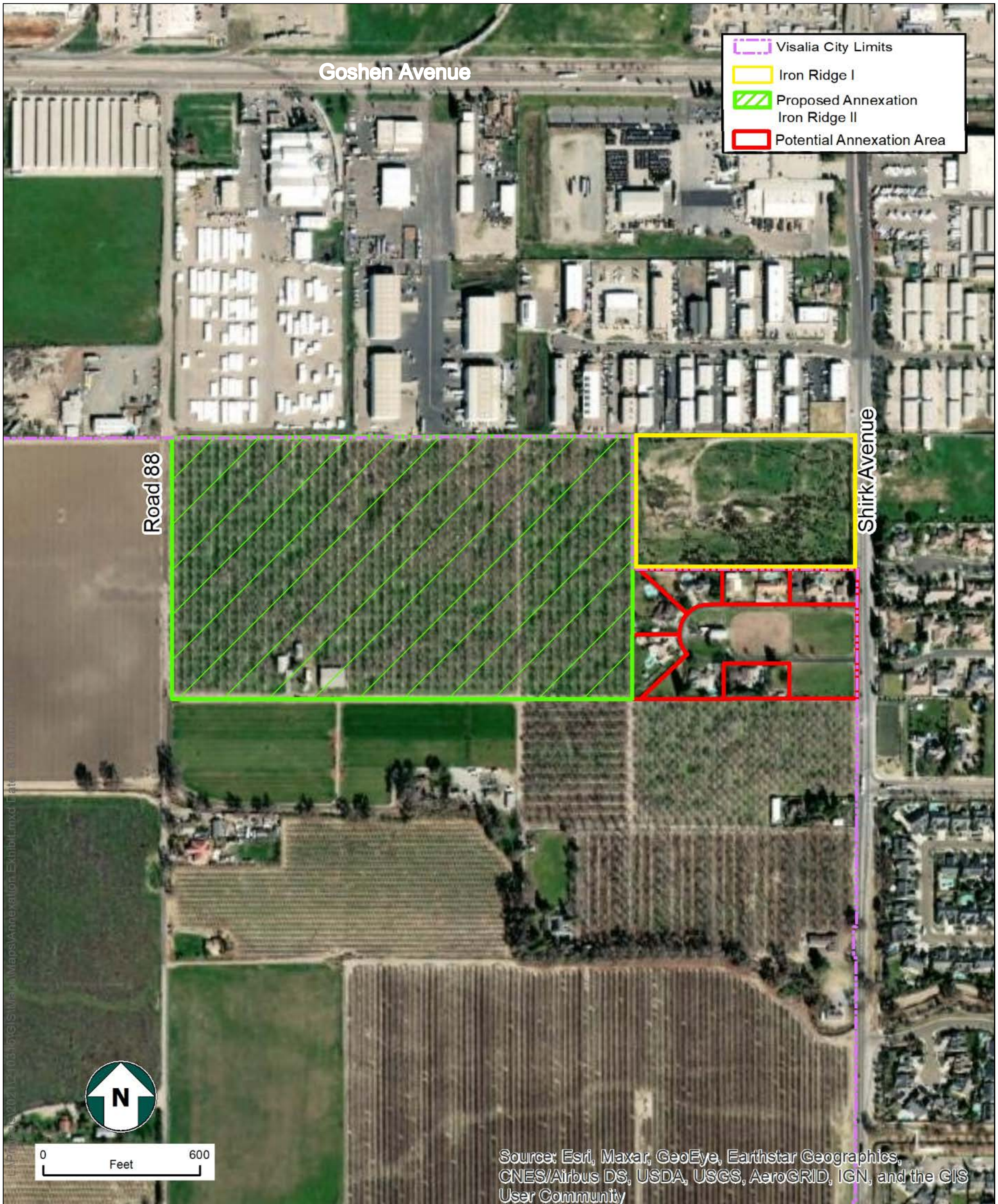

Figure 2-2
Project Location

SECTION 3 - INITIAL STUDY

3.1 - Environmental Checklist

1. **Project Title:**

   Shepherds Ranch

2. **Lead Agency Name and Address:**

   City of Visalia
   315 East Acequia Avenue
   Visalia, California 93291

3. **Contact Person and Phone Number:**

   Brandon Smith (559) 713-4636

   Project Location:

   The Project is located approximately ¼ mile south of the intersection of North Shirk Street and West Goshen Avenue, Visalia, California.

4. **Project Sponsor's Name and Address:**

   DR Horton
   419 W Murray
   Visalia, CA 93291
   Contact Person : Corine Demetrios
   Phone : (559) 631-6208

5. **General Plan Designation:**

   Existing: City of Visalia – Residential Very Low Density – 18.6 acres

   Existing: City of Visalia – Residential Low Density – 31.7 acres

   Proposed: City of Visalia – Residential Low Density – 50 acres, including 3 acres to be used as Parks / Recreation

6. **Zoning:**

   Existing: City of Visalia – R-1-20 (20,000 SF Min Site Area) – 5 acres

   Existing: City of Visalia – R-1-5 (5,000 SF Min Site Area) – 5 acres

Existing: Tulare County (proposed for annexation to the City of Visalia) – AE-20 (Exclusive Agricultural Zone – 20 Acre Minimum) – 40 acres

Proposed: City of Visalia – R-1-5 (5,000 SF Min Site Area) – 50 acres, including 3 acres to be used as QP (Quasi-Public)

7. Description of Project:

The Project would develop a total of 241 single-family homes and a 3.05-acre linear park on a combined 50.3 acres. The Project has two components called Shepherds Ranch I and Shepherds Ranch II.

Shepherds Ranch I (APN 081-030-46) includes 10.31 acres of undeveloped land located inside the current Visalia city limits on the west side of Shirk Street in the western portion of the City. The site is surrounded by developed light industrial properties to the north, with rural residential homes land to the east and south. This component includes 41 homes.

The Shepherds Ranch II site is to the west of the Shepherds Ranch I site.

The following discretionary actions are required for the proposed Shepherds Ranch I development:

- General Plan Amendment (GPA) - Residential Very Low Density (VLDR) to Residential Low Density (LDR) and Parks / Recreation.
- Change of Zone – from R-1-20 to R-1-5 and QP.
- Tentative Subdivision Map.
- Right-of-way dedication and street improvements for North Shirk Street and Road 88.

Construction will be in a single phase and is anticipated start in October 2023 and take one year to build out all homes.

Shepherds Ranch II (APN 081-030-36) is 40 acres in size and is located outside the city limits but within the City of Visalia's sphere of influence on the east side of Road 88, located approximately ¼ mile south of the intersection of North Shirk StreetNorth Shirk Street and West Goshen Avenue, Visalia, California. Shepherds Ranch II is outside the City limits and within unincorporated Tulare County.

The proposed park strip will also be designated as Parks/recreation and zoned as Quasi-Public. Since the parks span both Project components, they will be included in the rezoning of Shepherds Ranch I and included in the pre-zone of Shepherds Ranch II.

The following discretionary actions are required for the proposed development:

- Annexation into the City of Visalia.
- General Plan Amendment – Residential Very Low Density to Residential Low Density and Parks / Recreation.

- Tentative Subdivision Map.
- Tentative Parcel Map.
- Right-of-way dedication and street improvements for Shirk Street and Road 88.

Construction will be in three phases and is anticipated to start in May 2023 and take two years to build out all homes.

For the analysis throughout this document, the Project refers to both Shepherds Ranch I and Shepherds Ranch II unless the component is specifically called out as such.

8. Surrounding Land Uses and Setting:

The Project site is bounded by light industrial development to the north, North Shirk Street and residential development to the east, an unnamed dirt road, residential, orchards, and fallow agriculture with non-native grassland to the south, and Road 928 and fallow agriculture to the west.

Land use within the Project boundary consists of annual grassland and barren land on 10 acres (Shepherds Ranch I), and a deciduous orchard with a single-family residence and associated structures on the south side of the boundary on 40 acres (Shepherds Ranch II).

9. Other Public Agencies Whose Approval is Required:

- State of California Department of Fish and Wildlife (CDFW)
- United States Fish & Wildlife Service (USFWS)
- Tulare County LAFCO

10. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

A Sacred Land Files search was requested from the Native American Heritage Commission (NAHC), and a response was received on August 30, 2021. The NAHC responded with its findings that indicate negative results. Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a half-mile radius of the proposed Project, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would be conducted within the partially developed and previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and Project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

3.2 - Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology and Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
☐ Noise	☐ Population and Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.3 - Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date: June 28, 2022
Brandon Smith	City of Visalia
Printed Name	For

3.4 - Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question.

    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than significant Impact	No Impact

3.4.1 - AESTHETICS

Except as provided in Public Resources Code Section 21099, would the Project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c.	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d.	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

Impact #3.4.1a – Except as provided in Public Resources Code Section 21099, would the Project have a substantial adverse effect on a scenic vista?

According to the City of Visalia 2030 General Plan, there are no designated scenic views within the City's limits; however, Highway 198 is designated as a state scenic corridor, and the City has implemented PSCU-P-12 to create a "greenway" setback of 200 feet along Highway 198 within the City limits as dedicated to the City for open space use in perpetuity, also known as the West 198 Scenic Corridor. The Project site is approximately 0.5 miles north of Highway 198, outside of the designated West 198 Scenic Corridor, and is not located within a designated scenic vista. Therefore, the Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

Level of Significance

The Project would have ***no impact***.

Impact #3.4.1b - Except as provided in Public Resources Code Section 21099, would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Scenic Resources

The City of Visalia adopted a Valley Oak Ordinance that provides basic standards, measures, and compliance requirements for the preservation and protection of native Valley oak trees and landmark trees within the City. The Ordinance prohibits the destruction of oak trees except with an oak tree removal permit. A permit may be granted only if it is found that the oak tree is in danger of falling on a structure or is a host for a plant, pest, or disease endangering other species; if removal is necessary to allow the reasonable enjoyment of private property; or if urban forestry or land management practices warrant removal. If a tree removal permit is granted, the tree must either be replaced by new oak trees on the same property or by paying mitigation fees to be used for the establishment of new oak trees on other property. As discussed under Biological Resources Impact #3.4.4e, the Project will not impact the City's Valley Oak Ordinance because the site is established with an orchard on 40 acres and does not contain any identified native Valley oak trees. Therefore, the Project has no impact.

Historic Buildings

Additionally, the discussion under Cultural Resources indicates that a cultural resources records search was conducted through the Southern San Joaquin Valley Information Center (SSJVIC) for the Project. The records search covered an area within one-half mile of the Project and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file. Only one cultural resource property has been recorded within a half-mile of the proposed project, the historic route of the Southern Pacific/San Joaquin Valley Railroad, and will not be impacted by the Project. The Project was found to not impact cultural resources related to historic buildings.

State Scenic Highway

See discussion under 3.4.1 – AESTHETICS (a). The City of Visalia adopted its Scenic Highways Element in February 1976, in which Highway 198 was identified as a scenic resource. The Project site is located 0.5 miles north of Highway 198 and is outside of the designated setbacks as identified in the City's General Plan and will therefore not have an impact on a state scenic highway.

As discussed in this section, the Project will have no impact to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.1c - Except as provided in Public Resources Code Section 21099, would the Project in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

The area surrounding the Project site consists of urban development, light industrial, fallow agriculture, orchards, non-native grassland, and barren land.

As discussed in Impact #3.4.1 (a) and (b), the Project site is not located within any designated scenic vista or scenic resource, specifically SR 198, which is located 0.5 miles south of the Project. The Project is also planned for residential development under the City of Visalia 2030 General Plan, and urbanized areas are currently adjacent to the site to the north and east. Therefore, the Project will not conflict with applicable zoning and other regulations governing scenic quality and will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.1d - Except as provided in Public Resources Code Section 21099, would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

According to the General Plan, the construction of new buildings may result in nighttime light pollution or daytime glare; however, the General Plan identifies construction impacts as likely be insignificant as a result of development. As in most typical residential areas, homes emit some light and glare during the day and evening hours. Development under the proposed General Plan would include indoor lighting and outdoor lighting for safety purposes but would generally not be out of character with the existing urban environment and would not rise to a level of being significant. There are a number of circumstances that mitigate the potential for new or significant sources of light pollution in Visalia through the General Plan policies; however, these are associated with commercial, industrial development, and recreational facilities. As the Project is for residential development, it will have a less than significant impact.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.2 - Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☒	☐
b. Conflict with existing zoning for agricultural use or a Williamson Act Contract?	☐	☐	☒	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion

Impact #3.4.2a – Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

According to the Department of Conservation - Farmland Mapping and Monitoring Program (California Department of Conservation, 2021), a 40-acre portion of the Project site is identified as Prime Farmland. The 40 acres are currently within Tulare County boundaries, and the intent of the Project is to annex the 40 acres into the City boundaries for residential development. Although the Project is within Prime Farmland designation, the property is not under an existing Williamson Act Contract. The 40-acre site is currently used for agricultural cultivation as an orchard.

The City of Visalia 2030 General Plan has designated the easterly 10 acres of the Project site for urban uses under the Urban Growth Development Tier 1 and the westerly 40 acres of the Project site for urban uses under the Urban Growth Development Tier 2. Implementation of this Project will support the General Plan designation for future urban land use Policy LU-P-21 for residential development. The General Plan established criteria, dependent upon land use type, for when development may advance from the first tier (Tier I) to subsequent tiers (Tiers 2 and 3), which are contained in Policy LU-P-21 of the General Plan. For residential uses, the threshold is the issuance of permits for 5,850 housing units within Tier 1 since April 1, 2010. The City met the residential permit threshold in July 2021 and now considers development located with Tiers 1 and/or 2 (City of Visalia, 2021).

The 2014 General Plan Policy LU-P-34 contained a supplemental requirement for development within the Tier 2 and Tier 3 growth boundaries to establish an Agricultural Mitigation Program. As the City approached the development permit threshold that would allow Tier 2 and Tier 3 residential development, the City Council, in early 2020, initiated a study regarding the establishment of an Agricultural Mitigation Program to ensure this supplemental requirement would be satisfied prior to the permit threshold being met.

However, an Addendum to the City of Visalia 2030 General Plan Environmental Impact Report (SCH No. 2010041078) for General Plan Amendment No. 2021-01 was adopted in 2021 that replaced the 2014 Policy LU-P-34 requirement to establish an Agricultural Mitigation Program with policy language to retain coordination with Tulare County and other agencies to prevent urban development of agricultural land outside of the current growth boundaries, where such efforts will promote orderly development and preservation of farming operations within Tulare County. The City noted the following as infeasible mitigation related to the establishment of Agricultural Mitigation Programs (AMP):

- There was evidence suggesting that a local City-wide AMP may result in a patchwork of easements not contiguous enough to sustain economic viability or that the easements could frustrate orderly development in the future.
- That an AMP could only provide a speculative mitigation benefit due to the variability in the cost of conservation easements compared to the fees that would be established, thereby rendering the effectiveness of such a program questionable.
- That the cost of purchasing easements would be cost-prohibitive to development.
- That economic realities tend to guide the purchase of agricultural easements towards properties not subject to development pressures in the first place, thereby again rendering the mitigation benefits speculative at best.

As a result of the above, the City Council adopted the update to the General Plan Policy LU-P-34, which now states:

- LU-P-34: Work with Tulare County and other state and regional agencies, neighboring cities, and private land trust entities to prevent urban development of agricultural land outside of the current growth boundaries, where such efforts will promote orderly development and preservation of farming operations within Tulare County. The City will support regional efforts to prevent urban development of agricultural lands, specifically at the county level.

The Project lies within the existing planned urban growth boundaries of the Urban Growth Development Tiers 1 and 2 within the City's Sphere of Influence, and with the implementation of the recent adoption by the Visalia City Council of an Amendment to the City of Visalia 2030 General Plan through General Plan Amendment No. 2021-01, the Project will have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.2b – Would the Project conflict with existing zoning for agricultural use or a Williamson Act Contract?

See discussion of Impact #3.4.2(a). The Project site is not subject to a Williamson Act contract; however, the Project is currently in agricultural production and is designated as Prime Farmland, which will result in the conversion of farmland to a nonagricultural use. With the implementation of the revised General Plan Policy LU-P-34, and the City's implementation of the planned conversion of the Project site as identified in the General Plan's Urban Growth Development program, the Project will have a less than significant impact and would not conflict with existing zoning for agricultural use or a Williamson Act Contract.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.2c – Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

The Project site is not identified as forest land or timberland. Therefore, the Project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.2d – Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

As discussed Impact #3.4.2 (c), the Project area does not include forest land. Therefore, there would not be loss or conversion of forest land as a result of the Project. The Project would have no impact.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.2e – Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

As discussed in Impact #3.4.2 (a) and (b), the Project will result in the conversion of Farmland to nonagricultural use; however, with the implementation of the revised General Plan Policy LU-P-34, and implementation of the City's implementation of the planned conversion of the Project site as identified in the General Plan's Urban Growth Development program, the Project will have a less than significant impact. Additionally, as discussed in Impact #3.4.2 (d), the Project area does not include conversion of forest land to a non-forest use. Therefore, Project impacts are considered less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

3.4.3 - AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

The impact analyses in this section are based on an *Air Quality & Greenhouse Gas Impact Assessment* (VRPA Technologies, Inc., 2021) conducted for the Project, which is included as Appendix B.

Impact #3.4.3a – Would the Project Conflict with or obstruct implementation of the applicable air quality plan?

The City of Visalia is located in the San Joaquin Valley Air Basin (SJVAB). Air Quality monitoring has been conducted in the SJVAB for many years. While new and innovative pollution controls have made the San Joaquin Valley Air Pollution Control District (SJVAPCD) a leader in the rate of improvement, the region is not in attainment for numerous criteria air pollutants, and the air basin still has poor air quality. Much of this pollution is attributed to the Valley's topography, meteorology, two major highways, and intensive agricultural uses. In 2011, the major sources of air pollution in the San Joaquin Valley were heavy-duty trucks, other mobile sources, autos and light trucks, and fuel combustion from stationary sources. Ozone and particulate matter are the two largest contributors to the Valley's poor air quality. The causes and effects of these and other air pollutants are discussed in the next section.

The California Air Resources Board (CARB) operates a regional network of air pollution monitoring stations that provide information on ambient concentrations of criteria air pollutants and toxic air contaminants. In Tulare County, CARB measures certain air pollutants, such as carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), and particulate matter less than 2.5 microns in diameter (PM-2.5).

Federal and State laws require emission control measures in areas where air pollution exceeds standards. The San Joaquin Valley is one of these areas. The federal government, primarily through the Environmental Protection Agency (EPA) and the federal Clean Air Act, sets standards, oversees state and local actions, and implements programs for toxic air pollutants, heavy-duty trucks, locomotives, ships, aircraft, off-road diesel equipment, and some types of industrial equipment. Currently, EPA has established national standards for criteria air pollutants: ozone (O 3); carbon monoxide (CO); nitrogen dioxide (NO 2); sulfur dioxide (SO 2); suspended particulate matter (PM-10 and PM-2.5); and lead (Pb).

The primary way of determining consistency with an air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin. Tulare County Association of Governments (TCAG) uses the growth projections, and land use information in adopted general plans to estimate future average daily trips and then Vehicle Miles Traveled (VMT), which are then provided to San Joaquin Valley Air Pollution Control District (SJVAPCD) to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching the attainment of the air standards. The following policies are found within the City of Visalia 2030 General Plan, which are applicable to this Project:

- AQ-P-2: Require use of Best Management Practices (BMPs) to reduce particulate emission as a condition of approval for all subdivisions, development plans, and grading permits in conformance with the San Joaquin Valley Air Pollution Control District Fugitive Dust Rule.

- AQ-P-9: Continue to mitigate short-term construction impacts and long-term stationary source impacts on air quality on a case-by-case basis and continue to assess air quality impacts through environmental review. Require developers to implement Best Management Practices (BMPs) to reduce air pollutant emissions associated with the construction and operation of development projects.

    BMPs include transportation demand management strategies for large development projects such as:
    - *Providing bicycle access and parking facilities;*
    - *Providing preferential parking for high occupancy vehicles, carpools, or alternative fuels vehicles;*
    - *Establishing telecommuting programs or satellite work centers;*
    - *Allowing alternative work schedules;*
    - *Subsidizing public transit costs for employee;*
    - *Scheduling Deliveries at off-peak traffic periods; and*
    - *Providing recharge stations for plug-in electric vehicles (PEVs).*

> *The San Joaquin Valley Air Pollution Control District Guidelines for Assessing and Mitigating Air Quality Impacts provide BMPs for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents.*

Therefore, with implementation of appropriate Project BMPs as required by the City of Visalia 2030 General Plan and the San Joaquin Air Pollution Control District, the Project would be consistent with the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans and, therefore, would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.3b – Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?

The City of Visalia is located within Tulare County, which is designated as nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM_{10}, and nonattainment for Federal and State standards for $PM_{2.5}$. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM_{10} Maintenance Plan, and 2012 $PM_{2.5}$ Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1 of the *Air Quality & Greenhouse Gas Impact Assessment* (VRPA Technologies, Inc., 2021), the Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 $PM_{2.5}$ Plan.

Project-specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. The SJVAPCD has established thresholds of significance for determining environmental significance, which are provided in Table 3.4.3-1 below.

Table 3.4.3-1
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2021

Results of the analysis show that emissions generated from the construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, the Project will have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.3c – Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a "Type B" project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for Toxic Air Contaminants (TACs) from the Project is to perform a screening-level analysis. For Type B projects, one type of screening tool is found in the California Air Resources Board (CARB) Handbook: *Air Quality and Land Use Handbook: A Community Perspective*. The screening tool indicates that new sensitive land uses should not be sited within 500 feet of a freeway/urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day. The Project is located more than 3,000 feet from the SR 198 highway. In addition, the Project is not located within the specified boundary for this source category. Therefore, TACs from sources in the study area will not significantly impact the Project. In addition, the Project will not generate TACs that would have a significant impact on the environment or adjacent sensitive receptors. Therefore, no mitigation measures are required.

Short-Term Impacts

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants, as shown in Table 3.4.3-2 below. Therefore, construction emissions associated with the Project are considered less than significant.

Table 3.4.3-2
Project Construction Emissions

Summary Report	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$	CO2e
Construction Emissions	3.10	3.76	4.22	0.01	1.13	0.57	569.46
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 3.4.3-3 below summarizes the Project's operational impacts by pollutant.

Table 3.4.3-3
Project Operational Emissions (tons/year)

Summary Report	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$	CO2e
Project Operational Emissions	11.54	2.05	3.25	0.03	2.44	0.07	2885.84
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

Results from Table 3.4.3-3 indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.3d – Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

The Project will potentially generate odorous emissions proposed to be located near existing development adjacent to the site, including nearby residential and school site, approximately ¼ mile west of the Project. However, as analyzed under Impact #3.4.3 (a) through (c), emissions from cars as a result of the Project were identified as producing less than significant impacts. Therefore, it is determined that the odors generated from the development as a result of additional vehicles would also be considered a less than significant impact.

- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of residential developments. The intensity of an odor source's operations and its proximity to sensitive receptors influence the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 3.4.3-4 below along with a reasonable distance from the source within which the degree of odors could possibly be significant. Manufacturing facilities are known to generate odorous emissions and include a screening distance of one (1) mile. There is a Hydrite Chemical Company facility (SJVAPCD Facility ID 8199) located a third of a mile to the north of the Project site that falls within the 1-mile screening distance set by the SJVAPCD. It should be noted that the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule.

Table 3.4.3-4
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facility	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2021

While the Hydrite Chemical facility is located within the 1-mile screening distance as depicted in Table 3.4.3-4, it should be noted that there are other residential and school land uses in the vicinity of the Project that also falls within the 1-mile boundary. In addition, prevailing wind patterns in the area indicate that wind blows primarily from the northwest and southwest depending upon the time of year. As a result, potential odors from the Hydrite Chemical facility would have minimal impact on the Project given the location of the facility with respect to the Project. Lastly, the lack of odor complaints logged for the Hydrite Chemical facility for the previous three years indicates that odorous emissions from the facility would not have a significant impact on the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, impacts are less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.4 - Biological Resources				
Would the Project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

The impact analysis in this section is based on a *Biological Analysis Report* prepared for the Project ***(QK, Inc., 2021a)***, included as Appendix C.

Impact #3.4.4a – Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Project activities have the potential to affect biological resources. A reconnaissance survey of the Project and a 250 foot buffer, where feasible, also called the Biological Survey Area (BSA), was conducted on August 30, 2021. The survey consisted of walking meandering pedestrian transects throughout the BSA, where feasible. A portion of the buffer was inaccessible because it overlapped with private residential and industrial properties. Those areas were surveyed visually with the aid of binoculars to gather a representative inventory of the plant and wildlife species present.

No special-status species were observed during the survey. There were no special-status plant species identified within the Project site or survey buffer, and based on historical disturbance and current conditions, none are expected to occur. However, three special-status animal species were determined to have the potential to occur on-site and potentially be affected by the Project. The literature review identified 32 special-status animal species known or with the potential to occur in the vicinity of the project. Of those, three (3) were determined to have the potential to occur on-site.

Swainson's Hawk

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley and Antelope Valley. Some hawks may be residents, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dry-land grain fields nearby for foraging, and have been known to nest in large eucalyptus trees along heavily traveled freeway corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks exhibit a moderate to high nest site fidelity for successful nest sites. The nearest occurrence was recorded in 2017, 1.2 miles west of the Project, where a stick nest was observed in an oak tree adjacent to agricultural fields and a commercial area.

Based on information from the reconnaissance site visit, there are large walnut trees in the orchard on the western portion of the site that could potentially support nesting Swainson's hawks, in addition to large, planted trees in urban areas in the vicinity of the Project. The annual grassland on the Project site and within the BSA could potentially provide foraging opportunities for the Swainson's hawk. However, the high density of residential neighborhoods, traffic, and lack of other potential foraging habitat in the area would decrease the likelihood of Swainson's hawk nesting activity on the Project site.

Western Burrowing Owl

The western burrowing owl is a small ground-dwelling owl that can be found throughout western North America. This species can be found in a variety of habitat types, including grasslands, deserts, or other open habitats where food resources are available and contain treeless areas with low vegetation cover and gently sloping terrain. Burrowing owls use earthen burrows, typically relying on other fossorial mammals to construct their burrows such as CAGS or American badger. They use a burrow throughout the year for temperature regulation, offspring rearing, shelter, and escape from predators. While burrows are most often earthen, they also use atypical burrows such as pipes, culverts, and other man-made structures, most often as shelter. Burrowing owls can have several burrows close to one other that they may frequently move among to avoid predators.

The nearest CNDDB occurrence is from 1998 and was located approximately 5.6 miles northwest of the Project site. No western burrowing owl or diagnostic sign (e.g., burrows, whitewash, pellets, prey remains) were observed during the survey. Burrowing owls are present year-round in the Central Valley and typically use multiple burrows within their ranges. Burrowing owls have also been known to occur in urban and agriculturally developed areas. The prey base (i.e., insects and lizards) within the Project site is marginal, however it is still possible that burrowing owls may become established in the existing CAGS burrows or pass through the Project site as transients.

San Joaquin Kit Fox

The San Joaquin kit fox (SJKF) is a subspecies of kit fox that is endemic to the San Joaquin Valley, Carrizo Plain, and Cuyama Valley, as well as other small valleys in the western foothills of the Central Valley of California. They are only found west of the Sierra Nevada crest. They occupy arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils. SJKF are well-established in some urban areas and are highly adaptable to human-altered landscapes. They generally avoid intensively maintained agricultural land but forage well into croplands from surrounding habitat. SJKF uses subterranean dens year-round for shelter and pup-rearing. They are nocturnally active but may be above ground near their dens during the day, particularly in the spring. They feed primarily on small mammals, but will consume a variety of prey, and will scavenge for human food.

The nearest CNDDB occurrence is from 2003 and approximately 3.4 miles northwest of the Project and is presumed extant. No SJKF were observed during the survey. No kit fox or diagnostic sign (e.g., tracks, scat, prey remains, or dens) were observed during the reconnaissance survey. This species is a highly mobile transient forager which preys on small burrowing mammals and has adapted well to urbanized settings, even feeding on anthropogenic food sources. Suitable foraging and denning habitat are present within the BSA, and the species may pass through as a transient.

~~Implementation of the mitigation measures listed below would reduce impacts of the Project to special-status wildlife species to a level that would be less than significant.~~eight

MITIGATION MEASURE(S)

BIO-1: Within 14 days prior to the start of Project ground-disturbing activities, a pre-activity survey with a 500-foot buffer, where land access is permitted, shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the California Department of Fish and Wildlife (CDFW). If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below shall be established. No work shall occur within these buffers unless the biologist approves and monitors the activity. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

Burrowing Owl (active burrows)

- Non-breeding season: September 1 – January 31 – 160 feet
- Breeding season: February 1 – August 31 – 250 feet

American Badger/SJKF

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal Den –Contact CDFW for consultation

BIO-2: A qualified biologist shall remain on-call throughout the construction phase if a burrowing owl, American badger, or San Joaquin kit fox occurs on the site during construction. If one of these species occurs on-site, the biologist shall be contacted immediately to determine whether biological monitoring or the implementation of avoidance buffers may be warranted.

BIO-3: The following avoidance and minimization measures shall be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the U.S. Fish and Wildlife Service (USFWS) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*.

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project Site.

b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the Project Site.

c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project Site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted, and USFWS and California Department of Fish and Wildlife (CDFW) shall be consulted.

d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.

e. No pets, such as dogs or cats, shall be permitted on the Project Sites to prevent harassment, mortality of kit foxes, or destruction of dens.

f. Use of anti-coagulant rodenticides and herbicides in Project Sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe labels and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the Project proponent, who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program, and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to an SJKF during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.

i. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.

j. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

k. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-4: If Project construction activities occur during the Swainson's hawk nesting season (February 15 to August 31), pre-construction activity surveys shall be conducted over the Project area and within 0.5-mile for Swainson's hawk nests in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*, Swainson's Hawk Technical Advisory Committee. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-5: If an active Swainson's hawk nest is discovered at any time within 0.5-mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to the construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed and the level of nest monitoring required. Construction activities shall not occur within 500 feet of an active nest but depending upon conditions at the site, this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist shall have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

BIO-6: If Project construction activities are initiated during the nesting season (February 1 to September 15), a pre-activity nesting bird survey shall be conducted within 14 days prior to the start of construction. The surveys shall encompass the Project footprint and accessible areas or land visible from accessible areas within a 250-foot buffer for songbirds and a 500-foot buffer for raptors. If no active nests are found, no further action is required. However, existing nests may become active, and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress.

If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the adults or the nest, or if breeding attempts have otherwise been unsuccessful. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist shall have the ability to stop construction if nesting adults show any sign of distress. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-7: Within 14 days prior to the start of ground disturbance activities, a pre-activity survey shall be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species with the potential to occur in the vicinity of the Project. All suitable burrows that could support special-status kangaroo rats, Tulare grasshopper mouse, or other special-status wildlife species shall be avoided during construction in accordance with BIO-5 and BIO-6 unless verification surveys have indicated that the species are not present. Consultation with the USFWS and CDFW may be required if listed or fully protected species are detected during the survey. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.

BIO-8: Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with the construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training program prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. It shall include the components described below:

a. Information on the life history and identification of special-status species that may occur or that may be affected by Project activities. The program shall also discuss the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements.

b. An acknowledgment form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site. A copy of the acknowledgment form shall be submitted to the lead agency as evidence of compliance.

c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program, and signed acknowledgment forms, shall be submitted to the City of Tulare Planning Department.

d. A copy of the training transcript, training video, or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.

e. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and coordination with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.4b – Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Sensitive natural communities are designated by various resource agencies, including the CDFW, USFWS, Bureau of Land Management, U.S. Forest Service, or are designated by local agencies through policies, ordinances, and regulations. Sensitive natural communities generally have important functions or values for plants and wildlife or are recognized as declining in extent or distribution and warrant some level of protection.

According to the *Biological Analysis Report* prepared for the Project, no water or wetland features are present on the Project site (QK, Inc., 2021a). The literature review, NHD, and NWI identified three Waters of the U.S. or wetland features in the vicinity of the Project site; however, none were observed within the Project site during the reconnaissance survey. One aquatic resource to the south, Mill Creek Ditch, was dry at the time of the survey. Two freshwater ponds to the north of the Project site are no longer present. Further, the CNDDB search resulted in four sensitive natural communities occurring in the region of the Project: Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool, Valley Sacaton Grassland, and Great Valley Oak Riparian Forest. However, none of these communities were determined to have potential to occur within the BSA because all areas have been previously disturbed and/or are developed and no longer support suitable habitat for sensitive natural communities. There are no sensitive natural communities present on the Project, and therefore would be no impacts to sensitive natural communities.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.4c – Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

See discussion for 3.4.4 - BIOLOGICAL RESOURCES (b). There are no identified water features or federal waters, or wetlands located on or near the Project. Therefore, the Project will result in no impacts to any waters or wetlands.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.4d – Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes, mule deer). They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

There are no identified movement corridors on or near the Project site. The Project site may be used by transient foragers such as San Joaquin Kit fox. The open landscape creates a foraging habitat, that may be used from time to time by these species. The Project will result in no impacts to fish or wildlife movement corridors, linkages, or nursey sites.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.4e – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The General Plan contains policies aimed at the preservation of biological resources and promotes coordination with federal and State resource agencies. The General Plan outlines a work plan with implementation measures by which to uphold these policies, including biological resource review for proposed projects and development of mitigation measures for these projects.

The City of Visalia Valley Oak Ordinance establishes policies for care, trimming, and removal of Valley Oaks. However, the Project does not conflict with the City of Visalia 2030 General Plan, the Valley Oak Tree Ordinance, or any other local ordinances.

Therefore, there are no impacts with respect to local policies and ordinance, and no measures are warranted adopted or approved plans related to the Project.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.4f – Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The proposed Project would have a significant effect on biological resources if it would:

a) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

According to the California Department of Fish and Wildlife BIOS Map Viewer, the Project is not located within an area covered by Habitat Conservation Plan (HCP) or natural Conservation Community Plan (NCCP), or other approved local, regional, or state habitat conservation plan (California Department of Fish and Wildlife, 2022). Therefore, no Project impacts related to adopted or approved plans would occur, no measures are warranted, and the Project has no impacts.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

The Project would have ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.5 - CULTURAL RESOURCES				
Would the Project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

The impact analyses in this section based on a *Cultural Resources Technical Memorandum*, (QK, Inc., 2021b) which is attached as Appendix D.

Impact #3.4.5a – Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

A cultural resources records search was conducted Southern San Joaquin Valley Information Center (SSJVIC) for the Project. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the proposed Project site.

The records search covered an area within one-half mile of the Project and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search covered an area within one-half mile of the Project and included a review of the National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory, and a review of cultural resource reports on file.

The records search indicated that the subject property had never been surveyed for cultural resources and it is not known if any exist on it.

Three cultural resource studies have been conducted within a half-mile of the project. Only one cultural resource property has been recorded within a half-mile of the proposed project, the historic route of the Southern Pacific/San Joaquin Valley Railroad. The Project will not impact this cultural resource.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated August 30, 2021, indicates negative results (see Appendix D).

Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a half-mile radius of the proposed Project, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would be conducted within the partially developed and previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

However, there is still a possibility that historical or archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. To reduce the potential impacts of the Project on cultural resources, implementation of CUL-1 and CUL-2, the Project would have a less than significant impact related to cultural resources.

MITIGATION MEASURE(S)

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of a discovery of human remains, at the direction of the county coroner.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.5b – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

See discussion for Impact #3.4.5(a). Although considered unlikely since there is no indication of any historical or archaeological resources on the Project site, subsurface construction activities associated with the proposed Project could potentially damage or destroy previously undiscovered archaeological resources. This is considered a potentially significant impact. Mitigation is proposed requiring implementation of standard inadvertent discovery procedures to reduce potential impacts to previously undiscovered subsurface historical and archaeological resources. To reduce the potential impacts of the Project on cultural resources, implementation of CUL-1 and CUL-2, the Project would have a less than significant impact related to cultural resources

MITIGATION MEASURE(S)

Implement mitigation measure CUL-1 and CUL-2.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.5c – Would the Project disturb any human remains, including those interred outside of formal cemeteries?

See discussion for Impact #3.4.5 - (a). The records searches did not indicate the presence of any human remains, burials, or cemeteries within the Project site. No human remains have been discovered at the Project site, and no burials or cemeteries are known to occur within the area of the Project site. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Mitigation Measure MM CUL-2 has been included in the unlikely event that human remains are found during ground-disturbing activities. Accordingly, this is a potentially significant impact. Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.

MITIGATION MEASURE(S)

Implement mitigation measure CUL-1 and CUL-2.

Level of Significance

The Project would have a ***less than significant impact with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.6 - ENERGY				
Would the Project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion

Impact #3.4.6a – Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

CEQA Guidelines require consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). The means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the proposed Project would be considered "wasteful, inefficient, and unnecessary" if it were to violate State and federal energy standards and/or result in significant adverse impacts related to Project energy requirements, energy inefficiencies, energy intensiveness of materials, cause significant impacts on local and regional energy supplies or generate requirements for additional capacity, fail to comply with existing energy standards, otherwise result in significant adverse impacts on energy resources, or conflict or create an inconsistency with applicable plan, policy, or regulation.

The City of Visalia 2030 General Plan discusses how new development would result in increased energy use, in the form of new building energy use and transportation. Both residential and nonresidential development use electricity, natural gas, and petroleum products for power, lighting, heating, and other indoor and outdoor services, while cars use both oil and gas. Use of these types of energy for new development would result in the overall increased use of nonrenewable energy resources. Energy demand during the construction phase would result from the transportation of materials, construction equipment, and construction worker vehicle trips. Compliance with standard regional and local regulations, the Project would minimize fuel consumption during construction. By complying with standard regional and local regulations, the Project would minimize fuel consumption during construction. Construction-related fuel consumption is not expected to result in inefficient, wasteful, or unnecessary energy use. Thus, construction-related fuel consumption at the Project site would not result in inefficient, wasteful, or unnecessary energy use. The Project would be required to comply with California's Title 24 energy efficiency requirements and other applicable City development standards. Additionally, the Project will be required to comply with all applicable standards and building codes included in the 2019 California Green Building Standards Code. Therefore, the Project will have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.6b – Would the Project Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

See discussion above for 3.4.6 – ENERGY (a). The Project will not conflict with or obstruct a state or local plan for renewable energy efficiency and will have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.7 - Geology and Soils

Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Discussion

Impact #3.4.7a(i) – Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture; however, surface fault rupture is not necessarily restricted to the area within the Alquist-Priolo Zone. The Alquist-Priolo Act prohibits the location of most structures for human occupancy across active fault traces. Within these zones, cities and counties must regulate certain development, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. There are no designated Alquist-Priolo zones in the City of Visalia.

The Project site is identified in the City of Visalia 2030 General Plan as being located within a seismically stable region of the State. While the southern San Joaquin Valley contains some small faults, the closest of these is 30 miles away, and none are known to be active. In comparison to many regions in California, Visalia exhibits relatively little tectonic activity. The major fault systems in the area include the San Andreas Fault, located 75 miles away from Visalia, and the Owens Valley Fault Group, located east of the Sierras and more than 125 miles away from the City. No active or potentially active faults are known to exist within the Planning Area. The closest potentially active fault is located approximately 25 miles southeast of Visalia but is not known to be active within the last 1.6 million years. The San Andreas and Owens Valley fault systems would not be expected to cause surface fault rupture in the Project area and therefore has a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7a(ii) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Ground movement during an earthquake can vary depending on the overall moment magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. As a rule, the greater the earthquake magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. However, different geologic materials respond differently to earthquake waves. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking.

The California Geological Survey and US Geological Survey conducts a Probabilistic Seismic Hazard Analysis based on historic earthquakes, slip rates on major faults and deformation throughout the region, and the potential for amplification of seismic waves by near-surface geologic materials. The resulting earthquake shaking potential is used in developing building code design values, estimating future earthquake losses, and prioritizing earthquake retrofit. According to the City's General Plan, the City experiences low levels of shaking, with less frequency, are expected to damage only weaker masonry buildings. However, very infrequent earthquakes could still cause strong shaking but with implementation of Title 24 building requirements and local standards. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7a(iii) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

The susceptibility of land sliding/slope failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. Land that has experienced sliding in the past is often more slide-prone and more sensitive to both human-induced changes and to earthquakes. Earthquake-induced ground failures are unlikely to occur in the City of Visalia because of its relatively stable geologic formation and lack of active faults. Therefore, the Project would have less than significant impacts related to seismic-related ground failure.

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Typically, areas underlain by artificial fills, unconsolidated alluvial sediments, slope wash, and areas with improperly engineered construction fills are susceptible to this type of settlement. During an earthquake, some settlement of soil materials in Visalia may occur. However, very infrequent earthquakes occur within the City of Visalia and the surrounding region. With implementation of Title 24 building requirements and local standards, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7a(iv) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Surface soils exhibit various characteristics dependent on location, slope, parent rock, climate, and drainage. According to the City's General Plan, surface soils in the City of Visalia range from fine sandy loam and loam to alkali soils. The most prevalent soils are Nord fine sandy loam; Grangeville sandy loam, drained; Tagus loam; and Akers-Akers, saline-sodic, complex. Some soils have the potential to present moderate geologic hazards to building, due to their susceptibility to erosion or to expansion and contraction.

In general, soil containing high amounts of silt can be easily eroded, while sandy soils are less susceptible. Erosion is most likely to occur on sloped areas with exposed soil, especially where unnatural slopes are created by cut-and-fill activities. Soil erosion rates can be higher during the construction phase. Excessive soil erosion can eventually damage building foundations and roadways. Most surface soils in the Planning Visalia General Plan Draft Environmental Impact Report 3.7-2 Area have moderate potential for erosion by water; in some areas, the erosion potential is considered low to moderate, depending on soil depth.

The City of Visalia has adopted the 2019 California Building Code as the City's building code and ordinance (Title 15: Buildings and Construction). The City's Subdivision Ordinance requires that a preliminary soils report be provided as part of the application for a tentative subdivision map, unless the city engineer determines that no preliminary analysis is necessary (Title 16: Subdivisions). If the preliminary soils report indicates the presence of expansive soils, settlement, and potential for subsidence, the City will make a recommendation for necessary adjustments to project plans that offset potential soil problems. Adherence to these requirements reduces this impact to a level that is less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7b – Would the Project result in substantial soil erosion or the loss of topsoil?

Soil erosion occurs when soil is removed by wind and water at a greater rate than it is formed. Soil erosion removes the topsoil first and can continue to transport lower layers. Future development and creation of new impervious surfaces also has the potential to contribute to increased stormwater runoff, which could make soil erosion more severe if stormwater is not handled properly. Soil erosion at construction sites can increase sedimentation in nearby streams and drainage channels.

Soil erosion can lead to sedimentation of watercourses, eventually having an adverse impact on water quality and aquatic life. Furthermore, once erosion occurs, it may be difficult for natural vegetation to reestablish itself. The loss of topsoil to erosion is detrimental to agriculture and other landscaping. The risk of erosion is greatly increased during grading and construction activities, and agricultural practices, when soils are loosened and bare of vegetation.

Construction activities associated with the proposed Project will disturb surface vegetation and soils and expose these disturbed areas to erosion by wind and water. To reduce the potential for soil erosion and loss of topsoil during construction, the Project would comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit from the State of California Central Valley Regional Water Quality Control Board (RWQCB) during construction. Under the NPDES, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of one acre or more. An SWPPP must identify potential sources of erosion or sedimentation and identify and implement best management practices (BMPs) that ensure reduced erosion. If an SWPPP was not required, the Project would implement the standard BMPs. Typical BMPs intended to control erosion include sandbags, silt fencing, street sweeping, etc. Mitigation Measure GEO-1 requires the approval of an SWPPP to comply with the NPDES General Construction Permit, if appropriate. Compliance with local grading and erosion control ordinances would also help minimize adverse effects associated with erosion and sedimentation. Any stockpiled soils would be watered and/or covered to prevent loss due to wind erosion as part of the SWPPP during construction.

The Project will comply with all the City's grading requirements outlined in Title 24 and Appendix J of the California Building Code. The Project is not expected to result in substantial soil erosion or the loss of topsoil with the incorporation of mitigation measure GEO-1.

Once constructed, the Project will have both impermeable surfaces and permeable surfaces. Impermeable surfaces would include existing roadways, driveways, and structures. Permeable surfaces would include open areas of the site any landscaped areas. Overall, the development of the Project would not result in conditions where substantial surface soils would be exposed to wind and water erosion.

Therefore, with implementation GEO-1, impacts to soil erosion or the loss of topsoil at the Project site will be reduced to less than significant.

MITIGATION MEASURE(S)

GEO-1: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (1) the approved Storm Water Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly.
- Protecting existing storm drain inlets and stabilizing disturbed areas.
- Implementing erosion controls.
- Properly managing construction materials.
- Managing waste, aggressively controlling litter, and implementing sediment controls.

Evidence of the approved SWPPP shall be submitted to the Lead Agency.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.7c – Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

See above discussions under Impact #3.4.7 (a)(i) - (iv) & (b). The Project will have a less than significant impact with existing state and local requirements and standards.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7d – Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

See discussion under Impact #3.4.7(a)(iv). The City of Visalia's Subdivision Ordinance requires a preliminary soils report as part of the application for a tentative subdivision map. If the preliminary soils report indicates the presence of expansive soils, settlement, and potential for subsidence, the city will make recommendation for necessary adjustments to project plans that offset potential soil problems. Adherence to these requirements will reduce the Project impacts to a level that is less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.7e – Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

According to the City of Visalia 2030 General Plan Housing Element, housing developments proposed after adoption of the document are not permitted to use septic tanks or alternative wastewater disposal systems since sanitary sewer lines are used for the disposal of wastewater throughout the city. Therefore, the Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have no impact.

Impact #3.4.7f – Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Paleontological resources are the mineralized (fossilized) remains of prehistoric plant and animal life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, and leaves are found in geologic deposits (rock formations) where they were originally buried. Fossil remains are considered to be important as they provide indicators of the earth's chronology and history. These resources are afforded protection under CEQA and are considered to be limited and nonrenewable, and they provide invaluable scientific and educational data.

The Project site does not have any known paleontological resources or unique geologic features. There is no evidence that cultural resources of any type (including historical, archaeological, paleontological, or unique geologic features) exist on the Project site. Nevertheless, there is some possibility that a buried site may exist in the area and be obscured by vegetation, fill, or other historical activities, leaving no surface evidence.

MITIGATION MEASURE(S)

GEO-2: Prior to any ground-disturbing activities, the Project owner shall develop and implement a Paleontological Worker Education and Awareness Program. If paleontological resources are discovered during ground-disturbing activities (e.g., during Project construction or decommissioning), all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until a qualified professional paleontologist (meeting the standards of the Society of Vertebrate Paleontology [SVP]) can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage are required, recommendations will be consistent with the Society of Vertebrate Paleontology standards that are current as of the discovery and with currently accepted scientific practice.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.8 - Greenhouse Gas Emissions				
Would the Project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The impact analyses in this section based on an *Air Quality & Greenhouse Gas Impact Assessment* (VRPA Technologies, Inc., 2021), which is attached as Appendix B.

Discussion

Impact #3.4.8a – Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The SJVAPCD does not have an established threshold for GHG emission impacts. South Coast Air Quality Management District (SCAQMD) identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Although the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 in the Assessment attached as Exhibit B shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is roughly 70% less than the threshold identified by the SCAQMD, and is shown in Table 3.4.8-1, below.

Table 3.4.8-1
Project Operational Greenhouse Gas Emissions

Summary Report	CO_{2e}
Project Operational Emissions Per Year	2,905 MT/yr

Source: (VRPA Technologies, Inc., 2021)

Results indicate that the resulting permanent greenhouse gas increases related to Project operations would be within the greenhouse gas increases analyzed in the City of Visalia 2030 General Plan EIR, so there would be no increase in severity to the previously identified greenhouse gas impacts, and implementation of the Project will not result in Project-specific or site-specific significant adverse impacts from greenhouse gas emissions within the Project study area. Therefore, no mitigation measures are needed, and impacts are less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.8b – Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011, to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the TCAG region, CARB set targets at thirteen (13) percent per capita decrease in 2020 and a sixteen (16) percent per capita decrease in 2035 from a base year of 2005.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs.

The Project would be consistent with the City of Visalia 2030 General Plan upon preparation and approval of a general plan amendment in accordance with General Plan Policy LU-P-33 and LUP-24 and the adopted 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP.

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project furthers the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

The Project would have a ***less than significant impact***.

3.4.9 - Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☒	☐
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

Discussion

Impact #3.4.9a – Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Project Construction

Project construction-related activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction-related activities. These materials could expose human health or the environment to undue risks associated with their use, and no significant impacts will occur during construction activities.

Transportation, storage, use, and disposal of hazardous materials during construction activities will be required to comply with applicable federal, State, and local statutes and regulations. U.S. Department of Transportation and Caltrans regulate the transportation of hazardous materials. Additionally, the City's routes that have been designated for hazardous materials transport would be used. Any hazardous waste or debris that is generated during the construction of the proposed Project would be collected and transported away from the site and disposed of at an approved offsite landfill or other such facilities. In addition, sanitary waste generated during construction would be managed through portable toilets located at reasonably accessible onsite locations.

Federal and State laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, transported and disposed of, and in the event that such materials are accidentally released, to prevent or mitigate injury to health or the environment. Laws and regulations require hazardous materials users to train employees to manage them safely. The primary Federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (EPA), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). In many cases, California State law mirrors or is more restrictive than federal law, and enforcement of these laws has been delegated to the State or a local agency. The General Plan reflects the following objective:

- S-O-3: Protect soils, surface water, and groundwater from contamination from hazardous materials.

Construction activities associated with the proposed Project may involve the temporary transport and use of minor quantities of hazardous materials such as fuels, oils, lubricants, hydraulic fluids, paints and solvents as a result of construction build-out related to residential development. The handling and transport of all hazardous materials onsite would be required to perform in accordance with all applicable federal, State, and local laws and regulations.

Project Operation

Once constructed, the use of such materials as paint, bleach, etc., is considered common for residential developments. It would be unlikely for such materials to be stored or used in such quantities that would be considered a significant hazard. The Project will not generate or use hazardous materials outside health department requirements. Operation activities will comply with the California Building Code, local building codes, and applicable safety measures.

Based on the analysis above, Project construction and operation are not anticipated to result in significant impacts due to the transportation, use, or disposal of hazardous materials. Therefore, impacts would be less than significant.

Therefore, the Project will not result in any hazards and hazardous material impacts, and with implementation of standard local, state, and federal requirements regarding handling of hazardous materials, and would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.9b – Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous materials handling on the Project site as a result of the residential development may result in soil and groundwater contamination from accidental spills. Construction of the Project would require preparing and implementing an SWPPP, as noted in Impact #3.4.7b.. The SWPPP is a State requirement under the National Pollution Discharge Elimination System (NPDES) permit for construction sites over one acre. The SWPPP identifies potential sources of pollution from the Project that may affect the quality of stormwater discharge and requires that best management practices (BMPs) be implemented to prevent contamination at the source. By implementing BMPs during any future construction activities, accidental spills of hazardous materials would be contained, and soil and groundwater contamination would be minimized or prevented. Development of a SWPPP and associated BMPs shall be determined by the city engineer through standard permitting processes for the Project.

The proposed Project is not anticipated to create a significant hazard to the public or the environment; as mentioned previously, the residential Project would not routinely transport, use, dispose of, or discharge hazardous materials into the environment. With the implementation of GEO-1 during construction, impacts would be less than significant.

MITIGATION MEASURE(S)

Implement mitigation measure GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant with mitigation incorporated***.

Impact #3.4.9c – Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The nearest school to the Project is Hurley Elementary School, approximately 0.2 miles southeast of the Project site. Construction activities for the residential development could result in the temporary use of hazardous materials and or substances, such as lubricant and diesel fuel during construction. Exhaust from construction and related activities are expected to be minimal and not significant. All future construction related activities as a result of the proposed Project would be subject to local, State, and federal laws related to emissions of hazardous materials and substances. However, construction of the Project would require the use of minimal hazardous materials and require implementation of BMPs when handling any hazardous materials, substances, or waste. As noted in Impact #3.4.3a, emissions from construction and related activities are expected to be minimal and not significant. Once constructed, the residential development is not expected to result in hazardous emissions; therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.9d – Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

According to EnviroStor (Department of Toxic Substances Control, 2022) the Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

As such, the Project site will not create a significant hazard to the public or the environment and therefore has no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.9e – Would the Project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and

would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

The Project site is located 1.27 miles northeast of the Visalia Municipal Airport and is not located within the Airport Influence Area as indicated in the Tulare County Airport Land Use Compatibility Plan (Tulare County, 2012). Therefore, the proposed Project to develop a 241 single-family residential unit development is compatible and in compliance with the Airport Land Use Compatibility Plan, as it indicated there are no special policies, procedures, and standards referenced in the City's ordinance. Therefore, the Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.9f – Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The City of Visalia utilized Tulare County's Emergency Operations Plan, which includes planning and response scenarios for seismic hazards, extreme weather conditions, landslides, dam failure, other flooding, wildland fires, hazardous materials incidents, transportation emergencies, civil disturbance, and terrorist attacks. In addition, the Project would also comply with the appropriate local and State requirements regarding emergency response plans and access (City of Visalia, 2022). The Project would also comply with the appropriate local and State requirements regarding emergency response plans and access. The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities.

The Traffic Study prepared for the proposed Project did not identify any traffic hazards that impede emergency response or evacuation plans (VRPA Technologies, Inc., 2021a). The Project site and surrounding area are relatively flat, with little to no topography that might obscure visibility to motorists. Additionally, roadway improvements have been proposed to maintain traffic safety with the anticipated increase in vehicle trips. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.9g – Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The land surrounding the Project site is primarily developed with a mix of urban and agricultural uses. The area is not considered to have impacts from wildfires. Further, the Project site is located within the Urban Growth Boundary and the Visalia Sphere of Influence for future development, outside of any natural vegetate community. The Visalia General Plan includes policies that would protect any future development on the Project site and the community from fire dangers.

The Project site is less than 1 mile southwest of the Visalia Fire Department Station 55, the closest fire station. The Project will comply with all applicable State and local building standards as required by local fire codes and impact fees to support additional fire protection services. The Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.10 - Hydrology and Water Quality

Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would?				
i. Result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☒	☐	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

Impact #3.4.10a – Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Project construction activities including grading could temporarily increase soil erosion rates during and shortly after Project construction. Construction-related erosion could result in the loss of soil and could adversely affect water quality in nearby surface waters. As noted in Impact 3.4.7a, construction of the proposed Project will be required to prepare a site-specific SWPPP as required by the RWQCB. The SWPPP is required to be approved by the RWQCB prior to construction that identifies project-specific best management measures that are designed to control drainage and erosion. The Project is also required to implement MM GEO-1 to identify the soil types within the development Project area as part of the preparation of a site-specific SWPPP and related BMPs.

The Project site is located 350 feet north of the Mill Creek Ditch and will not impact this waterway as related to the goals and policies of the General Plan and the updated City of Visalia Waterways and Trails Master Plan, as the site is not adjacent to or within a water corridor.

Therefore, implementation of Project-specific drainage improvements as identified in the city's standard requirements for subdivisions would reduce the potential for the proposed Project to violate water quality standards during construction to a less than significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implement mitigation measure GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.10b – Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

The Visalia area is located within the Kaweah Groundwater Subbasin of the San Joaquin Valley Groundwater Basin. The Subbasin's 696 square miles generally comprises lands in the Kaweah Delta Water Conservation District (KDWCD), and include the Kaweah and St. Johns Rivers, with the former being the primary source of groundwater recharge. The alluvial fans of waterways provide highly permeable areas in which groundwater is readily replenished. Annual rainfall in Visalia usually ranges from eight to 12 inches; however, there is no estimate of what percentage of rainfall reaches the groundwater supply. Groundwater flow is generally southwestward. Based on groundwater elevation maps, horizontal groundwater barriers do not appear to exist in the subbasin.

According to the Department of Water Resources, groundwater levels in the subbasin have declined about 12 feet on average from 1970 to 2000, with periodic fluctuations. As population continues to grow and farming practices continue at the current rate, groundwater levels may also decline unless recharge is increased.

According to the General Plan, the City of Visalia and the Kaweah Delta Water Conservation District (KDWCD) have mutual interests in restoring and maintaining groundwater supplies and controlling flood water, and have worked on a number of projects in the past that benefit City and District interests. Visalia has implemented a Groundwater Overdraft Mitigation Ordinance, which imposes a groundwater mitigation fee on new development and a groundwater impact fee on water suppliers. The fees are used to construct and improve groundwater recharge facilities and to purchase water for groundwater recharge. Recharge efforts are coordinated by the City with KDWCD and local irrigation districts.

According to the U.S. Census Bureau, the average household size in Visalia is 3.02 persons (U.S. Census Bureau, 2022); therefore, future development could support approximately 728 people. According to California Water Service's 2015 UWMP (California Water Service, 2022), the actual water used in 2015 was 160 gallons per capita per day (gpcd). Therefore, the proposed 241 single-family residences would result in estimated water demand of 262,270 gallons/day (728 people x 160 gallons/day = 116,480 gpcd, which 42.5 gallon per capita annually) or approximately 130.4 acre-feet per year.

The City has adopted numerous policies to reduce water demand through conservation and other means and to increase surface water imports to the City and surrounding areas. These include the Groundwater Recharge Fee, Groundwater Impact Fee, Groundwater Mitigation Fee, and the Water Conservation Ordinance.

The developer will be responsible for paying the City of Visalia's Groundwater Overdraft Mitigation Fee, and therefore the Project will result in a less than significant impact.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

The Project would have a ***less than significant impact***.

Impact #3.4.10c(i) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on-or off-site?

The Project site is mostly flat and would not substantially alter the existing drainage pattern of the site or area. The Project site does not have a stream or river and is approximately 350 feet away from the Mill Creek Ditch. The Project has a proposed storm basin that will collect stormwater runoff on the site. The Project would develop areas of impervious surfaces that would reduce the rate of percolation at the site, but areas of open space would allow for the percolation of stormwater to recharge the aquifer, or the water would be directed into the City's existing stormwater sewer system. The Project would comply with applicable City development standards and codes. Therefore, the Project would have a less-than-significant impact on drainage patterns or cause substantial erosion or siltation on or off the site.

As discussed in Impact #3.4.10a above, potential impacts on water quality from erosion and sedimentation are expected to be localized and temporary during construction. Construction-related erosion and sedimentation impacts due to soil disturbance would be less than significant after implementing an SWPPP (see Mitigation Measure GEO-1) and BMPs required by the NPDES. No drainages or other water bodies are present on the Project site, and therefore, the proposed project would not change the course of any such drainages.

The existing drainage pattern of the site and area would be affected by Project development because of the increase in impervious surfaces at the site. The Project design includes natural features such as landscaping and vegetation that would allow for the percolation of stormwater. However, there will be an addition in impervious surfaces that could increase the potential for stormwater runoff and soil erosion. The Project would connect to existing City stormwater sewer infrastructure. The Project will comply with all applicable local building codes and regulations to minimize impacts during construction and post-construction. With the implementation of GEO-1, impacts that would result in substantial erosion or siltation on or offsite are less than significant.

MITIGATION MEASURE(S)

Implement mitigation measure GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.10c(ii) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No drainages or other water bodies are present on the Project site. Therefore, the development of the site would not change the course of any such drainages that may potentially result in on or offsite flooding. Water would be used during the temporary construction phase of the Project (e.g., for dust suppression). However, any water used for dust control would be mechanically and precisely applied and would generally infiltrate or evaporate prior to running off.

The Project site is flat, and the proposed grading would not substantially alter the overall topography of the Project site. Although the amount of surface runoff on the Project site would not substantially increase with the construction of the Project, runoff patterns and concentrations could be altered by grading activities associated with the Project. Improper design of the access road or building pads could alter drainage patterns that would cause flooding on or offsite. The potential for the construction of the proposed Project to alter existing drainage patterns would be minimized through compliance with the preparation of an SWPPP (GEO-1). With the implementation of such measures, the Project would not substantially increase the amount of runoff to result in flooding on or offsite. Impacts would be reduced to less-than-significant levels.

Additionally, with the approval of grading plans and site development requirements by the City Building Division that incorporates BMPs and design standards, the new development operations would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite. Impacts would be less than significant with the implementation of GEO-1.

MITIGATION MEASURE(S)

Implement mitigation measure GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.10c(iii) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Water would be used during the temporary construction phase of the proposed Project (e.g., for dust suppression). However, any water used for dust control would be mechanically and precisely applied and would generally infiltrate or evaporate prior to running off.

The Project would comply with all applicable State and City codes and regulations. The Project will construct a stormwater retention basin onsite to capture stormwater, and engineering calculations will support the storm drainage plan to ensure that the Project does not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, the Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.10c(iv) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

As discussed under Impact #3.4.10(a) – (c)(iii), Project construction activities could potentially alter the course of existing drainage pattern on site. The Project would be required comply with the NPDES Construction General Permit by preparing a SWPPP to specify BMPs to prevent construction pollutants. The proposed Project does not include any construction activities that would direct excess surface waters or impede or redirect any potential flood flows.

Once constructed, there will be imperious surfaces create by the houses, roads, driveways, etc. However, there are also open spaces such as lawns and the proposed park that will allow stormwater to percolate back into the aquifer. The Project would comply with all applicable State and City codes and regulations related to stormwater during construction and post-construction.

Therefore, the Project impacts would be less than significant.

MITIGATION MEASURE(S)

Implement mitigation measure GEO-1.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.10d – Would the Project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?

The Project is located inland and is not located near an ocean or large body of water, and therefore, would not be affected by a tsunami. Since the Project is located in an area that is not susceptible to inundation, the Project would not risk release of pollutants.

There is no potential for the inundation of the Project site by seiche. Therefore, the Project would not contribute to inundation by seiche, tsunami, or mudflow. The Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

Level of Significance

The Project would have ***no impact***.

Impact #3.4.10e – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

See Impact #3.4.10b.

Implementation of the City of Visalia 2030 General Plan policies, California Water Service's 2015 Urban Water Management Plan, the Kaweah Delta Water Conservation District (KDWCD) 2010 Groundwater Management Plan, and the City's involvement with the KDWCD Integrated Regional Water Management Planning (IRWM) program, in addition to the City's Stormwater Master Plan and Management Program and the Waterways and Trails Master Plan, will address the issues of providing an adequate, reliable, and sustainable water supply for the Project's future urban domestic and public safety consumptive purposes. The City of Visalia obtains the majority of its domestic water from California Water Service.

Private development participates in the City's ability to meet water supply goals and initiatives through payment of fees established by the city for construction of recharge facilities, the construction of recharge facilities directly by the Project, or participation in augmentation/enhancement/enlargement of the recharge capability of Fresno Metropolitan Flood Control District storm water ponding basins. While any future development as a result of approval of the proposed Project may be served by conventional groundwater pumping and distribution systems, full development of the Fresno General Plan boundaries may necessitate utilization of treated surface water due to inadequate groundwater aquifer recharge capabilities. The Department of Public Utilities works with Fresno Metropolitan Flood Control District to utilize suitable FMFCD ponding (drainage) basins for the groundwater recharge program and works with Fresno Irrigation District to ensure that the City's allotment of surface water is beneficially used for intentional groundwater recharge.

The City of Visalia Public Works Department will review any future development as a result of the Project approval and associated water demand analysis to determine if water service will be available through City of Visalia. The future development will be required to show water infrastructure connections to the nearest water main and water mains would be extended within the proposed lot to provide service to each unit created, subject to payment of applicable water charges.

City of Visalia Public Works Department will review the future development on the Project site for compliance with water quality and groundwater management and will determine if water service will be available for the Project. Further, the City's General Plan includes policies and initiatives to ensure the City promotes water conservation. Therefore, compliance with payment of the City's Groundwater Overdraft Mitigation Fee would reduce Project impacts to less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than significant Impact	No Impact
3.4.11 - LAND USE AND PLANNING				
Would the Project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

Impact #3.4.11a – Would the Project physically divide an established community?

The Project is surrounded by undeveloped or developed property to the east, agricultural fields to the south and west, and various industrial uses to the north. There is existing residential development to the south.

The Project would increase an established community within the area and promote orderly land use development by providing the ability to develop the 50 acres, which is a supported goal under the General Plan, and, therefore, would have no impact. The Project proposes connecting to existing roadways, providing future connectivity access, and not dividing an established or future community. Future development would not be built in a pre-existing community area and would not create any physical barrier between an established community.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.11b – Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

As proposed, the Project will be consistent with the following City of Visalia 2030 General Plan goals, objectives and policies for Land Use.

The General Plan establishes two new growth boundaries to reflect current conditions and available population and job growth data. The First Tier, also known as the Urban Development Boundary I or UDB (Tier I), is largely coterminous with the 2012 city limits. It comprises slightly over half of the potentially developable land under the Plan, and could support a target buildout population of approximately 160,000. The Second Tier, known as the Urban Development Boundary II or UDB (Tier II) comprises 27,936 acres and could support a target build population of approximately 178,000..

The City of Visalia 2030 General Plan has designated the Project area within the existing and proposed city limits as developable under the Tier 2 Urban Development Boundary. The General Plan established criteria, dependent upon land use type, for when development may advance from the first tier (Tier I) to subsequent tiers (Tiers II and III), which are contained in Policy LU-P-21 of the General Plan. For residential uses, the threshold is the issuance of permits for 5,850 housing units within Tier 1 since April 1, 2010. The City met the residential permit threshold in July 2021 and now considers development located with Tiers 1 and/or 2 (City of Visalia, 2021). The Project will not cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation, as the Project site has been identified for future residential development build-out. The Project will have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less–than-Significant Impact	No Impact
3.4.12 - MINERAL RESOURCES				
Would the Project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

Impact #3.4.12a – Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

According to the City of Visalia 2030 General Plan, the Project site is not located in an area designated for mineral resource preservation or recovery; therefore, the Project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

According to the Department of Conservation Division of Mine Reclamation SMARA mapping tool, the nearest open mine (Kaweah South 91-54-0036) to the Project site is approximately 16 miles to the northeast (Department of Conservation, 2022). Additionally, the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) well finder tool does not designate an active oil or gas well in proximity to the Project site (Department of Conservation, 2022).

The Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

Impact #3.4.12b – Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The Project site is not delineated on a local general plan, specific plan, or other land use plan as a locally important mineral resource recovery site; therefore, it will not result in the loss of availability of a locally-important mineral resource. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.13 - NOISE				
Would the Project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☒	☐

The impact analyses in this section based on an *Environmental Noise & Vibration Assessment* (Bollard Acoustical Consultants, Inc., 2021), which is attached as Appendix E.

Discussion

Impact #3.4.13a – Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment.

Construction Noise

During Project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the Project work area would also vary depending upon the proximity of equipment activities to that point. The nearest existing sensitive uses (residential) are located approximately 30 feet away from where construction activities could occur within the Project area.

Based on the equipment noise levels in Table 3.4.13-1 below, worst-case on-site Project construction equipment noise levels at the nearest residential uses located 30 feet away are expected to range from approximately 80 to 89 dB.

Table 3.4.13-1
Construction Equipment Reference and Projected Noise Levels

Equipment Description	Maximum Noise Level at 50 Feet (dB)	Predicted Maximum Noise Level at 30 Feet (dB)
Air compressor	80	84
Backhoe	80	84
Ballast equalizer	82	86
Ballast tamper	83	87
Compactor	82	86
Concrete mixer	85	89
Concrete pump	82	86
Concrete vibrator	76	80
Crane, mobile	83	87
Dozer	85	89
Excavator	85	89
Generator	82	86
Grader	85	89
Impact wrench	85	89
Loader	80	84
Paver	85	89
Pneumatic tool	85	89
Pump	77	81
Saw	76	80
Scarifier	83	87
Scraper	85	89
Shovel	82	86
Spike driver	77	81
Tie cutter	84	88
Tie inserter	85	89
Truck	84	88

Source: (Bollard Acoustical Consultants, Inc., 2021)

The Visalia General Plan exterior noise level standard of 65 dB DNL applicable to transportation noise sources affecting residential uses. Therefore, it is possible Project construction equipment could result in short-term increases over ambient maximum noise levels at nearby existing residential uses. Further, it is possible that those noise levels could exceed the applicable Visalia General Plan and Municipal Code noise level limits. As a result, noise impacts associated with Project's construction activities are identified as being potentially significant. Therefore, mitigation measures have been proposed to reduce noise impacts to less than significant levels. NSE-1 requires the Project developer or contractor to continuously comply with measures to reduce noise impacts from the Project. This includes restricting construction activities to daylight hours, the use of noise baffles or mufflers on construction equipment, the use of electric equipment, locating equipment in areas away from sensitive receptors, and neighboring property owners will be notify of construction scheudles prior to the start of construction. Implementation of MM NSE-1 will reduce noise impacts to less than significant levels.

Traffic Noise

The development of the Project will result in increased traffic volumes on the local roadway network. Those increases in daily traffic volumes will result in a corresponding increase in traffic noise levels at existing uses located along those roadways. The analyses provided in the study utilized the FHWA Model with traffic input data from the project traffic impact analysis to predict project-generated traffic noise level increases relative to Opening Year, 5-Year Horizon, 10-Year Horizon, and 20-Year Horizon project and no Project conditions (Bollard Acoustical Consultants, Inc., 2021).

The study indicated that the existing ambient noise environment within the Project area is defined primarily by traffic on Shirk Street to the east, and by industrial operations from adjacent uses to the north. It was also concluded that baseline ambient conditions were considerably higher than baseline traffic noise levels.

Based on the analyses provided in the study, including consideration of measured existing ambient noise conditions within the Project area, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the Project are identified as being less than significant.

Industrial Operations Noise at Proposed Residential Uses

There are industrial uses adjacent to the north side of the Project boundary that exceed the City of Visalia's General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively (Bollard Acoustical Consultants, Inc., 2021). However, CEQA does not require an analysis of impacts of the existing environment on the Project itself. The noise levels emanating from the neighboring industrial operation would be considered part of the baseline ambient noise levels present at the Project. However, NSE-2 requires the developer to record a covenant on the Project properties disclosing noise impacts from the adjacent industrial uses identified. The covenant, combined with implementation of the City of Visalia's General Plan and Municipal Code standards for noise impacts will reduce impacts to a less than significant level.

MITIGATION MEASURE(S)

NSE-1: The Project developer or contractor shall continuously comply with the following measures throughout construction activities:

a. Pursuant to Visalia Municipal Code Section 8.36.050(C), the operation of construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment shall not be operated on the project site between the weekday hours of 7:00 p.m. and 6:00 a.m., and between the weekend hours of 7:00 p.m. and 9:00 a.m.

b. All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition.

c. All mobile or fixed noise-producing equipment used on the project site that is regulated for noise output by a federal, State, or local agency shall comply with such regulations while in the course of project construction activity.

d. Electrically powered equipment shall be used instead of pneumatic or internal combustion-powered equipment, where feasible.

e. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

f. Project area and site access road speed limits shall be established and enforced during the construction period.

g. Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

NSE-2: Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts with disclosure language as follows:

> *"Property owner(s) of lots within the Shepherds Ranch I/ Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."*

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.13b – Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

During Project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. The nearest existing sensitive receptors have been identified as residential structures located approximately 30 feet from construction activities that would occur within the Project area.

The City of Visalia does not currently have adopted standards for groundborne vibration. As a result, the noise study prepared for this Project indicated that the vibration impact criteria developed by the California Department of Transportation (Caltrans) was applied to the Project. Equipment or activities typical of continuous vibration include excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, "pogo stick" compactors, and crack-and-seat equipment. Table 3.4.13-2 below has identified construction equipment proposed to be utilized for this Project's construction activities.

Table 3.4.13-2
Vibration Source Levels for Construction Equipment and Projected Levels at 30 Feet

Equipment	Maximum Vibration Level at 25 Feet (PPV)[1]	Predicted Maximum Vibration Level at 30 Feet (PPV)
Vibratory roller	0.210	0.160
Hoe ram	0.089	0.068
Large bulldozer	0.089	0.068
Caisson drilling	0.089	0.068
Loaded trucks	0.076	0.058
Jackhammer	0.035	0.027
Small bulldozer	0.003	0.002

[1] PPV = Peak Particle Velocity
Source: 2020 FTA Transit Noise and Vibration Impact Assessment Manual and BAC calculations

As shown above in Table 3.4.13-2, vibration levels generated from on-site construction activities at the nearest existing sensitive structures located approximately 30 feet away (residences) are predicted to be below the strictest Caltrans thresholds. Further, construction activities are not expected to result in adverse human response relative to the vibration annoyance criteria. Therefore, on-site construction within the Project area is not expected to result in excessive groundborne vibration levels at nearby existing sensitive uses.

It is expected that the Project would not result in the exposure of persons to excessive groundborne vibration levels at proposed uses of the Project; therefore this impact is less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.13c – Would the Project result in for a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The Project is located approximately 1 ¼ miles to the northeast of Visalia Municipal Airport. The Project is geographically located outside of the established 55 dB CNEL airport noise contour not within a safety zone identified in the ALUCP (County of Tulare, 2012).

Impacts are considered to be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less- than Significant Impact	No Impact
3.4.14 - Population and Housing				
Would the Project:				
a. Induce substantial population unplanned growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

Impact #3.4.14a – Would the Project induce substantial population unplanned growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed Project includes the development of 240 single-family residences and a 3.051-acre linear park with associated utilities and infrastructure.

Population forecasts adopted by the City's General Plan indicates growth for the City population of 210,000 people by 2030, with an average annual growth rate of 2.6 percent (City of Visalia, 2014). The total population of the City of Visalia is 141,384 people, and the average persons per household is 3.02 (U.S. Census Bureau, 2022).

As noted previously, the City General Plan has designated the Project site for future urban uses under the Urban Growth Development Tier 2. Implementation of this Project will support the General Plan designation for future urban land use Policy LU-P-21 for residential development. The General Plan established criteria, dependent upon land use type, for when development may advance from the first tier (Tier I) to subsequent tiers (Tiers 2 and 3), which are contained in Policy LU-P-21 of the General Plan. For residential uses, the threshold is the issuance of permits for 5,850 housing units within Tier 1 since April 1, 2010. The City met the residential permit threshold in July 2021 and now considers development located with Tiers 1 and/or 2 (City of Visalia, 2021). Thus, it is anticipated that the area would be residentially developed to meet the housing needs of the City, and the Project will not induce substantial unplanned population growth.

In addition, it is likely some portion of the people who would purchase Project homes may already reside in Visalia or the surrounding communities, thereby reducing the overall impact on the population the Project may generate. The Project would not include upsizing of offsite infrastructure or roadways. Impacts would be less than significant.

Therefore, Project impacts are considered to be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.14b – Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The surrounding parcels are developed with residential or industrial uses to the north and east of the Project. The properties to the south and west are undeveloped agricultural land. The General Plan's existing land use designations for the Project site are Residential Very Low Density and Residential Low Density. The proposed General Plan Amendment eliminates the Residential Very Low Density designation and increases the acreage of the Residential Low Density designation.

Construction of the Project would likely be completed by construction workers residing in the City or the surrounding area; they would not require new housing. The Project will not result in the displacement of any persons as there are no residential units on the Project site. As such, no impact associated with displacement of housing or people would occur. In conclusion, with the implementation of the Project, the Project will not result in any population and housing impacts.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.15 - *Public Services*				
Would the Project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Discussion

Impact #3.4.15a(i) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services - Fire Protection?

The City of Visalia Fire Station 55 is less than 1 mile southwest of the Project.

Prior to the recordation of the proposed subdivision maps, the developer will be required to pay development impact fees. A portion of those funds will be specifically earmarked for the use of the Fire Department to maintain an adequate level of service within its service boundary. The entire Project, whether submitted in phases or not, will be subject to review by the City of Visalia Engineering, Public Works, and Fire Department in order to determine whether the Projects infrastructure design is in compliance with City policies for development. The Project's water system will be reviewed to verify that the system can supply the required fire flow for fire protection purposes. The establishment of gallons-per-minute requirements for fire flow shall be based on the review of the City of Visalia Fire Department.

Development of the Project will increase the need for fire protection services and expand the service area and response times of the local City Fire Department. As previously mentioned, the Project will be required to adhere to any conditions/policies pertaining to the construction of infrastructure needed for the Visalia Fire Department to provide an adequate level of fire protection service.

According to the General Plan and the standard review procedures for development projects within the City of Visalia, the Project's plans and permits will be reviewed for input from the Fire Department. The Project's proposed construction would be located adjacent to existing residential areas, which the City Fire Department already serves. The developer will be required to pay development impact fees to offset growth in population in the area that would impact fire protection. Impacts would be less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.15a(ii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Police Protection?

The Visalia Police Department (VPD) provides police protection in the City of Visalia and collaborates with other law enforcement agencies and the District Attorney's office on crime prevention. The City has approximately 143 sworn officers working out of two districts. The City of Visalia Police Station - District 1office is located approximately 4 miles east, and the District 2 office is approximately 4.5 miles southeast. The District 1 office serves northern Visalia. The Project is proposing development in an area that is adjacent to residential development and undeveloped agricultural land. The Project proposes additional residential development in a previously undeveloped location, which will increase the need for police services. However, the Project will pay appropriate development fees based on the adopted fee calculations and is responsible for constructing any infrastructure needed to serve the Project. Impacts would be less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.15a(iii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Schools?

Visalia Unified School District (VUSD or District) provides public education from kindergarten through 12th grade in the Planning Area. The nearest schools to the Project site include Hurley Elementary School, located 0.3 miles east, Ridgeview Middle School, located 0.8 miles north, and El Diamonte High School, located 2.2 miles south. The General Plan identifies a need for a total of 21 new schools, including 17 new elementary schools, two middle and two high schools to accommodate projected growth through 2030. The General Plan identifies a proposed school site adjacent to the Project Site on the south boundary. It is noted in the General Plan that specific locations may change depending on a variety of factors, including land availability, infrastructure needs, and financing.

The Project shall implement the City of Visalia's new development and subdivision requirements related to schools. Pursuant to Government Code Section 66006, school districts must maintain separate capital facilities account for reportable fees, and must make available to the public within 180 days after the last day of each fiscal year a Reportable Fees Report. Pursuant to Government Code Section 66001, school districts must make findings every five years with respect to unexpended funds.

The finalized and most recent Developer Fees Report was made available to the public by the Visalia Unified School District website (Visalia Unified School District, 2022) that includes the School Facility Needs Analysis (SFNA). According to the VUSD Website (Visalia Unified School District, 2022), residential school fees established for developers within the City of Visalia is $4.41 per square foot. The purpose of Developer Fees is for the construction and/or reconstruction of facilities necessary to accommodate the students generated by new residential and commercial development.

According to Government Code Section 65996, the development fees authorized by SB 50 are deemed "full and complete school facilities mitigation." School districts would utilize the General Plan and codes to establish new school sites and make decisions on school amenities and facility size. The development will be subject to school impact fees to mitigate any increased impacts on school facilities. Project impacts will be less than significant.

MITIGATION MEASURE(S)

None are required.

Level of Significance

The Project would have a ***less than significant impact***.

Impact #3.4.15a(iv) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Parks?

Neighborhood and community parks are an important component of the City of Visalia 2030 General Plan, as both recreational and aesthetic resources that contribute to the City's character. The City maintains several types of parks and facilities. Almost all parkland described here is owned by the City or another public body and used for public recreational purposes, though some small parks are maintained by local landscaping and lighting and lighting district.

Visalia classifies parks and public open space into five general categories. Facilities at each park type vary according to size. Park sizes within the City of Visalia include Pocket Park, Linear park, Community Park, Large City Park, and Natural Corridors and Greenways.

As mentioned in previous sections, the Project contains a 3.05-acre linear park. The developer is required to provide acquisition and development costs associated with the annual established fees as indicated in the City's municipal code, which would reduce Project impacts to less than significant.

Mitigation Measure(s)

None are required.

Level of Significance

The Project would have a ***less than significant impact***.

Impact #3.4.15a(v) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Other Public Facilities?

Community facilities are the network of public and private institutions that support the civic and social needs of the population. They offer a variety of recreational, artistic, and educational programs and special events. The City also provides animal control services, refuse pick-up (via an agreement with Tulare County Resource Management Agency and Consolidated Waste Management Authority), and drainage management (City of Visalia, 2014). These services receive funds allocated through the General Fund, usage fees, penalties, or impact fees.

These facilities within the City of Visalia include community centers, civic buildings, libraries, visual and performing arts venues, medical facilities, and other social and community services. The Project is required to implement the City of Visalia's new development and subdivision requirements related to public facilities, which would reduce Project impacts to be less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less–than-Significant Impact	No Impact
3.4.16 - RECREATION				
Would the Project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion

Impact #3.4.16a – Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

See discussion under Impact #3.4.11 (b) and Impact #3.4.15 (a)(iv).

Visalia has a number of parks dispersed throughout City neighborhoods. The Riverway Sports Park is approximately 4 miles northeast, Plaza Park is approximately 2 miles southwest, West Main Park is 2.5 miles southeast, and Constitution Park is less than 2 miles southeast of the Project site.

The Project is proposing the development of a park that will be available for the community/public. The City's General Plan defines an overall parkland standard of 7.6 acres per 1,000 residents; however, this total consists of separate standards for city parks, school sites, and private open space. The City has a ratio of five acres of parkland per 1,000 residents. (City of Visalia, 2014).

The Project to develop 241 single-family residences will increase the use of existing neighborhood and regional parks. However, the Project also includes development of a 3.051 acres of linear park along the north boundary of the site, which would decrease existing recreational facility impacts to less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.16b – Would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See discussion under Impact #3.4.11 (b) Impact #3.4.15 (a)(iv) and Impact #3.4.16a. The Project's linear park would include green space and playground equipment for children. The Project would not cause the construction or expansion of any existing recreational facilities elsewhere off-site. Impacts would be considered as less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.17 - Transportation and Traffic

Would the Project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☒	☐	☐
b.	Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?	☐	☐	☒	☐
c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d.	Result in inadequate emergency access?	☐	☐	☒	☐

The impact analyses in this section based on a a revised *Traffic Impact Study* (VRPA Technologies, Inc., 2022b), which is attached as Appendix F.

Discussion

Impact #3.4.17a – Would the Project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Transit Services

Visalia Transit (VT) is the transit operator in the City of Visalia. The closest is VT Route 10 and Route 11, which runs on W. Noble Avenue (or Highway 198), located approximately 0.7 miles south of the Project site. VT operates several fixed routes that serve city residents with some routes serving the outlying cities and communities. VT operates fixed route service 7 days a week with operational hours Monday through Friday between 6:00 a.m. and 9:30 p.m., 9:00 a.m. and 6:30 p.m. on Saturdays, and between 8:00 a.m. and 6:30 p.m. on Sundays. Visalia has additional transit services that interconnect to other regional locations that could be reached from Route 10 and Route 11.

The Project is not expected to disrupt or impede existing transit facilities and therefore has a less than significant impact.

Bicycle and Pedestrian Facilities

The City's General Plan Update identifies bicycling and walking as inexpensive, energy-conserving, healthful, and non-polluting modes of transportation. Visalia's flat topography and dry, moderate climate make choosing to walk or bicycle an attractive transportation option during much of the year. The City of Visalia Bikeway Plan was adopted in February 2011 and is intended to guide bikeway policies, programs and facility improvements to improve safety, comfort and convenience for all bicyclists in the City of Visalia.

Currently, no bike lanes exist in the vicinity of the proposed Project site along Road 88 (future collector). However, the City of Visalia Bikeway Plan has identified portions of Road 88 adjacent to the Project site as developed for Greenway street plans, and General Plan Policy T-P-45 requires that collector streets include a bike lane. In addition, North Shirk Street is identified as a Class II Future Bike Lane according to the City's General Plan. At the time of development, the City will review the Project to identify whether or not a bike lane would be required to be constructed along the Project's frontage of North Shirk Street.

The Project is not expected to disrupt or impede existing or planned bicycle facilities with implementation of the City's requirements, and therefore has a less than significant impact.

Pedestrian

Currently, walkways do not exist in the vicinity of the proposed Project site along Road 88 (future collector) on the west side of the Project boundary. The Project proponent will be responsible for implementing all applicable requirements for updating sidewalks and other related infrastructure as directed by the City of Visalia. As stated above under Bicycle and Pedestrian Facilities, implementation of the City's Bikeway Plan will be required as identified along Road 88 and as reflected in the General Plan for North Shirk Street.

Roadway

Access to and from the Project site will be from Shirk Street, located on the east side of the Project boundary, and from Road 88, located on the west side of the Project boundary. The City General Plan Update indicates that Shirk Street adjacent to the Project is considered a Deferred Arterial that will eventually connect with a proposed upgraded interchange south of the Project on SR 198. The General Plan established LOS "D" as the minimum acceptable LOS standard on city roadways. 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" in rural areas and the LOS "D/E" in urban areas, additional traffic may have a significant impact.

The following intersections were analyzed for this Project:

- Shirk Street / SR 198 EB Ramps
- Shirk Street / SR 198 WB Ramps
- Shirk Street / Hillsdale Avenue

- Shirk Street / School Avenue
- Shirk Street / Hurley Avenue
- Shirk Street / Allen Avenue (New Road)
- Shirk Street / Goshen Avenue
- Road 88 / Project Access
- Road 88 / Goshen Avenue

The Project trip generation and design hour volumes shown in Table 3.4.17-1 were estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

Table 3.4.17-1
Project Estimated Trips

									Peak Hour Trips			
Land Use	Units	ITE Land Use Code	Daily Trip Rate	Daily Trips	% AM Peak	% AM Inbound	% PM Peak	% PM Inbound	AM In	AM Out	PM In	PM Out
Single Family Housing	241	210	9.407	2,267	7.3%	26%	10.0%	63%	43	123	143	84
			Total	2,267				Total	43	123	143	84
									166		227	

Source: (VRPA Technologies, Inc., 2022b) Generation factors from ITE Trip Generation Manual, 11th Edition

The City adopted a threshold of LOS D for street segments and intersections. Table 3.4.17-2 illustrates the intersections within the scope of the study and indicates the anticipated Level of Service (LOS) prior to and with the addition of Project traffic. In addition to the analysis of the Project, there are several other development projects within the Project's vicinity that will add additional trips to the study intersections and segments.

Table 3.4.17-2
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	All-Way Stop Sign	-- [1]	AM	20.1	C	24.1	C	25.6	D	32.8	D	42.6	E	52.5	F	98.6	F	116.0	F
			PM	26.2	D	34.8	D	27.7	D	49.1	E	57.7	F	62.7	F	130.3	F	148.3	F
2. Shirk Street / SR 198 WB Ramps	All-Way Stop Sign	-- [1]	AM	64.7	F	95.1	F	96.3	F	127.0	F	138.4	F	169.9	F	239.8	F	275.0	F
			PM	83.0	F	117.4	F	115.4	F	156.7	F	173.6	F	218.4	F	309.5	F	354.3	F
3. Shirk Street / Hills dale Avenue	One-Way Stop Sign	D	AM	92.4	F+	140.4	F+	157.9	F+	242.4	F+								
			PM	54.6	F+	79.0	F+	77.6	F+	121.9	F+								
4. Shirk Street / School Avenue	One-Way Stop Sign	D	AM	43.1	E+	54.3	F+	56.4	F+	74.5	F+								
			PM	34.8	D	44.6	E+	42.9	E+	56.4	F+								
5. Shirk Street / Hurley Avenue	Signalized	D	AM	18.7	B	19.7	B	21.3	C	22.4	C								
			PM	10.0	B	11.3	B	10.7	B	12.1	B								
6. Shirk Street / Allen Avenue	One-Way Stop Sign	D	AM			16.6	C			18.1	C								
			PM			16.5	C			18.0	C								
7. Shirk Street / Goshen Avenue	Signalized	D	AM	40.0	D	41.1	D	44.3	D	46.6	D								
			PM	34.4	C	41.9	D	38.0	D	49.0	D								

8. Road 88 / Project Access	One-Way Stop Sign	D	AM			8.5	A			8.5	A								
			PM			8.5	A			8.5	A								
9. Road 88 / Goshen Avenue	One-Way Stop Sign	D	AM	17.8	C	17.8	C	19.1	C	19.3	C								
			PM	17.9	C	17.9	C	19.6	C	20.1	C								

DELAY is measured in seconds. LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded For s ignalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements . Instead, the focus is on providing adequate facilities for pedes trians, bicycles, and transit as well as safety considerations for al l transportation modes . Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and O ntergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was us ed in determining the need for roadway improvements on Caltrans facilities.

+ Does not meet peak hour signal warrants. Provided for informational purposes only.

As shown above, three of the study intersections (Shirk Street at SR 198 EB Ramps / Shirk Street at SR 198 WB Ramps / Shirk Street at Hillsdale Avenue / Shirk Street at School Avenue) were found to exceed the City LOS threshold at the opening year and beyond.

The Project will generate approximately 2,267 ADT and will cause, in addition to other nearby developments, significant LOS impacts relating to the generation of unacceptable LOS at three intersections. Mitigation will be required to alleviate the LOS impacts caused by the Project and other proposed development in the area.

Pro-Rate Fair Share of Future Transportation Improvements

Based on the results of the capacity analysis and mitigation analysis, improvments are recommended on the Shirk Avenue intersections with the SR 198 Eastbound ramps and Shirk Avenue and Sr 198 Westbound ramps. Traffic signals as well as additional lanes are expected to be needed. Implementation of this level of improvements is beyond the scale of the proposed project and is recommended to be done by others. It is recomened that the Project contribute to the City of Visalia's traffic impact fee program. Contribution of fees to this program will directly or indirectly contribute to the improvements described below as well as general roadway improvements on the City of Visalia.

Table 3.4.17-3
20-Year Horizon Equitable Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	20-YEAR HORIZON PLUS PROJECT	FAIR SHARE PERCENTAGE
Shirk Street / SR 198 EB Ramps	AM	1,136	77	2,037	8.5%
	PM	1,275	79	2,230	8.3%
Shirk Street / SR 198 WB Ramps	AM	1,519	122	2,773	9.7%
	PM	1,446	164	2,677	13.3%
Shirk Street / Hillsdale Avenue [1]	AM	1,362	122	1,871	24.0%
	PM	1,349	164	1,872	31.4%
Shirk Street / School Avenue [1]	AM	1,304	122	1,765	26.5%
	PM	1,277	164	1,738	35.6%

1 - Provided for inormational purposes only and based on 5-Year Horizon

The proposed Project will impact the existing transportation systems and will have an impact on the existing plans, ordinances, or policies related to the effectiveness or performance of the circulation system. Mitigation Measure MM TRA-1 requires the Project developer to pay their impact fees based on the cost to signalize three intersections and citywide improvments. With the implementation of the MM TRA-1, impacts will be less than significant.

MITIGATION MEASURE(S)

TRA-1: Prior to the issuance of building permits, the developer shall pay its pro-rata share for of the following intersections improvements:

a. Shirk Street at SR 198 EB Ramps:

   5-Year With Project and 10-Year With and Without Project Horizon scenarios:

   - Installation of traffic signal

   20-Year With and Without Project Horizon scenarios:
   - Install traffic signal
   - Widen the eastbound approach to 1 left turn lane, 1 left-through lane, and 1 right turn lane (adding 1 left turn lane)

b. Shirk Street at SR 198 WB Ramps

   Opening Year With and Without Project, 5-Year With and Without Project, and 10-Year Without Project Horizon scenarios:

   - Installation of traffic signal

10-Year With Project and 20-Year With and Without Project Horizon scenarios:

- Intall traffic signal
- Widen the westbound approach to 1 left-through lane and 2 right turn lanes (adding 1 right turn lane)

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.17b – Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?

Under SB 743, vehicle miles traveled (VMT) is a key measure used for gauging the environmental impacts of projects under CEQA.

VMT Analysis

An assessment of potential VMT impacts associated with the Project was analyzed in the TIS to address changes in CEQA requirements. The VMT analysis compared the Project's expected VMT/capita to regional averages. The Project's VMT impacts will be considered less than significant if the VMT per capita is 16 percent below regional averages (or lower). The Tulare Council of Governments (TCAG) regional travel demand model was used in this calculation. The results are as follows:

- Project VMT/capita: 8.07
- Regional VMT/capita: 11.7

As discussed in Section 3.0 Impacts of the TIS, the potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections in the long term. Therefore, the Project's VMT impacts are less than significant.

MITIGATION MEASURE(S)

None are required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.17c – Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project will be designed to meet current standards and safety regulations. All intersections will be constructed to comply with the City and Caltrans regulations, and design and safety standards of Chapter 33 of the California Building Codes (CBC) and the guidelines of Title 24 to create safe and accessible roadways.

Vehicles exiting the subdivision will be provided with a clear view of the roadway without obstructions. Landscaping associated with the entry driveways could impede such views if improperly installed. Specific circulation patterns and roadway designs will incorporate all applicable safety measures to ensure that hazardous design features or inadequate emergency access to the site or other areas surrounding the Project area would not occur.

Therefore, the Project will have a less-than-significant impact with the incorporated design features and all applicable rules and regulations.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.17d – Would the Project result in inadequate emergency access?

See the discussion in Impact #3.4.9f

State and City Fire Codes establish standards by which emergency access may be determined. The proposed Project would have to provide adequate unobstructed space for fire trucks to turn around. The proposed Project site would have adequate internal circulation capacity, including entrance and exit routes to provide adequate unobstructed space for fire trucks and other emergency vehicles to gain access and to turn around. The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. Therefore, the Project would result in a less-than-significant impact associated with emergency access.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less–than-Significant Impact	No Impact
3.4.18 - Tribal Cultural Resources				
Would the Project:				
a. Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

Impact #3.4.18a(i) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Native American Tribal Consultation was completed for the Project in compliance with Assembly Bill 52 (AB 52), the California Environmental Quality Act (CEQA), and the Public

Resources Code. A Sacred Land Files search was requested from the Native American Heritage Commission (NAHC), and a response was received on August 30, 2021. As noted, the NAHC Sacred Lands File, results were negative and did not indicate the presence of any cultural places within the Project area.

As noted in Impact $#3.4.5a-b, *Cultural Resources*, a cultural resources records search was conducted by the Southern San Joaquin Valley Information Center (SSJVIC), *National Register of Historic Places*, *California Points of Historical Interest*, *California Registry of Historic Resources*, *California Historical Landmarks*, and *California State Historic Resources Inventory* for the Project. It was noticed that there were no known cultural resources identified in the area.

Only one cultural resource property has been recorded within a half mile of the proposed project, the historic route of the Southern Pacific/San Joaquin Valley Railroad. The Project will not impact this cultural resource.

Although considered unlikely, since there is no indication of any tribal cultural resources on the Project site, subsurface construction activities associated with the proposed Project could potentially damage or destroy previously undiscovered tribal cultural resources. This is considered a potentially significant impact.

With implementation of mitigation measures CUL-1 and CUL-2, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources and therefore impacts would be considered less than significant.

MITIGATION MEASURE(S)

Implement MM CUL-1 and MM CUL-2

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.18a(ii) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

See discussion in Section 3.4.5, *Cultural Resources* and Impact #3.41.18(i) above.

With implemented mitigation measures CUL-1 and CUL-2, the Project would not cause a substantial adverse changes in the significance of a tribal cultural resource. Therefore, impacts are considered less than significant with mitigation measures incorporated.

Mitigation Measure(s)

Implement CUL-1 and CUL-2

Level of Significance

The Project would have a ***less than significant impact with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.19 - *Utilities and Service Systems*				
Would the Project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

Impact #3.4.19a – Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?

The Project proposes to construct new wet and dry utility infrastructure to connect to the existing City and private service provider infrastructure. Services that will be installed during the construction of the Project include water, wastewater, storm drain drainage connections, natural gas, electric power, and telecommunications facilities. The proper sizing and placement of the utilities will be designed per the City and other utility development design standards. All proposed wet infrastructure will be connected to existing infrastructure already located within the City road rights of way.

The General Plan identifies the existing sewer system lines, which indicates that the Project has the ability to expand on existing pipelines adjacent to the Project on the east side of North Shirk Street where there are single-family residences. It is noted that the storm drainage system lines also follow the existing sewer lines identified and are adjacent to the Project on North Shirk Street to the east.

New development has the potential to cause erosion sediment and surface water run-off that will enter the City's storm drainage system. As the City expands, more area is made impervious, and urban runoff increases. In order to minimize these impacts, General Plan policies focus on requiring future development projects to minimize runoff into the City's drainage system and establish development fees from development projects in order to pay for the construction and maintenance of the drainage system.

Southern California Edison provides electric service to Visalia residents. The electrical facilities network includes both overhead and underground lines, with new development required to install underground service lines. Natural gas service is primarily provided by the Southern California Gas Company. There are three major companies that provide communications services in Visalia: AT&T, Sprint, and Verizon. Comcast is the primary cable television and internet provider.

The City of Visalia provides refuse collection for residential customers and many commercial customers, and contracts with Sunset Waste Systems to provide recyclable material processing. The development of single-family residences will be serviced by Sunset Waste Systems.

The proposed Project would be subject to the payment of any applicable connection charges and/or fees and extension of services in a manner that is compliant with the Visalia standards, specifications, and policies. All applicable local, State, and federal requirements and best management practices will be incorporated into the construction and operation of the Project.

As part of the annexation process for the 40 of 50 acres currently located in unincorporated Tulare County, LAFCO will coordinate between urban growth management planning with public and private utilities to determine infrastructure needs, feasibility, timing, and financing. As previously stated, the Project is located within the City's General Plan's Tier 2 area identified for expanding urban development; therefore, the Project will have a less than significant impact with implementation of all required federal, State, and local requirements and standards for general utilities.

Mitigation Measure(s)

None are required.

LEVEL OF SIGNIFICANCE

There would be a ***less than significant impact***.

Impact #3.4.19b – Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?

See Impact #3.4.10b.

The groundwater supply is distributed by the California Water Service Company (Cal Water). Cal Water Visalia District supply wells extract groundwater from the Kaweah Groundwater Subbasin. The Cal Water system includes 75 operational groundwater wells, about one-third of which have auxiliary power for backup. There are 519 miles of main pipelined in the system, ranging from two inches in diameter to 12 inches in diameter. The Cal Water system includes two elevated 300,000-gallon storage tanks, an ion exchange treatment plant, four granular activated carbon filter plants, and one nitrate blending facility. In addition to the system serving the City of Visalia, Cal Water also operates three other small systems in the Visalia area, defined as Oak Ranch (wells with distribution pipeline), Post Mitts (two wells with distribution pipeline), and Fairway (well with distribution pipeline). These systems are within Cal Water's Visalia District system but outside Visalia city limits (City of Visalia, 2014).

The system serves an estimated population of 147,000, which could grow to 226,850 by 2045, according to the adopted 2020 UWMP. Cal Water estimated that it was serving 45,325 residential, commercial, and industrial customers in 202020, with expected growth to 79,818 customers (households and businesses) by 2045. Therefore, impacts are considered to be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.19c – Would the Project result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

The existing Waste Discharge Requirements placed on the City Water Conservation Plant (WCP) limit discharge to an average flow of 20 mgd and require that the ammonia concentration in the discharge be reduced to 0.025 mg/l by 2011. The certified EIR for the WCP analyzed impacts for average flow volumes of 22 mgd and 26 mgd (City of Visalia, 2014).

With the proposed upgrades to the plant processing capabilities and the rerouting of the discharge stream away from Mill Creek, the WCP has sufficient capacity to process the expected flows from land use classifications noted in the proposed General Plan for the near future and would expand its treatment capacity as the need dictates. The projected sanitary sewer flows entering the WCP at the proposed General Plan buildout (25,034,050 gpd in 2030) is expected to be less than the volume previously anticipated for the SWMP (25,949,996 gpd in 2030), meaning further expansions could be delayed. In 2014, the WCP was upgraded to provide the ability to increase capacity to 26 mgd as the demand increases. Additional mandated water conservation measures will likely cause reductions in average daily flows to the WCP. This will also help delay the need for future expansions of the Water Conservation Plant and give the City more flexibility in determining the types of development that are appropriate.

Expansion at the outer rings of the development boundaries will not cause significant impacts to the sewer system since the majority of the area was included in the WCP Solid Waste Master Plan. Thus, the inclusion of the Project's requirement to account for its impacts on the City's wastewater system and development impact fees will reduce the overall impact the Project may cause. The impact will be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.19d – Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

The Tulare County Resource Management Agency manages solid waste disposal in accordance with the Tulare County Integrated Waste Management Plan. The County landfills accumulate approximately 300,000 tons of waste per year, which is equivalent to about five pounds per person per day or one ton per County resident per year. The County operates three disposal sites: the Visalia Disposal Site, northwest of Visalia; the Woodville Disposal Site, southeast of Tulare; and the Teapot Dome Disposal Site, southwest of Porterville (City of Visalia, 2014). The City operates its own solid waste disposal fleet.

The California Department of Resources Recycling and Recovery's Solid Waste Information System (SWIS) manages information regarding the operations and disposal of all solid waste sites throughout California. According to the SWIS database, the Teapot and Visalia Landfills are operationally active. However, the Woodville landfill is operationally inactive (California Department of Resources Recycling and Recovery, 2022). The City will require the appropriate solid waste receptacles (compliance with the California Solid Waste Reuse and Recycling Access Act of 1991) to be provided to the Project. In addition, the Project will be required to pay solid waste development impact fees, thus reducing the perceived impact the Project may generate. The impact will be less than significant.

The Project does not and would not conflict with federal, State, or local regulations related to solid waste. The proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs in compliance with federal, State, and local statutes and regulations related to solid waste.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.19e – Would the Project comply with federal, state, and local statutes and regulations related to solid waste?

See Impact #3.4.19d, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.20 - Wildfire				
Would the Project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Discussion

Impact #3.4.20a – Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

Access for emergency vehicles to the site would be maintained throughout the construction period. The Project would not interfere with any local or regional emergency response or evacuation plans and would not result in a substantial alteration to the adjacent and area circulation system. The City has established emergency response and evacuation plans based on the Tulare Emergency Operations Plan. Impacts related to fire hazards and emergency response plans would be less than significant.

Mitigation Measure(s)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.20b – Would the Project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The potential for fire hazard is largely dependent on the extent and type of vegetation, known as surface fuels, that exists within the region. Fire hazards probability is typically highest in undeveloped, heavily wooded areas, as trees are a greater source of fuel rather than low-lying brush or grassland (City of Visalia, 2014).

The City General Plan indicates that a few very small portions of the City are classified by the California Department of Forestry and Fire Protection (CDF) as having moderate fire hazards. In general, the threat of wildland fires in Visalia is minimal because of the area's flat topography and the relative absence of forests, grassland, and brush. In addition, the CDF designates the Project site as non-wildland/non-urban and adjacent to the urban unzoned area.

In addition, the City requires that any construction comply with the Uniform Fire Code provisions and is subject to review and approval by the City's Fire Department. Therefore, the impacts related to the Project are considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.20c – Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

See discussion in Impact #3.4.20a-b.

The Project proposes to construct 241 single-family residences and includes the development of infrastructure (water, sewer, electrical power lines, and storm drainage) required to support the proposed residential uses. The Project site is surrounded by existing and future urban development.

The Project would require installing or maintaining additional electrical distribution lines and natural gas lines to connect the residences to the existing utility grid. However, the Project would be constructed in accordance with all local, State, and federal regulations regarding power lines and other related infrastructure, as well as fire suppression requirements. The design of all proposed utilities will be subject to the review and approval of the City. This will ensure the viability of the utility infrastructure's ability for fire protection and suppression activities. Therefore, impacts for the Project would be considered as less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

Impact #3.4.20d – Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The topography of the site and surrounding area is relatively flat with little topographic variation and no water features are present within the vicinity of the Project area, noting that the Mill Creek Ditch runs south of the property and is used for agricultural purposes not related to the Project. The surrounding area is predominantly developed with agricultural, residential, and industrial uses. Therefore, there is minimal risk of landslides.

The Project area is located in both a 1% Annual Change of Flood Hazard Zone and 0.2% Annual Chance of Flood Hazard Zone as determined by the Federal Emergency Management Agency (FEMA) Flood Maps and is further surrounded by properties that are identified as an Area of Minimal Flood Hazard. As the Project is a relatively flat area and is not located near a water feature, impacts would be considered as less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE				
a. Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)	☐	☒	☐	☐
c. Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

Impact #3.4.21a – Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

The Project may have the potential to impact biological and cultural resources as identified in this initial study; however, with implementation of the below mitigation measures, BIO-1 through BIO-8, CUL-1 and CUL-2, the Project impacts would be reduced to less than significant.

Mitigation Measure(s)

Implement mitigation measures BIO 1 through BIO-8, CUL 1 and CUL-2.

Level of Significance

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.21b - Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)?

The Project may have cumulatively considerable impacts related to biological resources, cultural resources, geological resources, noise, and traffic, as identified in this initial study; however, with implementation of Mitigation Measures BIO-1 through BIO-7, CUL-1, CUL-2, GEO-1, GEO-2, NSE-1, NSE-2 and TRA-1, the Project impacts would be reduced to less than significant.

Mitigation Measure(s)

Implement mitigation measures BIO-1 through BIO-7, CUL-1, CUL-2, GEO-1, GEO-2, NSE-1, NSE-2 and TRA-1.

Level of Significance

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.21c - Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

The Project may have the potential to adversely impact human beings related to biological resources, cultural resources, geological resources, noise, and traffic; however, with implementation of the below Mitigation measures BIO-1 through BIO-7, CUL-1, CUL-2, GEO-1, GEO-2, NSE-1, and TRA-1 the Project impacts would be reduced to less than significant.

Mitigation Measure(s)

Implement mitigation measures BIO-1 through BIO-7, CUL-1, CUL-2, GEO-1, GEO-2, NSE-1, TRA-1.

Level of Significance

The Project would have a ***less than significant impact with mitigation incorporated***.

SECTION 4 - LIST OF PREPARERS

4.1 - Lead Agency

- City of Visalia

4.2 - QK Inc.

- Jaymie Brauer – Project Manager
- Kristin Pittack – Lead Author

SECTION 5 - BIBLIOGRAPHY

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APPENDIX A
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
BIO-1: Within 14 days prior to the start of Project ground-disturbing activities, a pre-activity survey with a 500-foot buffer, where land access is permitted, shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the California Department of Fish and Wildlife (CDFW). If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below shall be established. No work shall occur within these buffers unless the biologist approves and monitors the activity. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance. Burrowing Owl (active burrows) • Non-breeding season: September 1 – January 31 – 160 feet • Breeding season: February 1 – August 31 – 250 feet American Badger/SJKF • Potential or Atypical den – 50 feet • Known den – 100 feet • Natal Den –Contact CDFW for consultation	Within 14 days prior to the start of Project ground-disturbance activities	Contractor/Lead Agency		
BIO-2: A qualified biologist shall remain on-call throughout the construction phase if a burrowing owl,	Throughout Project ground-	Contractor		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
American badger, or San Joaquin kit fox occurs on the site during construction. If one of these species occurs on-site, the biologist shall be contacted immediately to determine whether biological monitoring or the implementation of avoidance buffers may be warranted.	disturbance activities			
BIO-3: The following avoidance and minimization measures shall be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the U.S. Fish and Wildlife Service (USFWS) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*. a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project Site. b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the Project Site.	Throughout Project ground-disturbance activities	Contractor		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project Site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted, and USFWS and California Department of Fish and Wildlife (CDFW) shall be consulted. d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped. e. No pets, such as dogs or cats, shall be permitted on the Project Sites to prevent harassment, mortality of kit foxes, or destruction of dens. f. Use of anti-coagulant rodenticides and herbicides in Project Sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe labels and other restrictions				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes. g. A representative shall be appointed by the Project proponent, who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program, and their name and telephone number shall be provided to the USFWS. h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to an SJKF during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov. i. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below. j. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
k. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.				
BIO-4: If Project construction activities occur during the Swainson's hawk nesting season (February 15 to August 31), pre-construction activity surveys shall be conducted over the Project area and within 0.5-mile for Swainson's hawk nests in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*, Swainson's Hawk Technical Advisory Committee. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.	14 days prior to any Project ground-disturbance activities occurring during nesting season (February 1 to September 15)	Contractor/Lead Agency		
BIO-5: If an active Swainson's hawk nest is discovered at any time within 0.5-mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to the construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed and the level of nest monitoring required. Construction activities shall	Throughout Project ground-disturbance activities	Contractor		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
not occur within 500 feet of an active nest but depending upon conditions at the site, this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist shall have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.				
BIO-6: If Project construction activities are initiated during the nesting season (February 1 to September 15), a pre-activity nesting bird survey shall be conducted within 14 days prior to the start of construction. The surveys shall encompass the Project footprint and accessible areas or land visible from accessible areas within a 250-foot buffer for songbirds and a 500-foot buffer for raptors. If no active nests are found, no further action is required. However, existing nests may become active, and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place until the biologist	14 days prior to any Project ground-disturbance activities occurring during nesting season (February 1 to September 15)	Contractor/Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
has determined that the young are no longer reliant on the adults or the nest, or if breeding attempts have otherwise been unsuccessful. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist shall have the ability to stop construction if nesting adults show any sign of distress. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.				
BIO-7: Within 14 days prior to the start of ground disturbance activities, a pre-activity survey shall be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species with the potential to occur in the vicinity of the Project. All suitable burrows that could support special-status kangaroo rats, Tulare grasshopper mouse, or other special-status wildlife species shall be avoided during construction in accordance with BIO-5 and BIO-6 unless verification surveys have indicated that the species are not present. Consultation with the USFWS and CDFW may be required if listed or fully protected species are detected during the survey. A copy of the preconstruction survey report shall be submitted to the lead agency as evidence of compliance.	Within 14 days prior to the start of Project ground-disturbance activities	Contractor/Lead Agency		
BIO-8: Prior to the initiation of construction activities, all construction personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel	Prior to any Project ground-disturbance activities	Contractor/Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
associated with the construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training program prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. It shall include the components described below: a. Information on the life history and identification of special-status species that may occur or that may be affected by Project activities. The program shall also discuss the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
outlined in the California Environmental Quality Act mitigation measures and agency permit requirements. b. An acknowledgment form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site. A copy of the acknowledgment form shall be submitted to the lead agency as evidence of compliance. c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program, and signed acknowledgment forms, shall be submitted to the City of Tulare Planning Department. d. A copy of the training transcript, training video, or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary. e. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have				

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker. The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and coordination with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.				
CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data	Throughout Project ground-disturbance activities	Contractor		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource.				
CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of a discovery of human remains, at the direction of the county coroner.	Throughout Project ground-disturbance activities	Contractor		
MM GEO-1: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (1) the approved Storm Water Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts.	Prior to issuance of grading or building permits and initial ground disturbance activities	Contractor/Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
Recommended best management practices for the construction phase may include the following: • Stockpiling and disposing of demolition debris, concrete, and soil properly. • Protecting existing storm drain inlets and stabilizing disturbed areas. • Implementing erosion controls. • Properly managing construction materials. • Managing waste, aggressively controlling litter, and implementing sediment controls. Evidence of the approved SWPPP shall be submitted to the Lead Agency.				
MM GEO-2: Prior to any ground-disturbing activities, the Project owner shall develop and implement a Paleontological Worker Education and Awareness Program. If paleontological resources are discovered during ground-disturbing activities (e.g., during Project construction or decommissioning), all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until a qualified professional paleontologist (meeting the standards of the Society of Vertebrate Paleontology [SVP]) can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the	Prior to issuance of grading or building permits and during construction activities	Contractor/Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
nature of the find, site geology, and the activities occurring on the site. If treatment and salvage are required, recommendations will be consistent with the Society of Vertebrate Paleontology standards that are current as of the discovery and with currently accepted scientific practice.				
NSE-1: The Project developer or contractor shall continuously comply with the following measures throughout construction activities: a. Pursuant to Visalia Municipal Code Section 8.36.050(C), the operation of construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment shall not be operated on the project site between the weekday hours of 7:00 p.m. and 6:00 a.m., and between the weekend hours of 7:00 p.m. and 9:00 a.m. b. All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition. c. All mobile or fixed noise-producing equipment used on the project site that is regulated for noise output by a federal, State, or local agency	Throughout Project ground-disturbance activities	Contractor		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
shall comply with such regulations while in the course of project construction activity. d. Electrically powered equipment shall be used instead of pneumatic or internal combustion-powered equipment, where feasible. e. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. f. Project area and site access road speed limits shall be established and enforced during the construction period. g. Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.				
NSE-2: Prior to final map recordation, the Developer shall record a covenant on all lots to disclose noise exposure from the stationary industrial equipment adjacent to the Project site. The covenant will ensure future residential property owners are notified of the potential noise impacts as follows: *"Property owner(s) of lots within the Shepherds Ranch I / Shepherds Ranch II Project are hereby notified that noise levels from adjacent industrial operations may exceed the*	Prior to final map recordation	Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
City of Visalia 2030 General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB Leq/L50 and 45 dB Leq/L50, respectively."				
TRA-1: Prior to the issuance of building permits, the developer shall pay its pro-rata share for of the following intersections improvements: a. Shirk Street at SR 198 EB Ramps: 5-Year With Project and 10-Year With and Without Project Horizon scenarios: • Installation of traffic signal 20-Year With and Without Project Horizon scenarios: • Install traffic signal • Widen the eastbound approach to 1 left turn lane, 1 left-through lane, and 1 right turn lane (adding 1 left turn lane) b. Shirk Street at SR 198 WB Ramps Opening Year With and Without Project, 5-Year With and Without Project, and 10-Year Without Project Horizon scenarios: • Installation of traffic signal	Prior to the issuance of grading or building permits	Contractor/Lead Agency		

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial
10-Year With Project and 20-Year With and Without Project Horizon scenarios: • Intall traffic signal Widen the westbound approach to 1 left-through lane and 2 right turn lanes (adding 1 right turn lane)				

APPENDIX B
AIR QUALITY & GREENHOUSE GAS IMPACT ASSESSMENT

APPENDIX C
BIOLOGICAL ANALYSIS REPORT

APPENDIX D
CULTURAL RESOURCES TECHNICAL MEMORANDUM

APPENDIX E
NOISE STUDY

APPENDIX F
TRAFFIC IMPACT STUDY

Iron Ridge Development

Air Quality & Greenhouse Gas Impact Assessment
October 2021

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Executive Summary

This Air Quality and Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential project-specific or site-specific air quality impacts related to the Iron Ridge Development (Project). The Project site is generally located along Shirk Road (Road 92) between Hurley Avenue and Goshen Avenue, two-thirds of a mile north of State Route (198). Regional access to the site is provided by SR 198. The Project seeks to develop approximately 243 single family dwelling units on roughly 50 acres of land. In the current set-up the project is partially within the City of Visalia and partially within Tulare County. However, the project entails an annexation entitlement to bring the entire project site into the City Jurisdiction.

The City of Visalia is located in the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Visalia is classified as Mediterranean, with moist cool winters and dry warm summers.

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs.

IMPACTS

Short-Term (Construction) Emissions

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust generated by equipment and vehicles. Table E-1 shows the estimated construction emissions that would be generated from the Project. Results of the analysis show that emissions generated from the construction phase of the Project will not exceed the San Joaquin Valley Air Pollution Control District (SJVAPCD) emission thresholds.

Table E-1
Project Construction Emissions

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Construction Emissions	3.10	3.76	4.22	0.01	1.13	0.57	569.46
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

Long-Term Emissions

Long-Term emissions from the Project would be generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment.

1. Localized Mobile Source Emissions – Ozone/Particulate Matter

Operational emissions associated with the Project are shown in Table E-2. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants considering adherence to all applicable SJVAPCD Rules. Compliance with Rule 9510 will reduce Project Operational NOx Emissions by an additional 33.3% and PM10 emissions by 50% according to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015.

Table E-2
Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Opeational Emissions	11.54	2.05	3.25	0.03	2.44	0.70	2885.84
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

2. Toxic Air Contaminants (TAC)

An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Therefore, TAC's from sources in the study area will not significantly impact the Project. In addition, the Project will not generate TAC's that would have a significant impact on the environment or adjacent sensitive receptors.

3. Odors

The Project will not generate odorous emissions given the nature or characteristics of residential developments. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin.

4. Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of the Project may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021. Compliance with Rule 8021 would limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities associated with the Project.

5. Greenhouse Gas Emissions

The California Air Resources Board (CARB), in consultation with Metropolitan Planning Organization (MPOs), has provided each affected region with reduction targets for Greenhouse Gas (GHGs) emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Tulare County Association of Government (TCAG) region, CARB set targets at thirteen (13) percent per capita decrease in 2020 and a sixteen (16) percent per capita decrease in 2035 from a base year of 2005. TCAG's 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) projects that the Tulare County region would achieve the prescribed emissions targets.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- ✓ Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and
- ✓ District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions.
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the

SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table E-3 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is roughly 70% less than the threshold identified by the SCAQMD.

Table E-3
Project Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Project Operational Emissions Per Year	2,905 MT/yr

Source: CalEEMod, VRPA 2021

CEQA ENVIRONMENTAL CHECKLIST

In accordance with the California Environmental Quality Act (CEQA), the effects of the Project were evaluated to determine if they will result in Project-Specific significant adverse impacts on the environment that are peculiar to the Project or its site that differ from those impacts already analyzed and disclosed in the City's General Plan EIR. The criteria used to determine the significance of an impact with respect to air quality and greenhouse gas emissions are summarized below.

1. Air Quality

The criteria used to determine the significance of an air quality impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, air quality impacts resulting from the Project are considered significant if the Project would:

- ✓ Conflict with or obstruct implementation of the applicable air quality plan?

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Visalia General Plan, which was adopted in 2014. The Project would be consistent with the General Plan upon preparation and approval of a general plan amendment in accordance with General Plan Policy LU-P-55, which addresses development of project sites that are located within the Urban Boundary and are currently zoned Low density Residential. Therefore, the Project would be consistent with the population growth and VMT applied in the plan and the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

- ✓ Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Tulare County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above in Section 3.2 and 3.3, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

- ✓ Expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a Type B project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TACs from the Project is to perform a screening level analysis. For Type B projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TACs are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses considering CARB's Pollution Mapping Tool shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Table 4 indicates that new sensitive land uses should not be sited within <u>500 feet</u> of a freeway/urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The Project is located more than 3,000 feet from the SR 198 freeway. In addition, the Project is not located within the specified boundary for the source category identified in Table 4. Therefore, TAC's from sources in the study area will not significantly impact the Project. In addition, the Project will not generate TAC's that would have a significant impact on the environment or adjacent sensitive receptors. Therefore, no mitigation is needed.

<u>Short-Term Impacts</u>

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table E-1. Therefore, construction emissions associated with the Project are considered less than significant.

<u>Long-Term Impacts</u>

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table E-2 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

- ✓ Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

The Project will not generate odorous emissions given the nature or characteristics of residential developments. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. As shown in Table 5, Chemical Manufacturing facilities are known to generate odorous emissions and include a screening distance of one (1) mile. There is a Hydrite Chemical Company facility (SJVAPCD Facility ID 8199) located a third of a mile to the north of the Project site which falls within the 1-mile screening distance set by the SJVAPCD. It should be noted that the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule.

While the Hydrite Chemical facility is located within the 1-mile screening distance as depicted in Table 5, it should be noted that there are other residential and school land uses in the vicinity of the Project that also fall within the 1-mile boundary. In addition, prevailing wind patterns in the area indicate that wind blows primarily from the northwest and southwest depending upon the time of year (see appendices). As a result, potential odors from the Hydrite Chemical facility would have minimal impact on the Project given the location of the facility with respect to the Project. Lastly, the lack of odor complaints logged for the Hydrite Chemical facility for the previous three (3) years indicate that odorous emissions from the facility would have a significant impact on the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

2. *Greenhouse Gas Emissions*

The criteria used to determine the significance of a greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, greenhouse gas impacts resulting from the Project are considered significant if the Project would:

- ✓ Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;

ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table E-3 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is roughly 70% less than the threshold identified by the SCAQMD.

The resulting permanent greenhouse gas increases related to Project operations would be within the greenhouse gas increases analyzed in the General Plan EIR, so there would be no increase in severity to the previously-identified greenhouse gas impacts, and implementation of the Project will not result in Project-specific or site-specific significant adverse impacts from greenhouse gas emissions within the Project study area. Therefore, no mitigation measures are needed.

✓ Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the TCAG region, CARB set targets at thirteen (13) percent per capita decrease in 2020 and a sixteen (16) percent per capita decrease in 2035 from a base year of 2005.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is the City of Visalia General Plan, which was adopted in 2014.

The Project would be consistent with the City of Visalia General Plan upon preparation and approval of a general plan amendment in accordance with General Plan Policy LU-P-55 and the adopted 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project (Table E-3) are less than the threshold identified by the SCAQMD (see the discussion above).

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.
    - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that would access the residential development. The Project would not conflict or obstruct this reduction measure.
- Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.
    - The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.
- Low Carbon Fuel – Development and adoption of the low carbon fuel standard.

- The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the residential development. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project furthers the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

1.0 Introduction

1.1 Description of the Region/Project

This Air Quality and Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential project-specific or site-specific air quality impacts related to the Iron Ridge Development (Project). The Project site is generally located along Shirk Road (Road 92) between Hurley Avenue and Goshen Avenue, two-thirds of a mile north of State Route (198). Regional access to the site is provided by SR 198. In the current set-up the project is partially within the City of Visalia and partially within Tulare County. However, the project entails an annexation entitlement to bring the entire project site into the City Jurisdiction. The Project seeks to develop approximately 243 single family dwelling units on roughly 50 acres of land. Figure 1 shows the site's regional context while Figure 2 shows the Project location within the City of Visalia.

The City of Visalia is located in the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Visalia is classified as Mediterranean, with moist cool winters and dry warm summers.

1.2 Regulatory

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the City of Visalia are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

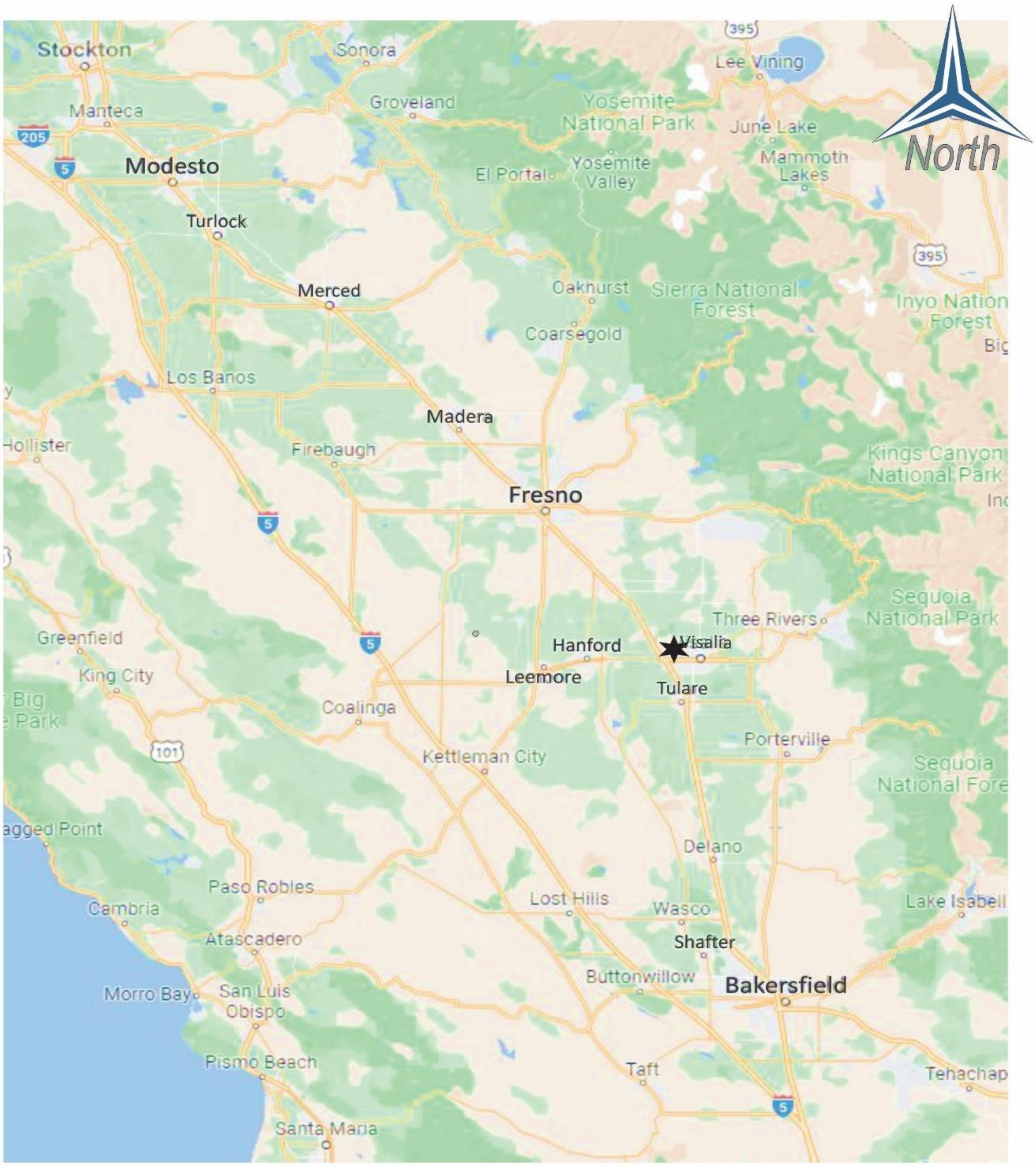
- ✓ **U.S. Environmental Protection Agency (EPA)**

  The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other Clean Air Act (CAA) Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

  The CAA and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

Iron Ridge Development
Regional Location

Figure 1



LEGEND

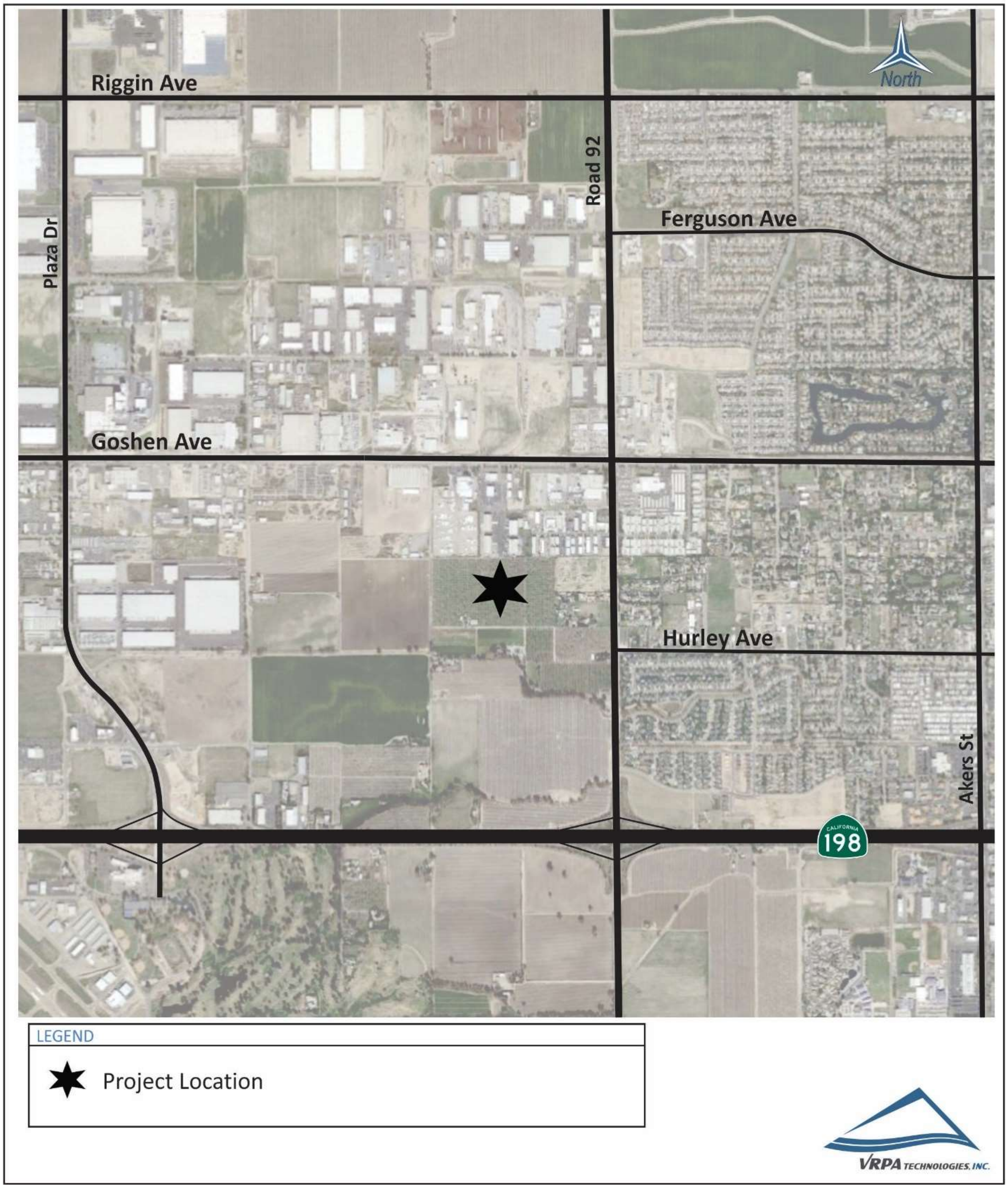
★ Project Location

0 20 40 60 miles

Scale

Iron Ridge Development
Project Location

Figure 2



CAA Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR 93 Subpart A) require that each new RTP and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the Metropolitan planning organization (MPO) or accepted by the U.S. Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). However, because the State Implementation Plan (SIP) for particulate matter 10 microns or less in diameter (PM10), particulate matter 2.5 microns or less in diameter (PM2.5), and Ozone address attainment of both the State and federal standards, for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the State standards. Compliance with the State air quality standards is provided on the pages following this federal conformity discussion.

The EPA approved San Joaquin Valley reclassification of the ozone (8-hour) designation to extreme nonattainment in the Federal Register on May 5, 2010, even though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard. In accordance with the CAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. In the Federal Register on October 26, 2015, the EPA revised the primary and secondary standard to 0.070 parts per million (ppm) to provide increased public health protection against health effects associated with long- and short-term exposures.

1.2.2 *Federal Regulations*

✓ **State Implementation Plan (SIP)/ Air Quality Management Plans (AQMPs)**

To ensure compliance with the NAAQS, EPA requires states to adopt SIP aimed at improving air quality in areas of nonattainment or a Maintenance Plan aimed at maintaining air quality in areas that have attained a given standard. New and previously submitted plans, programs, district rules, state regulations, and federal controls are included in the SIPs. Amendments made in 1990 to the federal CAA established deadlines for attainment based on an area's current air pollution levels. States must enact additional regulatory programs for nonattainment's areas in order to adhere with the CAA Section 172. In California, the SIPs must adhere to both the NAAQS and the California Ambient Air Quality Standards (CAAQS).

To ensure that State and Federal air quality regulations are being met, Air Quality Management Plans (AQMPs) are required. AQMPs present scientific information and use analytical tools to identify a pathway towards attainment of NAAQS and CAAQS. The San Joaquin Valley Air Pollution Control District (SJVAPCD) develops the AQMPs for the region where the Tulare County Association of Governments (TCAG) operates. The regional air districts begin the SIP process by submitting their AQMPs to the California Air Resources Board (CARB). CARB is responsible for revising the SIP and submitting it to EPA for approval. EPA then acts on the SIP in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations Title 40, Chapter 1, Part 52, Subpart 7, Section

52.220.

- **Transportation Control Measures**

One particular aspect of the SIP development process is the assessment of available transportation control measures (TCMs) as a part of making progress towards clean air goals. TCMs are defined in Section 108(f)(1) of the CAA and are strategies designed to reduce vehicle miles traveled, vehicle idling, and associated air pollution. These goals are generally achieved by developing attractive and convenient alternatives to single-occupant vehicle use. Examples of TCMs include ridesharing programs, transportation infrastructure improvements such as adding bicycle and carpool lanes, and expansion of public transit.

- **Energy Policy Act of 1992 (EPAct)**

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of alternative fueled vehicles (AFVs). States are also required by the act to consider a variety of incentive programs to help promote AFVs.

1.2.3 *State Agencies*

- **California Air Resources Board (CARB)**

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by CARB.

States may establish their own standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires CARB to "identify" and "classify" each air basin in the State on a pollutant-by-pollutant basis. Subsequently, CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the State were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

Other CARB duties include monitoring air quality. CARB has established and maintains, in conjunction with local APCDs and AQMDs, a network of sampling stations (called the State and Local Air Monitoring [SLAMS] network), which monitor the present pollutant levels in the ambient air.

Tulare County is in the CARB-designated, SJVAB. A map of the SJVAB is provided in Figure 3. In addition to Tulare County, the SJVAB includes Fresno, Kern, Kings, Tulare, Merced, San Joaquin, and Stanislaus Counties. Federal and State standards for criteria pollutants are provided in Table 1.

1.2.4 *State Regulations*

✓ **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARB's motor vehicle standards specify the allowable grams of pollutant per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved.

✓ **California Clean Air Act**

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the Federal CAA. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards. The SJVAPCD is one of 35 AQMDs that have prepared air quality management plans to accomplish a five percent (5%) annual reduction in emissions documenting progress toward the State ambient air quality standards.

Iron Ridge Development
San Joaquin Valley Air Basin

Figure 3

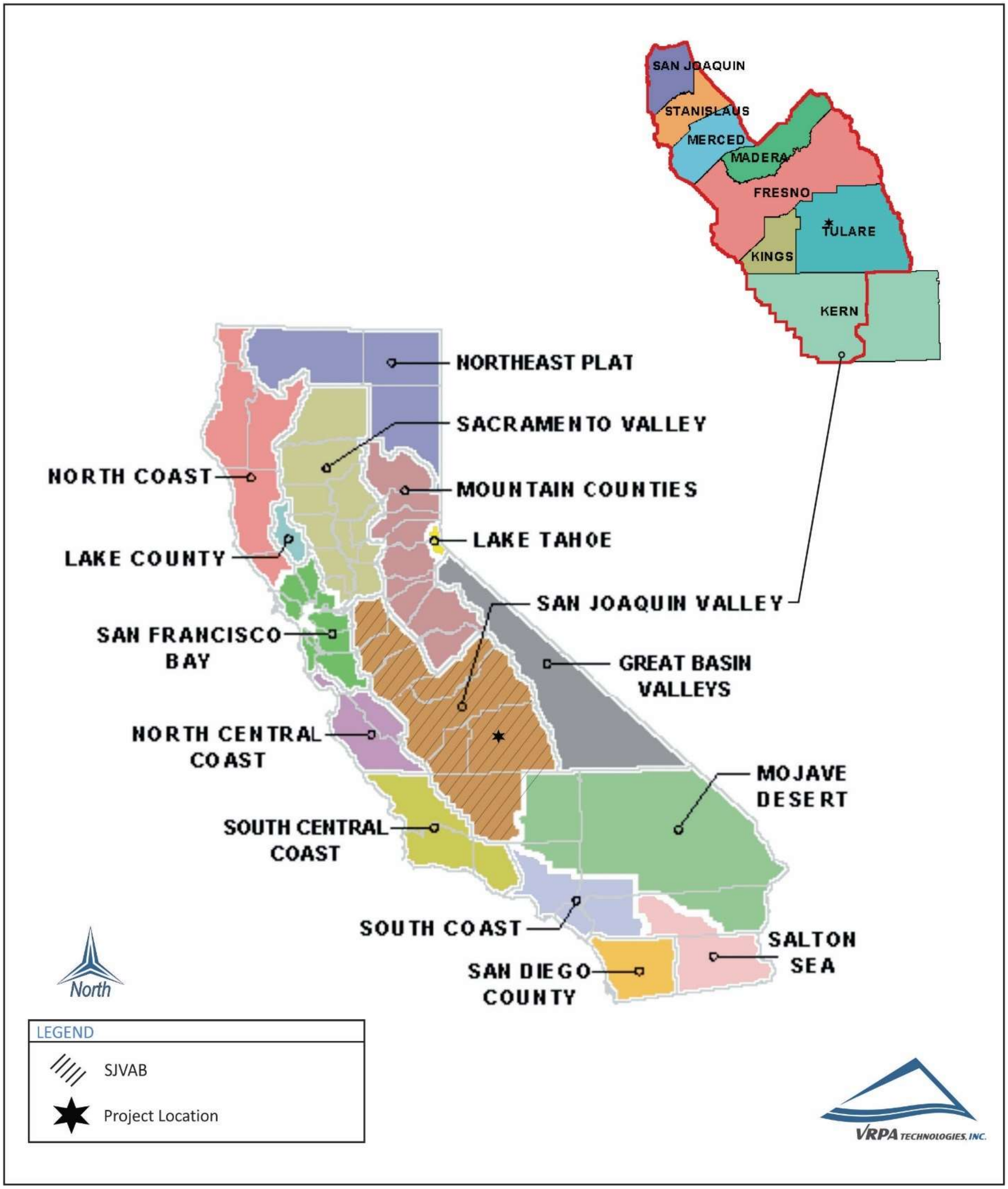


Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1] Concentration [3]	California Standards [1] Method [4]	National Standards [2] Primary [3,5]	National Standards [2] Secondary [3,6]	National Standards [2] Method [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 μg/m³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 μg/m³)		0.070 ppm (137 μg/m³)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 μg/m³	Gravimetric or Beta Attenuation	150 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m³		--		
Fine Particulate Matter (PM2.5) [9]	24 Hour	--	--	35 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m³	Gravimetric or Beta Attenuation	12.0 μg/m³	15 μg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		--	--	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 μg/m³)	Gas Phase Chemiluminescence	100 ppb (188 μg/m³)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)		0.053 ppm (100 μg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 μg/m³)	Ultraviolet Fluorescence	75 ppb (196 μg/m³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 μg/m³)	
	24 Hour	0.04 ppm (105 μg/m³)		0.14 ppm (for cetain areas) [11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for cetain areas) [11]	--	
Lead [12,13]	30 Day Average	1.5 μg/m³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 μg/m³ (for certain areas) [11]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 μg/m³		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 μg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (26 μg/m³)	Gas Chromatography			

See footnotes on next page ...

Footnotes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB, 2021

✓ **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

These rules and standards provide for:

- More stringent emission standards for some new urban bus engines, beginning with 2002 model year engines.
- Zero-emission bus demonstration and purchase requirements applicable to transit agencies
- Reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

✓ **AB 1493 (Pavley)**

AB 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB would apply to 2009 and later model year vehicles. CARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicles by an estimated 18 percent in 2020 and by 27 percent in 2030 [Association of Environmental Professionals (AEP) 2007)]. In 2005, the CARB requested a waiver from U.S. EPA to enforce the regulation, as required under the CAA. Despite the fact that no waiver had ever been denied over a 40-year period, the then Administrator of the EPA sent Governor Schwarzenegger a letter in December 2007, indicating he had denied the waiver. On March 6, 2008, the waiver denial was formally issued in the Federal Register. Governor Schwarzenegger and several other states immediately filed suit against the federal government to reverse that decision. On January 21, 2009, CARB requested that EPA reconsider denial of the waiver. EPA scheduled a re-hearing on March 5, 2009. On June 30, 2009, EPA granted a waiver of CAA preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year.

- ✓ **Assembly Bill 32 (California Global Warming Solutions Act of 2006)**

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. December 31, 2020 is the deadline for achieving the 2020 GHG emissions cap. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions.

CARB’s 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan adopted in December of 2008. The current plan has identified new policies and actions to accomplish the State’s 2030 GHG limit.

- ✓ **Senate Bill 375**

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

- ✓ **Executive Order B-30-15**

Executive Order B-30-15, which was signed by Governor Brown in 2016, establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

- ✓ **California Global Warming Solutions Act of 2006: emissions limit, or SB 32**

SB 32 is a California Senate bill expanding upon AB 32 to reduce greenhouse gas (GHG) emissions. The lead author is Senator Fran Pavley and the principal co-author is Assembly member Eduardo Garcia. SB 32 was signed into law on September 8, 2016, by Governor Brown. SB 32 sets into law the mandated reduction target in GHG emissions as written into Executive Order B-30-15. SB 32 requires that there be a reduction in GHG emissions to 40% below the 1990 levels by 2030. Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. The California Air Resources Board (CARB) is responsible for ensuring that California meets this goal. The provisions of SB 32 were added to Section 38566 of the Health and Safety Code subsequent to the bill's approval. The bill went into effect January 1, 2017. SB 32 builds onto Assembly Bill (AB) 32 written by Senator Fran Pavley and Assembly Speaker Fabian Nunez passed into law on September 27, 2006. AB 32 required California to reduce greenhouse gas emissions to 1990 levels by 2020 and SB 32 continues that timeline to reach the targets set in Executive Order B-30-15. SB 32 provides another intermediate target between the 2020 and 2050 targets set in Executive Order S-3-05.

1.2.5 *Regional Agencies*

- ✓ **San Joaquin Valley Air Pollution Control District**

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Tulare County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the State CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

The SJVAPCD has prepared the following State Implementation Plans to address ozone, PM-10 and PM2.5 that currently apply to the Visalia non-attainment area:

- The 2016 Ozone Plan (2008 standard) was adopted by SJVAPCD on June 16, 2016 and subsequently adopted by ARB on July 21, 2016.
- The 2013 1-Hour Ozone Plan (revoked 1997 standard) was adopted by the SJVAPCD on September 19, 2013. EPA withdrew its approval of the plan due to litigation. The District plans to submit a "redesignation substitute" to EPA to maintain its attainment status for this revoked ozone standard.
- The 2007 PM-10 Maintenance Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective September 30, 2016).
- The 2012 PM2.5 Plan (as revised in 2015) was approved by EPA on August 16, 2016 (effective September 30, 2016).

The SJVAPCD Plans identified above represent SJVAPCD's plan to achieve both state and federal air quality standards. The regulations and incentives contained in these documents must be legally enforceable and permanent. These plans break emissions reductions and compliance into different emissions source categories.

The SJVAPCD also prepared the *Guide for Assessing and Mitigation Air Quality Impacts* (GAMAQI), dated March 19, 2015. The GAMAQI is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

1.2.6 *Regional Regulations*

The SJVAPCD has adopted numerous rules and regulations to implement its air quality plans. Following, are significant rules that will apply to the Project.

✓ **Regulation VIII – Fugitive PM10 Prohibitions**

Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc. The proposed Project will be required to comply with this regulation. Regulation VIII control measures are provided below:

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.*
2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*
5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.*
6. *Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.*
7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

✓ **Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities**

District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed Project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

- ✓ **Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations**

If asphalt paving will be used, then paving operations of the proposed Project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

- ✓ **Rule 9510 – Indirect Source Review (ISR)**

The purpose of this rule is to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans, achieve emission reductions from construction activities, and to provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures. The rule is expected to reduce nitrogen oxides and particulates throughout the San Joaquin Valley by more than 10 tons per day. Rule 9510 requires single-family development projects larger than 50 residential units to reduce smog-forming and particulate emissions generated by their projects. The Project includes the development of approximately 243 single family dwelling units and will be required to comply with this rule.

1.2.7 *Local Plans*

- ✓ **City of Visalia General Plan**

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The City of Visalia General Plan includes various elements, including air quality and greenhouse gases, that address local concerns and provides goals and policies to achieve its development goals.

- ✓ **City of Visalia Climate Action Plan**[1]

The City of Visalia Climate Action Plan (CAP) was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals.

The major long-term objectives of the City of Visalia's CAP for the City government and the community as a whole include the following:

1 City of Visalia Climate Action Plan, December 2013

- Reduce net GHG emissions from both municipal operations and community activities;
- Promote cleaner and healthier air to breathe;
- Help the City and its residents save on energy costs;
- Reduce vulnerability to changes in energy availability and price; and
- Increase public awareness of climate change issues.

The City of Visalia selected the years 2020 and 2030 to establish mitigation targets for the CAP. A reduction of 15% below the 2005 baseline year level is the target for 2020. A reduction of 30% below the 2005 baseline year level is the target for 2030. The City of Visalia established two mitigation milestones to correlate with the planning horizon of the 2030 General Plan Update, and to ensure that the City is working towards the State's goal of an 80% reduction below baseline by 2050.

The City of Visalia has instituted various actions in an effort to meet the year 2020 and 2030 mitigation targets. The measures identified to achieve mitigation targets are organized into five categories: Energy Systems, Transportation, Water and Resource Conservation, Transportation / Land Use, and Waste and Resource Conservation. Included in the Transportation category is a measure regarding the expansion of bicycle paths. The Project includes the development of a linear park and buffer (3.82 acres) along the northern edge of the Project which also includes a trail with exercise stations. In addition, the western and eastern edges of the Project will include a 10-foot landscape easement. These improvements coincide with the goals of the CAP.

2.0 Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin and in Tulare County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

2.1 Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

2.2 Topographic Conditions

Tulare County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

2.3 Climate Conditions

Tulare County is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Tulare County is classified as Mediterranean, with moist cool winters and dry warm summers.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Tulare County experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog, is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

2.4 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 84 percent of all NOx emitted from anthropogenic sources based on data provided in Appendix B of the Air District's 2016 Ozone

Plan. In addition, mobile sources contribute 26 percent of all the ROG emitted from sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Tulare County are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Tulare County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Tulare County consist of agricultural production and processing operations, wine production, and marketing operations.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (22%) and road dust, both paved and unpaved (35%) in 2020 according to emission projections from the CARB. Fugitive windblown dust from "open" fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Tulare County, including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Tulare County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

2.4.1 *Motor Vehicles*

Automobiles, trucks, buses and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.4.2 *Agricultural and Other Miscellaneous Activities*

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Tulare County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities.

2.4.3 *Industrial Plants*

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Tulare County consist of agricultural production and processing operations, wine production, and marketing operations.

2.5 San Joaquin Valley Air Basin Monitoring

SJVAPCD and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. The closest monitoring station to the Project is located at Visalia's N Church Street Monitoring Station. The station monitors particulates, ozone, carbon monoxide, and nitrogen dioxide. Monitoring data for the past three years is summarized in Table 2.

Table 3 identifies the Tulare County's attainment status. As indicated, the SJVAB is nonattainment for Ozone (1 hour and 8 hour) and PM. In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. The FCAA contains provisions for changing the classifications using factors such as clean air progress rates and requests from States to move areas to a higher classification.

On April 16, 2004 EPA issued a final rule classifying the SJVAB as extreme nonattainment for Ozone, effective May 17, 2004 (69 FR 20550). The (federal) 1-hour ozone standard was revoked on June 6, 2005. However, many of the requirements in the 1-hour attainment plan (SIP) continue to apply to the SJVAB. The current ozone plan is the (federal) 8-hour ozone plan adopted in 2007. The SJVAB was reclassified from a "serious" nonattainment area for the 8-hour ozone standard to “extreme” effective June 4, 2010.

Table 2
Maximum Pollutant Levels at Visalia's N Church Street Monitoring Station

Pollutant	Time Averaging	2018 Maximums	2019 Maximums	2020 Maximums	Standards National	Standards State
Ozone (O_3)	1 hour	0.112 ppm	0.093 ppm	0.127 ppm	-	0.09 ppm
Ozone (O_3)	8 hour	0.094 ppm	0.082 ppm	0.102 ppm	0.070 ppm	0.070 ppm
Nitrogen Dioxide (NO_2)	1 hour	69.2 ppb	70.7 ppb	53.4 ppb	100 ppb	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	10.0 ppb	9.0 ppb	9.0 ppb	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24 hour	153.4 $\mu g/m^3$	411.1 $\mu g/m^3$	317.4 μg/m3	150 $\mu g/m^3$	50 $\mu g/m^3$
Particulates (PM_{10})	Federal Annual Arithmetic Mean	52.5 $\mu g/m^3$	45.7 $\mu g/m^3$	59.4 $\mu g/m^3$	-	20 $\mu g/m^3$
Particulates ($PM_{2.5}$)	24 hour	86.8 $\mu g/m^3$	47.2 $\mu g/m^3$	127.1 $\mu g/m^3$	35 $\mu g/m^3$	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	17.3 $\mu g/m^3$	12.9 $\mu g/m^3$	19.6 $\mu g/m^3$	12 $\mu g/m^3$	12 $\mu g/m^3$

Source: California Air Resources Board (ADAM) Air Pollution Summaries, 2021

Table 3
Tulare County Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - 1 Hour	Revoked in 2005	Nonattainment/Severe
Ozone - 8 Hour	Nonattainment/Extreme [a]	No State Standard
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

Source: CARB Website, 2021

a. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Notes:

National Designation Categories

Non-Attainment Area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Unclassified/Attainment Area: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant or meets the national primary or secondary ambient air quality standard for the pollutant.

State Designation Categories

Unclassified: A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a three-year period.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area.

Non-Attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for the pollutant.

2.6 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SJVAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in Tulare County follow.

2.6.1 *Ozone (1-hour and 8-hour)*

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Tulare County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

✓ ***Health Effects***

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

The CARB found ozone standards in Tulare County nonattainment of Federal and State standards.

2.6.2 *Suspended PM (PM10 and PM2.5)*

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The District's 2008 PM2.5 Plan built upon the aggressive emission reduction strategy adopted in the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS for PM2.5. The District's 2012 PM2.5 Plan provides multiple control strategies to reduce emissions of PM2.5 and other pollutants that form PM2.5. The plan's comprehensive control strategy includes regulatory actions, incentive programs, technology advancement, policy and legislative positions, public outreach, participation and communication, and additional strategies.

✓ ***Health Effects***

PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

The CARB found PM10 standards in Tulare County in attainment of Federal standards and nonattainment for State standards. The CARB found PM2.5 standards in Tulare County nonattainment of Federal and State standards.

2.6.3 *Carbon Monoxide (CO)*

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

- ✓ ***Health Effects***

CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

The CARB found CO standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.4 *Nitrogen Dioxide (NO2)*

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates. EPA regulates only nitrogen dioxide (NO2) as a surrogate for this family of compounds because it is the most prevalent form of NOx in the atmosphere that is generated by anthropogenic (human) activities.[2]

- ✓ ***Health Effects***

NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone.

2 United States Environmental Protection Agency (EPA), Nitrogen Oxides (NOx). Why and How They Are Controlled, 456/F-99-006R, November 2019

See the ozone section above for a discussion of the health effects of ozone.

Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

The CARB found NO2 standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.5 *Sulfur Dioxide (SO2)*

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

The CARB found SO2 standards in the Tulare County as unclassified/attainment for Federal standards and attainment for State standards.

2.6.6 *Lead (Pb)*

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

The CARB found Lead standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.7 *Toxic Air Contaminants (TAC)*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. TAC are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TAC are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six "priority" compounds are diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of diesel PM. Table 4 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

Existing air quality concerns within Tulare County and the entire SJVAB are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

TABLE 4
Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads [1]	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

1: The recommendation to avoid siting new sensitive land uses within 500 feet of a freeway was identified in CARB's Air Quality and Land Use Handbook published in 2005. CARB recently published a technical advisory to the Air Quality and Land Use Handbook indicating that new research has demonstrated promising strategies to reduce pollution exposure along transportation corridors.

*Notes:
- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in the ARB Handbook: Air Quality and Land Use Handbook: A Community Health Perspective.

Source: SJVAPCD 2021

2.6.8 *Odors*

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

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

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB. The types of facilities that are known to produce odors are shown in Table 5 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project does not propose any uses that would be potential odor sources; however, the information presented in Table 5 will be used as a screening level analysis to determine if the Project would be impacted by existing odor sources in the study area. Such information is presented for informational purposes, but it is noted that the environment's effect on the Project, including exposure to potential odors, would not be an impact for CEQA purposes.

TABLE 5
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2021

2.6.9 *Naturally Occurring Asbestos (NOA)*

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD’s Rule 8021.

2.6.10 *Greenhouse Gas Emissions*

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are:

- ✓ **Carbon Dioxide (CO_2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- ✓ **Methane (CH_4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- ✓ **Nitrous Oxide (N_2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- ✓ **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

3.0 Air-Quality Impacts

3.1 Methodology

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the Tulare County region. The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that will occur indefinitely as a result of Project operations. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction and operational emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 6.

Table 6
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2021

3.1.1 *CalEEMod*

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

3.2 Short-Term Impacts

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust and exhaust pollutants generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture. Exhaust pollutants are the non-useable gaseous waste products produced during the combustion process. Engine exhaust contains CO, HC, and NOx pollutants which are harmful to the environment.

Adverse effects of construction activities cause increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the Project area and may require frequent washing during the construction period.

PM10 emissions can result from construction activities of the Project. The SJVAPCD has determined that compliance with Regulation VIII and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant for most development projects. Even with implementation of District Regulation VIII and District Rule 9510, large development projects may not be able to reduce project specific construction impacts below District thresholds of significance.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Because the specific mix of construction equipment is not presently known for this Project, construction emissions were estimated using CalEEMod Model defaults for construction equipment.

Table 7 shows the CalEEMod estimated construction emissions that would be generated from construction of the Project. Results of the analysis show that emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds.

Table 7
Project Construction Emissions

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Construction Emissions	3.10	3.76	4.22	0.01	1.13	0.57	569.46
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

3.3 Long-Term Emissions

Long-Term emissions from the Project would be generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment.

3.3.1 *Localized Operational Emissions – Ozone/Particulate Matter*

The Tulare County area is nonattainment for Federal and State air quality standards for ozone, attainment of Federal standards for PM10 and nonattainment for State standards, and nonattainment for Federal and State standards for PM2.5. Nitrogen oxides and reactive organic gases are regulated as ozone precursors. Significance criteria have been established for criteria pollutant emissions as documented in Section 3.1. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix A of this report.

Results of the CalEEMod analysis are shown in Table 8. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants considering adherence to all applicable SJVAPCD Rules. Compliance with Rule 9510 will reduce Project Operational NOx Emissions by an additional 33.3% and PM10 emissions by 50% according to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015.

Table 8
Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Opeational Emissions	11.54	2.05	3.25	0.03	2.44	0.70	2885.84
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

3.3.2 *Localized Operational Emissions*

✓ **Carbon Monoxide**

The SJVAPCD is currently in unclassified/attainment for Federal standards and attainment for State standards for CO. An analysis of localized CO concentrations is typically warranted to ensure that standards are maintained. The City of Visalia Circulation Element of the 2030 General Plan (Appendix B) was used to evaluate level of service conditions in the study area. The Circulation Element evaluated roadway segments along Shirk Road (Road 92) adjacent to the Project. As noted in the Circulation Element, Shirk Road is projected to operate at acceptable levels of service (LOS C) in the future considering planned future roadway improvements[3]. Roadways in the vicinity of the Project will continue to operate at acceptable levels of service with the addition of Project traffic (approx. 2,300 daily trips) [4]. As a result, the overall CO concentrations at roadways and intersections in the study area would be less than significant.

✓ **Toxic Air Contaminants (TAC)**

The SJVAPCD's Guidance Document, Guidance for Assessing and Mitigating Air Quality Impacts – 2015, identifies the need for projects to analyze the potential for adverse air quality impacts to sensitive receptors. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The SJVAPCD's current thresholds of significance for TAC emissions from the operations of both permitted and non-permitted sources are presented below:

- Carcinogens: Maximally Exposed Individual risk equals or exceeds 10 in one million
- Chronic: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual
- Acute: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual

Carcinogenic (cancer) risk is expressed as cancer cases per one million. Noncarcinogenic (acute and chronic) hazard indices (HI) are expressed as a ratio of expected exposure levels to acceptable exposure levels.

These metrics are generally applied to the maximally exposed individual (MEI). There are separate MEIs for residential exposure (i.e., residential areas) and for worker exposure (i.e., off-site workplaces). Residential exposure is for a worst-case exposure duration of 24 hours

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3 Source: TIS Prepared by VRPA Technologies November,2021.
4 Source: ITE Trip generation Manual, 10th Edition

a day, 350 days a year for 70 years. For off-site workplaces, the exposure is 8 hours a day, 245 days a year for 40 years.

Although the effects of the environment, including existing air quality conditions, on the Project are not impacts for CEQA purposes, the following analysis is presented for informational purposes and to demonstrate compliance with SJCAPCD guidance. The first step in evaluating the potential for impacts to sensitive receptors for TACs from the Project is to perform a screening level analysis. For Type B projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TACs are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses considering CARB's Pollution Mapping Tool shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Table 4 indicates that new sensitive land uses should not be sited within 500 feet of a freeway/urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The Project is located more than 3,000 feet from the SR 198 freeway. Therefore, TAC's from sources in the study area will not significantly impact the Project. In addition, the Project will not generate TAC's that would have a significant impact on the environment or adjacent sensitive receptors.

✓ **Odors**

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

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. Because the project is a residential development, it is not expected to generate significant odors.

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of residential developments. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. As shown in Table 5, Chemical Manufacturing facilities are known to generate odorous emissions and include a screening distance of one (1) mile. There is a Hydrite Chemical Company facility (SJVAPCD Facility ID 8199) located a third of a mile to the north of the Project site which falls within the 1-mile screening distance set by the SJVAPCD. It should be noted that the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule.

While the Hydrite Chemical facility is located within the 1-mile screening distance as depicted in Table 5, it should be noted that there are other residential and school land uses in the vicinity of the Project that also fall within the 1-mile boundary. In addition, prevailing wind patterns in the area indicate that wind blows primarily from the northwest and southwest depending upon the time of year (Appendix C). As a result, potential odors from the Hydrite Chemical facility would have minimal impact on the Project given the location of the facility with respect to the Project. Lastly, the lack of odor complaints logged for the Hydrite Chemical facility for the previous three (3) years indicate that odorous emissions from the facility would have a significant impact on the Project.

✓ **Naturally Occurring Asbestos (NOA)**

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of the Project may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021. Compliance with Rule 8021 would limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities associated with the Project.

✓ **Greenhouse Gas Emissions**

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the TCAG region, CARB set targets at thirteen (13) percent per capita decrease in 2020 and a sixteen (16) percent per capita decrease in 2035 from a base year of 2005. TCAG's 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) projects that the Tulare County region would achieve the prescribed emissions targets.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- ✓ Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and
- ✓ District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015)[5]. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold

5 California Public Utilities Commission (CPUC). 2015. Section 4.7, "Greenhouse Gases." Final Environmental Impact Report for the Santa Barbara County Reliability Project. May 2015. Accessed January 18, 2018.

provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is roughly 70% less than the threshold identified by the SCAQMD.

Table 9
Project Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Project Operational Emissions Per Year	2,905 MT/yr

Source: CalEEMod, VRPA 2021

3.3.3 *Indirect Source Review*

The Project is subject to the SJVAPCD's ISR program, which is also known as Rule 9510. Rule 9510 and the Administrative ISR Fee Rule (Rule 3180) are the result of state requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The purpose of the SJVAPCD's ISR program is to reduce emissions of NOx and PM10 from new projects. In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled.

Utilizing the ISR Fee Estimator calculator available on the SJVAPCD website, it was determined that the Project's total cost for emission reductions is $176,318.48 without implementation of emission reduction measures. The ISR Fee Estimator worksheets are included in Appendix D. The fee noted above may be reduced dependent upon the formal ISR review process.

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http://www.cpuc.ca.gov/environment/info/ene/sbcrp/SBCRP_FEIR.html.

4.0 Impact Determinations and Recommended Mitigation

In accordance with CEQA, when a proposed project is consistent with a General Plan for which an EIR has been certified, the effects of that project are evaluated to determine if they will result in project-specific significant adverse impacts on the environment. Accordingly, this analysis identifies any potential environmental effects that are peculiar to the Project or its site that differ from those impacts already analyzed and disclosed in the City's General Plan EIR. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines and the General Plan EIR. Accordingly, air quality or greenhouse gas impacts resulting from the Project are considered significant if the Project would:

Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

4.1 Air Quality

4.1.1 *Conflict with or obstruct implementation of the applicable air quality plan*

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Visalia General Plan, which was adopted in 2014. The Project would be consistent with the General Plan upon preparation and approval of a general plan amendment in accordance with General Plan Policy LU-P-55, which addresses development of project sites that are located within the Urban Boundary and are currently zoned Low Density residential. Therefore, the Project would be consistent with the population growth and VMT applied in the plan and the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

4.1.2 *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard*

The Tulare County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above in Section 3.2 and 3.3, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

4.1.3 *Expose sensitive receptors to substantial pollutant concentrations*

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a Type B project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TACs from the Project is to perform a screening level analysis. For Type B projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TACs are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses considering CARB's Pollution Mapping Tool shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Table 4 indicates that new sensitive land uses should not be sited within 500 feet of a freeway/urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The Project is located more than 3,000 feet from the SR 198 freeway. In addition, the Project is not located within the specified boundary for the source category identified in Table 4. Therefore, TAC's from sources in the study area will not significantly impact the Project. In addition, the Project will not generate TAC's that would have a significant impact on the environment or adjacent sensitive receptors. Therefore, no mitigation is needed.

Short-Term Impacts

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. Therefore, construction emissions associated with the Project are considered less than significant.

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 8 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

4.1.4 *Result in other emissions such as those leading to odors adversely affecting a substantial number of people*

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of residential developments. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. As shown in Table 5, Chemical Manufacturing facilities are known to generate odorous emissions and include a screening distance of one (1) mile. There is a Hydrite Chemical Company facility (SJVAPCD Facility ID 8199) located a third of a mile to the north of the Project site which falls within the 1-mile screening distance set by the SJVAPCD. It should be noted that the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule.

While the Hydrite Chemical facility is located within the 1-mile screening distance as depicted in Table 5, it should be noted that there are other residential and school land uses in the vicinity of the Project that also fall within the 1-mile boundary. In addition, prevailing wind patterns in the area indicate that wind blows primarily from the northwest and southwest depending upon the time of year (see appendices). As a result, potential odors from the Hydrite Chemical facility would have minimal impact on the Project given the location of the facility with respect to the Project. Lastly, the lack of odor complaints logged for the Hydrite Chemical facility for the previous three (3) years indicate that odorous emissions from the facility would have a significant impact on the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

4.2 Greenhouse Gas Emissions

4.2.1 *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment*

The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is roughly 70% less than the threshold identified by the SCAQMD.

The resulting permanent greenhouse gas increases related to Project operations would be within the greenhouse gas increases analyzed in the General Plan EIR, so there would be no increase in severity to the previously-identified greenhouse gas impacts, and implementation of the Project will not result in Project-specific or site-specific significant adverse impacts from greenhouse gas emissions within the Project study area. Therefore, no mitigation measures are needed.

4.2.2 *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases*

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the TCAG region, CARB set targets at thirteen (13) percent per capita decrease in 2020 and a sixteen (16) percent per capita decrease in 2035 from a base year of 2005.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is the City of Visalia General Plan, which was adopted in 2014.

The Project would be consistent with the City of Visalia General Plan upon preparation and approval of a general plan amendment in accordance with General Plan Policy LU-P-33 and LU-P-24 and the adopted 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project (Table 9) are less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- ✓ California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.

    - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that would access the residential development. The Project would not conflict or obstruct this reduction measure.

- ✓ Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.

    - The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.

✓ Low Carbon Fuel – Development and adoption of the low carbon fuel standard.

- The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the residential development. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project furthers the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

APPENDIX A

CalEEMod Emissions Worksheets

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Iron Ridge Development

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	243.00	Dwelling Unit	50.30	437,400.00	695

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage adjusted to Project Desciption

Construction Phase - Operational Year Estimated for 2026

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	718.00
tblConstructionPhase	PhaseEndDate	5/31/2027	11/27/2025
tblConstructionPhase	PhaseEndDate	11/2/2026	5/1/2025
tblConstructionPhase	PhaseEndDate	2/15/2027	8/14/2025
tblConstructionPhase	PhaseStartDate	2/16/2027	8/15/2025
tblConstructionPhase	PhaseStartDate	11/3/2026	5/2/2025
tblLandUse	LotAcreage	78.90	50.30

tblWoodstoves	NumberCatalytic	50.30	0.00
tblWoodstoves	NumberNoncatalytic	50.30	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1114	1.0864	0.7612	1.3800e-003	4.1200e-003	0.0536	0.0577	1.1000e-003	0.0497	0.0508	0.0000	120.7949	120.7949	0.0332	1.3000e-004	121.6619
2022	0.3840	3.7586	3.1025	6.4000e-003	0.9582	0.1681	1.1262	0.4189	0.1556	0.5744	0.0000	563.9849	563.9849	0.1511	5.7000e-003	569.4613
2023	0.2478	2.0500	2.4652	4.9700e-003	0.1124	0.0924	0.2048	0.0304	0.0870	0.1174	0.0000	438.5970	438.5970	0.0745	0.0122	444.0931
2024	0.2330	1.9391	2.4475	4.9700e-003	0.1133	0.0818	0.1951	0.0306	0.0769	0.1076	0.0000	438.5431	438.5431	0.0743	0.0119	443.9586
2025	4.2215	0.9674	1.4435	2.6800e-003	0.0472	0.0411	0.0883	0.0127	0.0384	0.0512	0.0000	236.2169	236.2169	0.0495	4.0600e-003	238.6628
Maximum	**4.2215**	**3.7586**	**3.1025**	**6.4000e-003**	**0.9582**	**0.1681**	**1.1262**	**0.4189**	**0.1556**	**0.5744**	**0.0000**	**563.9849**	**563.9849**	**0.1511**	**0.0122**	**569.4613**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1114	1.0864	0.7612	1.3800e-003	4.1200e-003	0.0536	0.0577	1.1000e-003	0.0497	0.0508	0.0000	120.7948	120.7948	0.0332	1.3000e-004	121.6617
2022	0.3840	3.7586	3.1025	6.4000e-003	0.9582	0.1681	1.1262	0.4189	0.1556	0.5744	0.0000	563.9843	563.9843	0.1511	5.7000e-003	569.4607
2023	0.2478	2.0500	2.4652	4.9700e-003	0.1124	0.0924	0.2048	0.0304	0.0870	0.1174	0.0000	438.5967	438.5967	0.0745	0.0122	444.0928
2024	0.2330	1.9391	2.4475	4.9700e-003	0.1133	0.0818	0.1951	0.0306	0.0769	0.1076	0.0000	438.5427	438.5427	0.0743	0.0119	443.9582
2025	4.2215	0.9674	1.4435	2.6800e-003	0.0472	0.0411	0.0883	0.0127	0.0384	0.0512	0.0000	236.2166	236.2166	0.0495	4.0600e-003	238.6626
Maximum	**4.2215**	**3.7586**	**3.1025**	**6.4000e-003**	**0.9582**	**0.1681**	**1.1262**	**0.4189**	**0.1556**	**0.5744**	**0.0000**	**563.9843**	**563.9843**	**0.1511**	**0.0122**	**569.4607**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-28-2021**	**12-27-2021**	1.1285	1.1285
2	**12-28-2021**	**3-27-2022**	1.2185	1.2185
3	**3-28-2022**	**6-27-2022**	1.4000	1.4000
4	**6-28-2022**	**9-27-2022**	0.9273	0.9273
5	**9-28-2022**	**12-27-2022**	0.6327	0.6327
6	**12-28-2022**	**3-27-2023**	0.5724	0.5724
7	**3-28-2023**	**6-27-2023**	0.5804	0.5804

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8	**6-28-2023**	**9-27-2023**	0.5803	0.5803
9	**9-28-2023**	**12-27-2023**	0.5762	0.5762
10	**12-28-2023**	**3-27-2024**	0.5421	0.5421
11	**3-28-2024**	**6-27-2024**	0.5443	0.5443
12	**6-28-2024**	**9-27-2024**	0.5442	0.5442
13	**9-28-2024**	**12-27-2024**	0.5405	0.5405
14	**12-28-2024**	**3-27-2025**	0.4999	0.4999
15	**3-28-2025**	**6-27-2025**	0.3879	0.3879
16	**6-28-2025**	**9-27-2025**	1.9066	1.9066
17	**9-28-2025**	**9-30-2025**	0.1188	0.1188
		Highest	1.9066	1.9066

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1836	0.1117	1.8413	6.8000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	108.2167	108.2167	4.8400e-003	1.9300e-003	108.9128
Energy	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	490.9854	490.9854	0.0350	9.2300e-003	494.6105
Mobile	1.0336	1.6684	9.5815	0.0226	2.3841	0.0192	2.4033	0.6379	0.0180	0.6559	0.0000	2,087.8897	2,087.8897	0.1097	0.1109	2,123.6708
Waste						0.0000	0.0000		0.0000	0.0000	50.7883	0.0000	50.7883	3.0015	0.0000	125.8260
Water						0.0000	0.0000		0.0000	0.0000	5.0229	11.1587	16.1816	0.5177	0.0124	32.8196
Total	**3.2486**	**2.0492**	**11.5373**	**0.0250**	**2.3841**	**0.0583**	**2.4424**	**0.6379**	**0.0571**	**0.6950**	**55.8112**	**2,698.2505**	**2,754.0618**	**3.6687**	**0.1344**	**2,885.8396**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1836	0.1117	1.8413	6.8000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	108.2167	108.2167	4.8400e-003	1.9300e-003	108.9128
Energy	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	490.9854	490.9854	0.0350	9.2300e-003	494.6105
Mobile	1.0336	1.6684	9.5815	0.0226	2.3841	0.0192	2.4033	0.6379	0.0180	0.6559	0.0000	2,087.8897	2,087.8897	0.1097	0.1109	2,123.6708
Waste						0.0000	0.0000		0.0000	0.0000	50.7883	0.0000	50.7883	3.0015	0.0000	125.8260
Water						0.0000	0.0000		0.0000	0.0000	5.0229	11.1587	16.1816	0.5177	0.0124	32.8196
Total	**3.2486**	**2.0492**	**11.5373**	**0.0250**	**2.3841**	**0.0583**	**2.4424**	**0.6379**	**0.0571**	**0.6950**	**55.8112**	**2,698.2505**	**2,754.0618**	**3.6687**	**0.1344**	**2,885.8396**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/28/2021	1/3/2022	5	70	
2	Site Preparation	Site Preparation	1/4/2022	2/28/2022	5	40	
3	Grading	Grading	3/1/2022	8/1/2022	5	110	

4	Building Construction	Building Construction	8/2/2022	5/1/2025	5	718	
5	Paving	Paving	5/2/2025	8/14/2025	5	75	
6	Architectural Coating	Architectural Coating	8/15/2025	11/27/2025	5	75	

Acres of Grading (Site Preparation Phase): 60

Acres of Grading (Grading Phase): 330

Acres of Paving: 0

Residential Indoor: 885,735; Residential Outdoor: 295,245; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	87.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	17.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1092	1.0847	0.7440	1.3400e-003		0.0535	0.0535		0.0497	0.0497	0.0000	117.3027	117.3027	0.0330	0.0000	118.1281
Total	**0.1092**	**1.0847**	**0.7440**	**1.3400e-003**		**0.0535**	**0.0535**		**0.0497**	**0.0497**	**0.0000**	**117.3027**	**117.3027**	**0.0330**	**0.0000**	**118.1281**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1700e-003	1.6700e-003	0.0172	4.0000e-005	4.1200e-003	2.0000e-005	4.1500e-003	1.1000e-003	2.0000e-005	1.1200e-003	0.0000	3.4922	3.4922	1.4000e-004	1.3000e-004	3.5338
Total	**2.1700e-003**	**1.6700e-003**	**0.0172**	**4.0000e-005**	**4.1200e-003**	**2.0000e-005**	**4.1500e-003**	**1.1000e-003**	**2.0000e-005**	**1.1200e-003**	**0.0000**	**3.4922**	**3.4922**	**1.4000e-004**	**1.3000e-004**	**3.5338**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1092	1.0847	0.7440	1.3400e-003		0.0535	0.0535		0.0497	0.0497	0.0000	117.3026	117.3026	0.0330	0.0000	118.1280
Total	**0.1092**	**1.0847**	**0.7440**	**1.3400e-003**		**0.0535**	**0.0535**		**0.0497**	**0.0497**	**0.0000**	**117.3026**	**117.3026**	**0.0330**	**0.0000**	**118.1280**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1700e-003	1.6700e-003	0.0172	4.0000e-005	4.1200e-003	2.0000e-005	4.1500e-003	1.1000e-003	2.0000e-005	1.1200e-003	0.0000	3.4922	3.4922	1.4000e-004	1.3000e-004	3.5338
Total	**2.1700e-003**	**1.6700e-003**	**0.0172**	**4.0000e-005**	**4.1200e-003**	**2.0000e-005**	**4.1500e-003**	**1.1000e-003**	**2.0000e-005**	**1.1200e-003**	**0.0000**	**3.4922**	**3.4922**	**1.4000e-004**	**1.3000e-004**	**3.5338**

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3200e-003	0.0129	0.0103	2.0000e-005		6.2000e-004	6.2000e-004		5.8000e-004	5.8000e-004	0.0000	1.6995	1.6995	4.8000e-004	0.0000	1.7115
Total	**1.3200e-003**	**0.0129**	**0.0103**	**2.0000e-005**		**6.2000e-004**	**6.2000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**1.6995**	**1.6995**	**4.8000e-004**	**0.0000**	**1.7115**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0490	0.0490	0.0000	0.0000	0.0496
Total	**3.0000e-005**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0490**	**0.0490**	**0.0000**	**0.0000**	**0.0496**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3200e-003	0.0129	0.0103	2.0000e-005		6.2000e-004	6.2000e-004		5.8000e-004	5.8000e-004	0.0000	1.6995	1.6995	4.8000e-004	0.0000	1.7114
Total	**1.3200e-003**	**0.0129**	**0.0103**	**2.0000e-005**		**6.2000e-004**	**6.2000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**1.6995**	**1.6995**	**4.8000e-004**	**0.0000**	**1.7114**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0490	0.0490	0.0000	0.0000	0.0496
Total	**3.0000e-005**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0490**	**0.0490**	**0.0000**	**0.0000**	**0.0496**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3931	0.0000	0.3931	0.2021	0.0000	0.2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6617	0.3940	7.6000e-004		0.0323	0.0323		0.0297	0.0297	0.0000	66.8788	66.8788	0.0216	0.0000	67.4195
Total	**0.0634**	**0.6617**	**0.3940**	**7.6000e-004**	**0.3931**	**0.0323**	**0.4254**	**0.2021**	**0.0297**	**0.2317**	**0.0000**	**66.8788**	**66.8788**	**0.0216**	**0.0000**	**67.4195**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0100e-003	0.0108	3.0000e-005	2.8700e-003	2.0000e-005	2.8800e-003	7.6000e-004	1.0000e-005	7.8000e-004	0.0000	2.3534	2.3534	9.0000e-005	8.0000e-005	2.3797
Total	**1.3800e-003**	**1.0100e-003**	**0.0108**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8800e-003**	**7.6000e-004**	**1.0000e-005**	**7.8000e-004**	**0.0000**	**2.3534**	**2.3534**	**9.0000e-005**	**8.0000e-005**	**2.3797**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3931	0.0000	0.3931	0.2021	0.0000	0.2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6617	0.3940	7.6000e-004		0.0323	0.0323		0.0297	0.0297	0.0000	66.8787	66.8787	0.0216	0.0000	67.4195
Total	**0.0634**	**0.6617**	**0.3940**	**7.6000e-004**	**0.3931**	**0.0323**	**0.4254**	**0.2021**	**0.0297**	**0.2317**	**0.0000**	**66.8787**	**66.8787**	**0.0216**	**0.0000**	**67.4195**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3800e-003	1.0100e-003	0.0108	3.0000e-005	2.8700e-003	2.0000e-005	2.8800e-003	7.6000e-004	1.0000e-005	7.8000e-004	0.0000	2.3534	2.3534	9.0000e-005	8.0000e-005	2.3797
Total	**1.3800e-003**	**1.0100e-003**	**0.0108**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8800e-003**	**7.6000e-004**	**1.0000e-005**	**7.8000e-004**	**0.0000**	**2.3534**	**2.3534**	**9.0000e-005**	**8.0000e-005**	**2.3797**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5062	0.0000	0.5062	0.2010	0.0000	0.2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1994	2.1364	1.5973	3.4100e-003		0.0899	0.0899		0.0827	0.0827	0.0000	299.9403	299.9403	0.0970	0.0000	302.3655
Total	**0.1994**	**2.1364**	**1.5973**	**3.4100e-003**	**0.5062**	**0.0899**	**0.5961**	**0.2010**	**0.0827**	**0.2837**	**0.0000**	**299.9403**	**299.9403**	**0.0970**	**0.0000**	**302.3655**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2100e-003	3.0900e-003	0.0331	8.0000e-005	8.7600e-003	5.0000e-005	8.8100e-003	2.3300e-003	4.0000e-005	2.3700e-003	0.0000	7.1910	7.1910	2.7000e-004	2.5000e-004	7.2713
Total	**4.2100e-003**	**3.0900e-003**	**0.0331**	**8.0000e-005**	**8.7600e-003**	**5.0000e-005**	**8.8100e-003**	**2.3300e-003**	**4.0000e-005**	**2.3700e-003**	**0.0000**	**7.1910**	**7.1910**	**2.7000e-004**	**2.5000e-004**	**7.2713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5062	0.0000	0.5062	0.2010	0.0000	0.2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1994	2.1364	1.5973	3.4100e-003		0.0899	0.0899		0.0827	0.0827	0.0000	299.9399	299.9399	0.0970	0.0000	302.3651
Total	**0.1994**	**2.1364**	**1.5973**	**3.4100e-003**	**0.5062**	**0.0899**	**0.5961**	**0.2010**	**0.0827**	**0.2837**	**0.0000**	**299.9399**	**299.9399**	**0.0970**	**0.0000**	**302.3651**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2100e-003	3.0900e-003	0.0331	8.0000e-005	8.7600e-003	5.0000e-005	8.8100e-003	2.3300e-003	4.0000e-005	2.3700e-003	0.0000	7.1910	7.1910	2.7000e-004	2.5000e-004	7.2713
Total	**4.2100e-003**	**3.0900e-003**	**0.0331**	**8.0000e-005**	**8.7600e-003**	**5.0000e-005**	**8.8100e-003**	**2.3300e-003**	**4.0000e-005**	**2.3700e-003**	**0.0000**	**7.1910**	**7.1910**	**2.7000e-004**	**2.5000e-004**	**7.2713**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0930	0.8511	0.8918	1.4700e-003		0.0441	0.0441		0.0415	0.0415	0.0000	126.2903	126.2903	0.0303	0.0000	127.0467
Total	**0.0930**	**0.8511**	**0.8918**	**1.4700e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**126.2903**	**126.2903**	**0.0303**	**0.0000**	**127.0467**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1600e-003	0.0791	0.0226	3.0000e-004	9.3700e-003	9.0000e-004	0.0103	2.7100e-003	8.6000e-004	3.5700e-003	0.0000	28.5860	28.5860	2.0000e-004	4.3100e-003	29.8753
Worker	0.0181	0.0133	0.1425	3.4000e-004	0.0378	2.1000e-004	0.0380	0.0100	1.9000e-004	0.0102	0.0000	30.9966	30.9966	1.1500e-003	1.0600e-003	31.3424
Total	**0.0213**	**0.0925**	**0.1651**	**6.4000e-004**	**0.0471**	**1.1100e-003**	**0.0483**	**0.0128**	**1.0500e-003**	**0.0138**	**0.0000**	**59.5826**	**59.5826**	**1.3500e-003**	**5.3700e-003**	**61.2177**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0930	0.8511	0.8918	1.4700e-003		0.0441	0.0441		0.0415	0.0415	0.0000	126.2901	126.2901	0.0303	0.0000	127.0465
Total	**0.0930**	**0.8511**	**0.8918**	**1.4700e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**126.2901**	**126.2901**	**0.0303**	**0.0000**	**127.0465**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1600e-003	0.0791	0.0226	3.0000e-004	9.3700e-003	9.0000e-004	0.0103	2.7100e-003	8.6000e-004	3.5700e-003	0.0000	28.5860	28.5860	2.0000e-004	4.3100e-003	29.8753
Worker	0.0181	0.0133	0.1425	3.4000e-004	0.0378	2.1000e-004	0.0380	0.0100	1.9000e-004	0.0102	0.0000	30.9966	30.9966	1.1500e-003	1.0600e-003	31.3424
Total	**0.0213**	**0.0925**	**0.1651**	**6.4000e-004**	**0.0471**	**1.1100e-003**	**0.0483**	**0.0128**	**1.0500e-003**	**0.0138**	**0.0000**	**59.5826**	**59.5826**	**1.3500e-003**	**5.3700e-003**	**61.2177**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8200e-003	0.1523	0.0460	6.8000e-004	0.0224	9.7000e-004	0.0233	6.4600e-003	9.3000e-004	7.3900e-003	0.0000	65.7014	65.7014	3.0000e-004	9.8800e-003	68.6537
Worker	0.0395	0.0277	0.3075	7.8000e-004	0.0901	4.7000e-004	0.0906	0.0240	4.3000e-004	0.0244	0.0000	71.5495	71.5495	2.4600e-003	2.3200e-003	72.3012
Total	**0.0433**	**0.1800**	**0.3535**	**1.4600e-003**	**0.1124**	**1.4400e-003**	**0.1139**	**0.0304**	**1.3600e-003**	**0.0318**	**0.0000**	**137.2509**	**137.2509**	**2.7600e-003**	**0.0122**	**140.9548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8200e-003	0.1523	0.0460	6.8000e-004	0.0224	9.7000e-004	0.0233	6.4600e-003	9.3000e-004	7.3900e-003	0.0000	65.7014	65.7014	3.0000e-004	9.8800e-003	68.6537
Worker	0.0395	0.0277	0.3075	7.8000e-004	0.0901	4.7000e-004	0.0906	0.0240	4.3000e-004	0.0244	0.0000	71.5495	71.5495	2.4600e-003	2.3200e-003	72.3012
Total	**0.0433**	**0.1800**	**0.3535**	**1.4600e-003**	**0.1124**	**1.4400e-003**	**0.1139**	**0.0304**	**1.3600e-003**	**0.0318**	**0.0000**	**137.2509**	**137.2509**	**2.7600e-003**	**0.0122**	**140.9548**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7300e-003	0.1534	0.0452	6.8000e-004	0.0225	9.9000e-004	0.0235	6.5100e-003	9.4000e-004	7.4500e-003	0.0000	65.1857	65.1857	2.9000e-004	9.7900e-003	68.1113
Worker	0.0365	0.0245	0.2845	7.6000e-004	0.0908	4.4000e-004	0.0912	0.0241	4.1000e-004	0.0245	0.0000	69.6350	69.6350	2.2200e-003	2.1400e-003	70.3294
Total	**0.0403**	**0.1779**	**0.3297**	**1.4400e-003**	**0.1133**	**1.4300e-003**	**0.1147**	**0.0307**	**1.3500e-003**	**0.0320**	**0.0000**	**134.8207**	**134.8207**	**2.5100e-003**	**0.0119**	**138.4407**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7300e-003	0.1534	0.0452	6.8000e-004	0.0225	9.9000e-004	0.0235	6.5100e-003	9.4000e-004	7.4500e-003	0.0000	65.1857	65.1857	2.9000e-004	9.7900e-003	68.1113
Worker	0.0365	0.0245	0.2845	7.6000e-004	0.0908	4.4000e-004	0.0912	0.0241	4.1000e-004	0.0245	0.0000	69.6350	69.6350	2.2200e-003	2.1400e-003	70.3294
Total	**0.0403**	**0.1779**	**0.3297**	**1.4400e-003**	**0.1133**	**1.4300e-003**	**0.1147**	**0.0307**	**1.3500e-003**	**0.0320**	**0.0000**	**134.8207**	**134.8207**	**2.5100e-003**	**0.0119**	**138.4407**

3.5 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0595	0.5424	0.6997	1.1700e-003		0.0230	0.0230		0.0216	0.0216	0.0000	100.8850	100.8850	0.0237	0.0000	101.4778
Total	**0.0595**	**0.5424**	**0.6997**	**1.1700e-003**		**0.0230**	**0.0230**		**0.0216**	**0.0216**	**0.0000**	**100.8850**	**100.8850**	**0.0237**	**0.0000**	**101.4778**

3.5 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2100e-003	0.0507	0.0147	2.2000e-004	7.4800e-003	3.3000e-004	7.8100e-003	2.1600e-003	3.1000e-004	2.4700e-003	0.0000	21.2632	21.2632	9.0000e-005	3.1900e-003	22.2161
Worker	0.0112	7.2000e-003	0.0870	2.4000e-004	0.0301	1.4000e-004	0.0303	8.0100e-003	1.3000e-004	8.1400e-003	0.0000	22.3386	22.3386	6.6000e-004	6.6000e-004	22.5514
Total	**0.0124**	**0.0579**	**0.1017**	**4.6000e-004**	**0.0376**	**4.7000e-004**	**0.0381**	**0.0102**	**4.4000e-004**	**0.0106**	**0.0000**	**43.6018**	**43.6018**	**7.5000e-004**	**3.8500e-003**	**44.7674**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0595	0.5424	0.6997	1.1700e-003		0.0230	0.0230		0.0216	0.0216	0.0000	100.8848	100.8848	0.0237	0.0000	101.4777
Total	**0.0595**	**0.5424**	**0.6997**	**1.1700e-003**		**0.0230**	**0.0230**		**0.0216**	**0.0216**	**0.0000**	**100.8848**	**100.8848**	**0.0237**	**0.0000**	**101.4777**

3.5 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2100e-003	0.0507	0.0147	2.2000e-004	7.4800e-003	3.3000e-004	7.8100e-003	2.1600e-003	3.1000e-004	2.4700e-003	0.0000	21.2632	21.2632	9.0000e-005	3.1900e-003	22.2161
Worker	0.0112	7.2000e-003	0.0870	2.4000e-004	0.0301	1.4000e-004	0.0303	8.0100e-003	1.3000e-004	8.1400e-003	0.0000	22.3386	22.3386	6.6000e-004	6.6000e-004	22.5514
Total	**0.0124**	**0.0579**	**0.1017**	**4.6000e-004**	**0.0376**	**4.7000e-004**	**0.0381**	**0.0102**	**4.4000e-004**	**0.0106**	**0.0000**	**43.6018**	**43.6018**	**7.5000e-004**	**3.8500e-003**	**44.7674**

3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3218	0.5467	8.5000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	75.0722	75.0722	0.0243	0.0000	75.6792
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0343**	**0.3218**	**0.5467**	**8.5000e-004**		**0.0157**	**0.0157**		**0.0144**	**0.0144**	**0.0000**	**75.0722**	**75.0722**	**0.0243**	**0.0000**	**75.6792**

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6600e-003	1.0700e-003	0.0129	4.0000e-005	4.4800e-003	2.0000e-005	4.5000e-003	1.1900e-003	2.0000e-005	1.2100e-003	0.0000	3.3203	3.3203	1.0000e-004	1.0000e-004	3.3519
Total	**1.6600e-003**	**1.0700e-003**	**0.0129**	**4.0000e-005**	**4.4800e-003**	**2.0000e-005**	**4.5000e-003**	**1.1900e-003**	**2.0000e-005**	**1.2100e-003**	**0.0000**	**3.3203**	**3.3203**	**1.0000e-004**	**1.0000e-004**	**3.3519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3218	0.5467	8.5000e-004		0.0157	0.0157		0.0144	0.0144	0.0000	75.0721	75.0721	0.0243	0.0000	75.6791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0343**	**0.3218**	**0.5467**	**8.5000e-004**		**0.0157**	**0.0157**		**0.0144**	**0.0144**	**0.0000**	**75.0721**	**75.0721**	**0.0243**	**0.0000**	**75.6791**

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6600e-003	1.0700e-003	0.0129	4.0000e-005	4.4800e-003	2.0000e-005	4.5000e-003	1.1900e-003	2.0000e-005	1.2100e-003	0.0000	3.3203	3.3203	1.0000e-004	1.0000e-004	3.3519
Total	**1.6600e-003**	**1.0700e-003**	**0.0129**	**4.0000e-005**	**4.4800e-003**	**2.0000e-005**	**4.5000e-003**	**1.1900e-003**	**2.0000e-005**	**1.2100e-003**	**0.0000**	**3.3203**	**3.3203**	**1.0000e-004**	**1.0000e-004**	**3.3519**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0430	0.0678	1.1000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	9.5747	9.5747	5.2000e-004	0.0000	9.5878
Total	**4.1118**	**0.0430**	**0.0678**	**1.1000e-004**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**9.5747**	**9.5747**	**5.2000e-004**	**0.0000**	**9.5878**

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8800e-003	1.2100e-003	0.0147	4.0000e-005	5.0800e-003	2.0000e-005	5.1000e-003	1.3500e-003	2.0000e-005	1.3700e-003	0.0000	3.7630	3.7630	1.1000e-004	1.1000e-004	3.7988
Total	**1.8800e-003**	**1.2100e-003**	**0.0147**	**4.0000e-005**	**5.0800e-003**	**2.0000e-005**	**5.1000e-003**	**1.3500e-003**	**2.0000e-005**	**1.3700e-003**	**0.0000**	**3.7630**	**3.7630**	**1.1000e-004**	**1.1000e-004**	**3.7988**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1054					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.0430	0.0678	1.1000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	9.5747	9.5747	5.2000e-004	0.0000	9.5878
Total	**4.1118**	**0.0430**	**0.0678**	**1.1000e-004**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**9.5747**	**9.5747**	**5.2000e-004**	**0.0000**	**9.5878**

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8800e-003	1.2100e-003	0.0147	4.0000e-005	5.0800e-003	2.0000e-005	5.1000e-003	1.3500e-003	2.0000e-005	1.3700e-003	0.0000	3.7630	3.7630	1.1000e-004	1.1000e-004	3.7988
Total	**1.8800e-003**	**1.2100e-003**	**0.0147**	**4.0000e-005**	**5.0800e-003**	**2.0000e-005**	**5.1000e-003**	**1.3500e-003**	**2.0000e-005**	**1.3700e-003**	**0.0000**	**3.7630**	**3.7630**	**1.1000e-004**	**1.1000e-004**	**3.7988**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0336	1.6684	9.5815	0.0226	2.3841	0.0192	2.4033	0.6379	0.0180	0.6559	0.0000	2,087.8897	2,087.8897	0.1097	0.1109	2,123.6708
Unmitigated	1.0336	1.6684	9.5815	0.0226	2.3841	0.0192	2.4033	0.6379	0.0180	0.6559	0.0000	2,087.8897	2,087.8897	0.1097	0.1109	2,123.6708

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	2,293.92	2,318.22	2077.65	6,388,649	6,388,649
Total	2,293.92	2,318.22	2,077.65	6,388,649	6,388,649

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	38.40	22.60	39.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.525357	0.051382	0.167800	0.162287	0.028850	0.007480	0.012195	0.015949	0.000630	0.000469	0.022910	0.001396	0.003296

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	179.2808	179.2808	0.0290	3.5200e-003	181.0535
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	179.2808	179.2808	0.0290	3.5200e-003	181.0535
NaturalGas Mitigated	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.7047	311.7047	5.9700e-003	5.7100e-003	313.5570
NaturalGas Unmitigated	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.7047	311.7047	5.9700e-003	5.7100e-003	313.5570

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	5.84112e+006	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.7047	311.7047	5.9700e-003	5.7100e-003	313.5570
Total		**0.0315**	**0.2692**	**0.1145**	**1.7200e-003**		**0.0218**	**0.0218**		**0.0218**	**0.0218**	**0.0000**	**311.7047**	**311.7047**	**5.9700e-003**	**5.7100e-003**	**313.5570**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	5.84112e+006	0.0315	0.2692	0.1145	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.7047	311.7047	5.9700e-003	5.7100e-003	313.5570
Total		**0.0315**	**0.2692**	**0.1145**	**1.7200e-003**		**0.0218**	**0.0218**		**0.0218**	**0.0218**	**0.0000**	**311.7047**	**311.7047**	**5.9700e-003**	**5.7100e-003**	**313.5570**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.93767e+006	179.2808	0.0290	3.5200e-003	181.0535
Total		**179.2808**	**0.0290**	**3.5200e-003**	**181.0535**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.93767e+006	179.2808	0.0290	3.5200e-003	181.0535
Total		**179.2808**	**0.0290**	**3.5200e-003**	**181.0535**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1836	0.1117	1.8413	6.8000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	108.2167	108.2167	4.8400e-003	1.9300e-003	108.9128
Unmitigated	2.1836	0.1117	1.8413	6.8000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	108.2167	108.2167	4.8400e-003	1.9300e-003	108.9128

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4105					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7083					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0106	0.0909	0.0387	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003	0.0000	105.2694	105.2694	2.0200e-003	1.9300e-003	105.8950
Landscaping	0.0541	0.0208	1.8026	1.0000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	2.9473	2.9473	2.8200e-003	0.0000	3.0179
Total	**2.1836**	**0.1117**	**1.8413**	**6.8000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**108.2167**	**108.2167**	**4.8400e-003**	**1.9300e-003**	**108.9128**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4105					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7083					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0106	0.0909	0.0387	5.8000e-004		7.3500e-003	7.3500e-003		7.3500e-003	7.3500e-003	0.0000	105.2694	105.2694	2.0200e-003	1.9300e-003	105.8950
Landscaping	0.0541	0.0208	1.8026	1.0000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	2.9473	2.9473	2.8200e-003	0.0000	3.0179
Total	**2.1836**	**0.1117**	**1.8413**	**6.8000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**108.2167**	**108.2167**	**4.8400e-003**	**1.9300e-003**	**108.9128**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.1816	0.5177	0.0124	32.8196
Unmitigated	16.1816	0.5177	0.0124	32.8196

7.2 Water by Land Use

<u>Unmitigated</u>

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	15.8324 / 9.98131	16.1816	0.5177	0.0124	32.8196
Total		**16.1816**	**0.5177**	**0.0124**	**32.8196**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	15.8324 / 9.98131	16.1816	0.5177	0.0124	32.8196
Total		**16.1816**	**0.5177**	**0.0124**	**32.8196**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	50.7883	3.0015	0.0000	125.8260
Unmitigated	50.7883	3.0015	0.0000	125.8260

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	250.2	50.7883	3.0015	0.0000	125.8260
Total		**50.7883**	**3.0015**	**0.0000**	**125.8260**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	250.2	50.7883	3.0015	0.0000	125.8260
Total		**50.7883**	**3.0015**	**0.0000**	**125.8260**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

City of Visalia Circulation Element

4 CIRCULATION

The Circulation Element of the 2030 General Plan is intended to provide guidance and specific actions to ensure the continued safe and efficient operation of Visalia's circulation system. The Element is based on a fundamental philosophy that traffic conditions in the City can be managed through a comprehensive program of transportation planning, land use planning, and growth management strategies. This Element includes provisions for roadways, transit, aviation, pedestrian, and bicycle transportation modes, as well as parking conditions.

The Circulation Element responds directly to the Government Code [Section 65302(b)], which requires "a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan."

State Law recognizes that circulation and land use are closely related and requires that policies in this Element and the Land Use Element be linked. Careful integration of the City's traffic and circulation policies with its land use policies will ensure that there is sufficient roadway capacity to accommodate traffic generated by planned future development. The City is committed to designing a system of regional routes, local roads, public transit and bicycle and pedestrian pathways that will enhance the community and protect the environment.

The Land Use Element contains policies related to the physical framework for development that the circulation system is designed to serve all transportation users including vehicles, trucks, bicyclists and pedestrians. This Element also addresses landscaping along major streets and planning for street connectivity in new neighborhoods. It discusses how to create pedestrian-friendly environments and design for alternate modes of transportation. The Noise Element of the General Plan includes policies to alleviate noise generated by traffic conditions.

4.1 COMPLETE STREETS FRAMEWORK

In September 2008, the Governor signed into law the California Complete Streets Act, requiring General Plans to develop a plan for a multi-modal transportation system. The goal of the Act is to encourage cities to rethink policies that emphasize automobile circulation and prioritize motor vehicle improvements, and come up with creative solutions that emphasize all modes of transportation. Complete Streets design has many advantages. When people have more transportation options, there are fewer traffic jams and the overall capacity of the transportation network increases. Complete Street design attends to the needs of people who don't travel by automobile, who have often been overlooked. Additionally, increased transit ridership, walking, and biking can reduce air pollution, energy consumption, and greenhouse gas emissions, while improving the overall travel experience for road users.

The City is committed to designing a system of regional routes, local roads, public transit and bicycle and pedestrian pathways that will enhance the community and protect the environment.

To further the goal of optimizing travel by all modes, this General Plan incorporates the concept of "Complete Streets." Complete Streets are designed and operated to enable safe, attractive, and comfortable access and travel for all users, including motorists, pedestrians, bicyclists, children, seniors, individuals with disabilities, and users of public transportation.

While there is no standard design template for a Complete Street, it generally includes one or more of the following features: bicycle lanes, wide shoulders, plenty of well-designed and well placed crosswalks, crossing islands in appropriate midblock locations, bus pullouts or special bus lanes, audible pedestrian signals, sidewalk bulb-outs, center medians, and street trees, planter strips and ground cover. Complete Streets create a sense of place and improve social interaction due to their emphasis on encouraging pedestrian activity.

4.2 GUIDING PRINCIPLES

Visalia's Circulation Element relies upon three principles:

- Land use and the circulation system are interactive and interrelated;
- The City's traffic circulation planning efforts are integrated with those of the County and Caltrans in a cooperative, regional planning effort; and
- State of the art transportation engineering is used, applying a Complete Streets framework, to bring planned improvements to reality considering the multi-modal, increased travel capacity and safety needs of the community.

Only through the development and implementation of all these principles can the City's commitment to a balanced, efficient circulation system be achieved.

Connectivity

The major objective of the Circulation Element is to provide an interconnected street system with improved north-south and east-west connections for existing and future development in Visalia. The City's original street layout provided street connections linking neighborhoods with work places, but as the community has grown, access has not always improved.

Traditional grid street designs allow for through movement and good connections between and within neighborhoods. Short blocks offer a choice of routes and enable more direct connections. Variations from the traditional grid can allow for diagonal and curvilinear streets as well as larger or smaller blocks for maximum flexibility and improved connectivity.

In order to ensure that street layout in future development incorporates the need for neighborhood connectivity and the comfort and safety of pedestrians and bicyclists, it is essential that:

- New development is connected to the surroundings with an increased number of access points and pedestrian and bicycle connections to the neighborhood network;
- Blocks are short to allow for more direct connections;
- Neighborhood streets are designed at a human-scale, without excessively wide streets; and

- Traffic controls are incorporated including speed limits, bulb outs, modern roundabouts, signage, and truck routes to restrict commercial traffic in neighborhoods.

The 2030 General Plan provides for new routes in partially developed portions of the Planning Area and expands the capacity and efficiency of the existing system. In addition, the Plan provides for narrower streets in some areas than might otherwise be designed based upon current traffic design standards and requirements alone.

Balanced Modes

Another objective is to create a balanced transportation system that serves public transit, bicyclists and pedestrians as well as private motor vehicles. Careful integration of land use and transportation and attention to the design and location of all roadway elements is essential to support pedestrian-oriented development and maintain the "small-town" atmosphere that Visalians desire. The 2030 General Plan includes new bikeways, trails and pedestrian facilities to link neighborhoods, schools, major recreation sites, and commercial centers including downtown. The Plan also fosters compact development, which can support additional public transit. By facilitating use of alternative modes of travel, Visalia will encourage physical activity, reduce auto-dependency, and lessen roadway congestion.

4.3 OVERALL CIRCULATION SYSTEM PLANNING

Roadway Network

In Visalia, the roadway system is based on a traditional grid pattern, on which all modes of transportation depend to some degree. This pattern has been modified in recent years to include some suburban curvilinear and cul-de-sac streets in several areas in the City. While State Routes 63, 99, 198 and 216 provide regional east/west and north/south access, these large arterials and freeways create lineal barriers to connectivity on smaller city streets.

Functional Street Classifications

Visalia's roadway system is set up around a hierarchy of street types, which are commonly referred to as functional classifications. These functional classifications for most major streets are illustrated on **Figure 4-1** and summarized as follows:

Freeways

Freeways provide intra- and inter-regional mobility in Visalia. Freeway access is restricted to primary arterials via interchanges. State routes 99 and 198 are the only freeways within the Planning Area.

- *State Route 99* is a four- to six- lane divided freeway with a landscaped median. The northbound segment between Betty Drive in Goshen to Avenue 384 south of Kingsburg (Fresno County) contains three travel lanes; the remainder of State Route 99 in Tulare County contains two northbound and two southbound travel lanes. With approximately 55,000 daily trips near State Route 198, State Route 99 is the second most traveled roadway in the

Good roadway design is essential to support pedestrian-oriented development and maintain a "small-town" feel (top).

Visalia's roadway system is set up around a hierarchy of street types, including arterials such as Ben Maddox Way (bottom).

county. In addition, it is estimated that nearly 25 percent of these trips are trucks.

- *State Route 198* is a major east-west corridor that begins at US 101, travels through the City of Visalia, and terminates at the Sequoia National Park entrance. This roadway has several sections that contain two and four lane roadways. In Visalia this roadway operates as a four lane freeway. State Route 198 will be improved to a four lane expressway between State Route 43 and State Route 99. State Route 198 serves a mix of residential, commercial, industrial and agricultural land uses. SR 198 between Ben Maddox and Mooney Boulevard is the County's most traveled roadway, with 58,000 daily trips in 2011.

Arterials

Arterials collect and distribute traffic from freeways and expressways to collector streets and vice versa. On arterials, the optimum distance between intersections is approximately one quarter mile. Driveways to major traffic generators may be permitted within the quarter-mile spacing. Other intersections closer than one quarter mile should be restricted to right turn access. Based upon the Visalia Improvement Standards (2008), the arterial right-of-way widths range from 84 feet to 110 feet. Arterials feature two to three through lanes of traffic in each direction with a left-turn channelization.

Collectors

Collectors connect local and arterial streets and provide direct access to parcels. At major intersections, driveways on collector streets should be no closer than 50 feet to the intersection per the City of Visalia Improvement Standards. Non-residential driveways and/or intersecting streets on collector streets should be no closer than 300 to 400 feet apart.

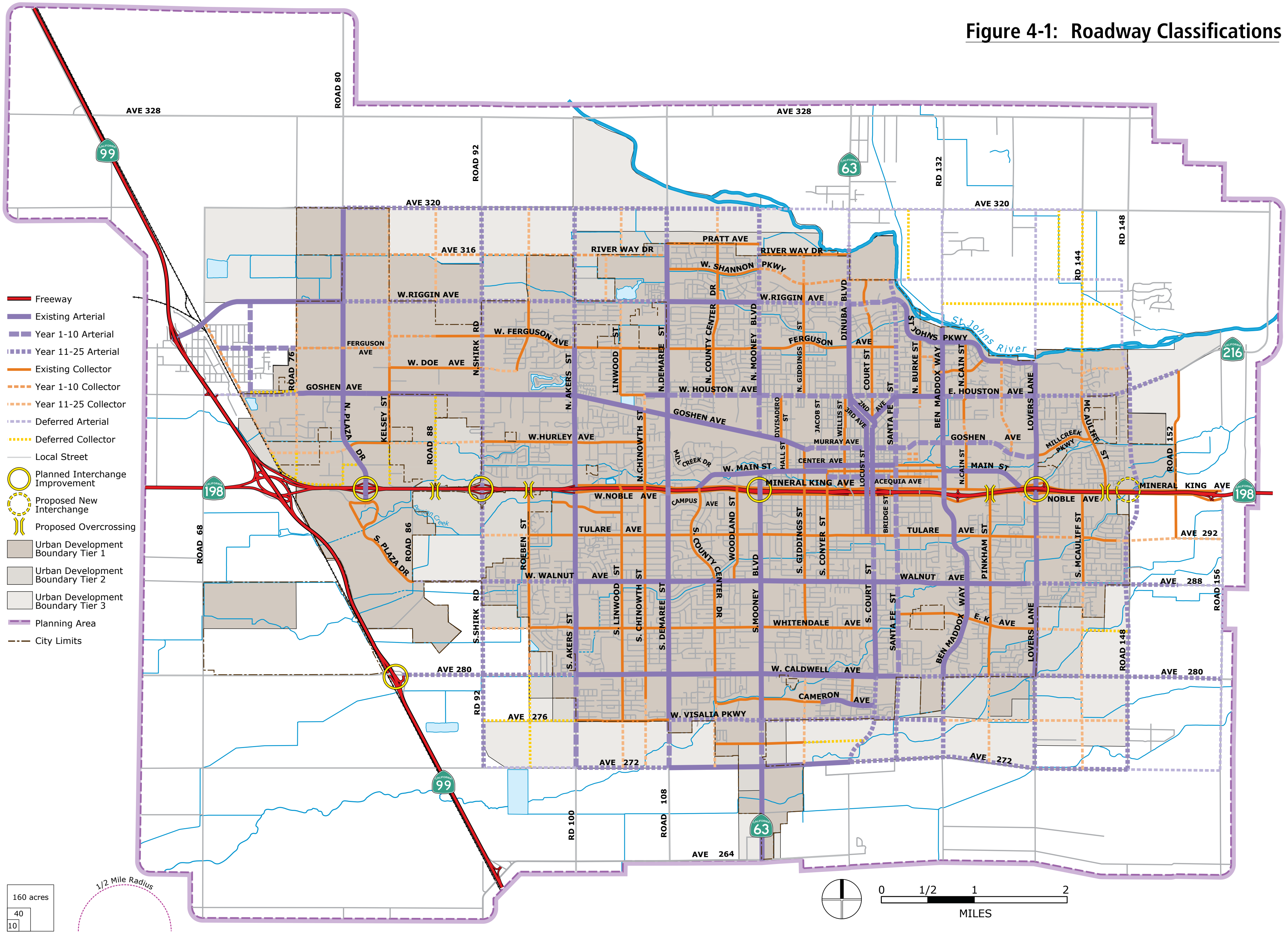
Major collectors carry four lanes of traffic within an 84-foot right-of-way and two bicycle lanes within an additional 10 feet of right-of-way. Collectors generally carry two lanes of traffic and are a minimum of 60 feet wide.

Local Streets

Local streets provide direct access to parcels. Local streets represent the largest part of the city's circulation system. Access to local streets is unrestricted and right-of-way widths vary between 48 and 66 feet depending on surrounding land uses (2008 City of Visalia Design and Improvement Standards). All roadways not identified in the General Plan as freeways, arterials, or collectors are designated local streets.

Although the City of Visalia Design Standards provide guidance on cross-section widths and the City has preserved right-of-way along street corridors for future transportation-related improvements, street designs may vary with regard to raised medians, travel lanes for vehicles, bicycle lanes, parking and sidewalks within these cross sections. Future roadways will be developed on a street by street basis according to direction from the City.

Figure 4-1: Roadway Classifications



Level of Service

To determine the operating conditions of a roadway segment or intersection, the concept of level of service (LOS) is commonly used. The LOS grading system is a scale ranging from LOS A to LOS F, with LOS A representing free-flow conditions and LOS F representing congested conditions. **Table 4-1** provides more specific definitions.

Table 4-1: Intersection Level of Service Definitions

		Stopped Delay/Vehicle (sec)		
LOS	*Description*	*Signalized*	*Unsignalized*	*All-Way Stop*
A	**Free Flow or Insignificant Delays:** Vehicles are completely unimpeded in their abil-ity to maneuver within the traffic stream. Control delay at signalized in-tersections is minimal.	< 10.0	< 10.0	< 10.0
B	**Stable Operation or Minimal Delays**: The ability to maneuver within the traffic stream is only slightly restricted, and control delay at signalized intersections are not significant.	>10 and < 20.0	>10 and < 15.0	>10 and < 15.0
C	**Stable Operation or Acceptable Delays:** The ability to maneuver and change lanes is somewhat restricted, and average travel speeds may be about 50 percent of the free flow speed.	>20 and < 35.0	>15 and < 25.0	>15 and < 25.0
D	**Approaching Unstable or Tolerable Delays**: Small increases in flow may cause sub-stantial increases in delay and decreases in travel speed.	>35 and < 55.0	>25 and < 35.0	>25 and < 35.0
E	**Unstable Operation or Significant Delays:** Significant delays may occur and average travel speeds may be 33 percent or less of the free flow speed.	>55 and < 80.0	>35 and < 50.0	>35 and < 50.0
F	**Forced Flow or Excessive Delays:** Conges-tion, high delays, and extensive queuing occur at critical signalized intersections with urban street flow at extremely low speeds.	> 80.0	> 50.0	> 50.0

Source: Highway Capacity Manual, Transportation Research Board.

Existing conditions for roadway segment levels of service were estimated utilizing average daily traffic (ADT) and then evaluated based on LOS thresholds; see **Table 4-2.**

Table 4-2: Level of Service Criteria for Roadway Segments

	Total Two-way Average Daily Traffic (ADT)				
Roadway Segment Type	*LOS A*	*LOS B*	*LOS C*	*LOS D*	*LOS E*
6-Lane Divided Freeway	42,000	64,800	92,400	111,600	120,000
4-Lane Divided Freeway	28,000	43,200	61,600	74,400	80,000
6-Lane Freeway	36,900	61,100	85,300	103,600	115,300
4-Lane Freeway	23,800	39,600	55,200	67,100	74,600
6-lane Divided Expressway (with left-turn lanes)	35,500	42,200	46,200	55,800	60,000
6-Lane Divided Arterial (with left-turn lane)	32,000	38,000	43,000	49,000	54,000
4-Lane Divided Arterial (with left-turn lane)	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial (no left-turn lane)	18,000	21,000	24,000	27,000	30,000
2-Lane Arterial (with left-turn lane)	11,000	12,500	14,500	16,000	18,000
2-Lane Arterial (no left-turn lane)	9,000	10,500	12,000	13,500	15,000
2-Lane Collector/Local Street	6,000	7,500	9,000	10,500	12,000

Note: All volumes are approximate and assume ideal roadway characteristics. Actual threshold volumes for each Level of Service listed above may vary depending on a variety of factors including curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks and other heavy vehicles, travel lane widths, signal timing characteristics, on-street parking, volume of cross traffic and pedestrians, etc.

Source: Based on "Highway Capacity Manual," Transportation Research Board, 2000.

All of the intersections and roadway segments studied for the General Plan update currently have acceptable "level of service" traffic conditions, including South Mooney Boulevard (State Route 63).

Existing Traffic Conditions

The city's roadways were evaluated using average daily traffic (ADT) counts for the 2008 to 2010 period. Intersection facilities were evaluated for the AM and PM peak-hour using 2010 peak-hour turning movement counts. Traffic conditions and deficiencies were identified by calculating level of service (LOS).

LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment representing progressively worsening traffic conditions. LOS was calculated for different intersection control types using the methods documented in the Highway Capacity Manual 2000 (HCM 2000).

The previous General Plan established LOS "D" as the minimum acceptable LOS standard on city roadways. 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.

Existing Intersection Level of Service

Existing weekday AM and PM peak-hour traffic volume counts were conducted at 25 intersections and 24-hour counts were conducted on roadway segments in April 2010 while school was in session. The AM peak hour is defined as one-hour of peak traffic flow counted between 7:00 AM and 9:00 AM and the PM peak hour is defined as one-hour of peak traffic flow counted between 4:00 PM and 6:00 PM. **Table 4-3** summarizes intersection LOS and seconds of delay for the AM and PM peak hours; Table 4-4 summarizes roadway segment LOS in 2010 (the baseline year).

As **Table 4-3** shows, all of the 25 study intersections operate at acceptable LOS under existing conditions (2010 baseline).

Table 4-3: Existing Intersection LOS (2010)

No.	Intersection	Control Type	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Riggin Avenue/Shirk Road	AWSC	9.7	A	9.6	A
2	Riggin Avenue/Demaree Street	Signal	17.4	B	19.8	B
3	Riggin Avenue/Giddings Street	TWSC	14.6	B	16.6	C
4	Riggin Avenue/Dinuba Boulevard	Signal	17.3	B	27.5	C
5	Ferguson Avenue/Linwood Street	AWSC	10.7	B	9.0	A
6	Goshen Avenue/Plaza Drive	Signal	24.7	C	22.5	C
7	Houston Avenue/Demaree Street	Signal	23.4	C	19.8	B
8	Houston Avenue/Ben Maddox way	Signal	20.6	C	24.0	C
9	Houston Avenue/McAuliff Street	Signal	20.7	C	18.2	B
10	Hurley Street/Plaza Drive	Signal	6.8	A	8.9	A
11	Hillsdale Avenue/Akers Street	Signal	21.3	C	18.1	B
12	Mineral King Avenue/Akers Street	Signal	16.9	B	17.9	B
13	Noble Avenue/Akers Street	Signal	14.1	B	17.5	B
14	Cypress Avenue/Akers Street	Signal	17.6	B	34.3	C
15	Main Street/West Street	Signal	6.6	A	7.1	A
16	Noble Avenue/Watson Street	Signal	8.4	A	7.1	A
17	Tulare Avenue/Santa Fe Street	AWSC	13.4	B	14.3	B
18	Walnut Avenue/Shirk Road	AWSC	13.3	B	15.7	C
19	Whitendale Avenue/Demaree Street	Signal	8.4	A	8.9	A
20	Whitendale Avenue/Woodland Drive	TWSC	11.8	B	14.5	B
21	K Avenue/Ben Maddox Way	AWSC	9.5	A	13.5	B
22	K Avenue/Lovers Lane	OWSC	15.4	C	17.9	C
23	Caldwell Avenue/Burke Street	Signal	15.6	C	23.8	C
24	Caldwell Avenue/Lovers Lane	Signal	18.8	B	21.0	C
25	Visalia Road/Akers Street	TWSC	16.9	C	15.6	C

Legend:
TWSC = Two-Way-Stop Control; AWSC = All-Way-Stop Control; OWSC = One-Way-Stop Control
For Signalized Intersections Average Delay = Average Intersection Delay; For TWSC Intersections Average Delay = Worst-Case Intersection Movement Delay; For Signalized Intersections LOS = Average Intersection Level-of-Service; For TWSC Intersections LOS = Worst-Case Movement's Level-of-Service; Warrant = MUTCD Peak Hour Warrant 3

Source: Omni-Means, 2014.

Table 4-4 identifies existing roadway segment LOS for existing conditions (baseline 2010). **Table 4-4** shows that all of the 33 roadway segments operate at acceptable LOS under existing conditions.

Table 4-4: Existing Roadway Segment LOS (2010)

Roadway Segment	*Limits*	*No. of Lanes*	*Facility Type*	*AADT*	*LOS*
Akers Street	Rialto – Caldwell Avenue	4	Arterial	7,100	B
Akers Street	Goshen Avenue – Ferguson Ave.	4	Arterial	10,400	B
Caldwell Avenue	Shirk Street - Aspen	2	Arterial	10,300	B
Caldwell Avenue	Ben Maddox Way – Pinkham Ave.	2	Arterial	13,500	B
Center Avenue	Floral Street – Court Street	2	Arterial	6,600	B
County Center	Beech Street – Walnut Avenue	2	Collector	10,478	C
Demaree Street	Damsen - Nicholas	4	Arterial	21,600	B
Demaree Street	Walnut Avenue – Tulare Avenue	4	Arterial	18,600	B
Goshen Avenue	Demaree Street – Chinowth Street	4	Arterial	18,800	B
Main Street	Floral Street – Court Street	2	Collector	7,100	C
Noble Avenue	Pinkham Street – Lovers Lane	2	Arterial	9,000	B
Riggin Avenue	Akers Street – Linwood Street	2	Arterial	7,800	C
Santa Fe Street	Center Avenue – School Street	2	Collector	2,600	B
Santa Fe Street	Walnut Avenue – Tulare Avenue	2	Collector	5,300	C
Shirk Avenue	Goshen Avenue – Doe Avenue	2	Arterial	7,600	C
Shirk Avenue	Walnut Avenue – State Route 198	2	Arterial	6,800	C
Walnut Avenue	Atwood – Linwood Street	4	Arterial	11,600	B
Walnut Avenue	Conyer Street – Court Street	4	Arterial	15,200	B
Walnut Avenue	Yale – Mall Entrance	4	Arterial	15,100	B
Whitendale Avenue	Crenshaw – Linwood Street	2	Collector	7,300	C
Whitendale Avenue	West Street – Court Street	2	Collector	6,100	C
State Route 63	Caldwell Avenue – Walnut Avenue	6	State Route	33,000	B
State Route 63	Walnut Avenue – Tulare Avenue	6	State Route	31,000	B
State Route 63	School Avenue – Murray Avenue	4	State Route	11,700	B
State Route 99	Caldwell Avenue – State Route 198	4	State Route	55,000	B

Table 4-4: Existing Roadway Segment LOS (2010)

Roadway Segment	*Limits*	*No. of Lanes*	*Facility Type*	*AADT*	*LOS*
State Route 99	State Route 198 – Avenue 304	4	State Route	49,500	B
State Route 99	Avenue 304 – Betty Drive	4	State Route	49,000	B
State Route 198	State Route – Akers Street	4	State Route	50,000	C
State Route 198	Akers Street - Mooney Boulevard	4	State Route	59,000	D
State Route 198	Mooney Boulevard – Lovers Lane	4	State Route	61,000	D
State Route 198	Lovers Lane – Road 156	4	State Route	29,000	B
State Route 216	Mill Creek Parkway – Douglas Ave.	4	State Route	19,200	B
State Route 216	Lovers Lane – McAuliff Street	2	State Route	9,200	C

Source: Omni-Means, 2010

Objectives

T-O-1 Develop and maintain a road system that is convenient, safe, efficient, and cost effective.

T-O-2 Maximize the use and efficiency of the existing transportation system through application of Transportation System Management (TSM) strategies.

T-O-3 Promote ways to reduce the number of peak hour trips and vehicle-miles traveled in the Planning Area.

T-O-4 Ensure that new development pays its fair share of the costs of new and improved transportation facilities.

Policies

System Planning

T-P-1 Provide transportation facilities based on a "Complete Streets" concept that facilitate the balanced use of all travel modes (pedestrians, bicyclists, motorists, and transit users), meeting the transportation needs of all ages and abilities and providing mobility for a variety of trip purposes.

T-P-2 Optimize roadway operations with priority given to signal timing coordination in order to increase traffic-carrying capacity and decrease air pollution and congestion. Roundabouts shall be considered when feasible and beneficial as an alternative to traffic signals.

The Plan directs the City to design and build future roadways following the Circulation Diagram, including new streets and improvements to existing streets (top). Street design standards are to be updated to follow the "Complete Streets" concept (bottom).

T-P-3 Design and build future roadways that complement and enhance the existing network, as shown on the Circulation Diagram, to ensure that each new and existing roadway continues to function as intended.

T-P-4 Where feasible, space traffic signals no closer than one-quarter mile along two-way arterials except in unusual circumstances. The intersections of arterial and collector streets and access driveways to major traffic generators that are signalized shall be located so as to maintain this spacing.

T-P-5 Take advantage of opportunities to consolidate driveways, access points, and curb cuts along existing arterials when a change in development or a change in intensity occurs or when traffic operation or safety warrants.

T-P-6 Establish priorities for improvements based on the functional classifications identified for street segments on the Circulation System Map and on the relative importance of the roadway for each travel mode.

For example, transit stops and bus turnouts may have higher priority than improvements for through traffic on important transit corridors; through traffic may have higher priority than on-street parking on major arterials; and pedestrian and bicycle movement may have high priority in areas with high pedestrian interest and activity (such as Downtown).

T-P-7 Continue to implement a monitoring and evaluation program that will provide the data and planning needed to develop an effective and coordinated Capital Improvement Program (CIP) that will provide circulation improvements in concert with development trends.

T-P-8 Give priority to funding and implementing projects that either complete links on the transportation system or relieve existing deficiencies.

Level of Service Standards; Engineering and Safety Standards

T-P-9 Maintain acceptable levels of service for all modes and facilities, as established in Tables 4-1, Intersection Level of Service Definitions and 4-2, Level of Service Criteria for Roadway Segments.

T-P-10 Manage local residential streets to limit average daily vehicle volumes to 1,500 or less and maintain average vehicle speeds between 15 and 25 miles per hour.

T-P-11 Update the City of Visalia Engineering and Street Design Standards to ensure that roadway and streetscape design specifications are in accordance with the Complete Streets concept and other policies in this General Plan.

Updated design standards must allow flexibility to accommodate retrofitting streets with limited right-of-way. In order to accommodate all travel modes, adjustments may be made to median, travel lane, and bike lane widths; alternate *bikeway routes on parallel facilities may also be considered.*

T-P-12 Require or provide adequate traffic safety measures on all new and existing roadways.

These measures may include, but shall not be limited to: appropriate levels of maintenance, proper street design, traffic control devices, street lights, and coordination with school districts to provided school crossing signs and protection.

Right of Way Acquisition and Construction

T-P-13 Where possible, acquire right-of-way within older areas of the city to improve the connectivity of the roadway system, consistent with Figure 4-1. The benefits of improved traffic flow shall be weighed against the adverse impacts of street widening on the neighborhoods and adjacent land uses.

T-P-14 Require residential communities on undeveloped land planned for urban uses to provide stubs for future connections to the edge of the property line. Where stubs exist on adjacent properties, new streets within the development should connect to them.

T-P-15 Require additional right-of-way and improvements of Circulation Element facilities where needed for turning movements or to provide access to adjacent properties wherever access is not feasible from the lower classification street system.

T-P-16 Promote phased construction of major arterials where sufficient right-of-way width is obtained for ultimate future needs, but street construction width is adequate to meet present need, thereby avoiding maintenance costs resulting from unused pavement.

T-P-17 Use citywide traffic impact fees to provide additional funding for transportation improvements with citywide benefits, such as highway interchanges and ramps. Provide for automatic annual adjustments in traffic fees to reflect increases in construction costs (materials, inflation, etc.).

Traffic Studies and Mitigation Measures

T-P-18 To ensure that citywide traffic service levels are maintained, require a traffic study, as a condition of development, of surrounding arterials, collectors, access roads, and regionally significant roadways for any major project that would require a General Plan amendment, and for projects where the proposed use could create traffic congestion because needed improvements identified by this General Plan would not be completed before project occupancy or are not funded under the CIP.

The City will update its criteria and guidelines for traffic studies to be consistent with the General Plan, and projects that conform to General Plan-specified land use designations and intensities will generally not be required to prepare a traffic study.

T-P-19 Pursue Transportation System Management (TSM) for the mitigation of traffic and parking congestion.

Public transit, traffic management, ride sharing, and parking management can be used to implement TSM strategies.

T-P-20 Work with major employers and the Tulare County Association of Governments (TCAG) to reduce total vehicle miles traveled and the total number of daily and peak hour vehicle trips and provide better utilization of the transportation system through development and implementation of Transportation Demand Management (TDM) strategies that are tailored to the needs of geographic areas within the city and the time period of traffic congestion.

These may include the implementation staggered work hours, utilization of telecommunications, increased use of ridesharing in the public and private sectors, and provision for bicyclists.

Coordination with the College of the Sequoias

T-P-21 Coordinate with the College of the Sequoias to develop a transportation plan that ensures that the College provides adequate parking areas for students and faculty; improves circulation issues on and adjacent to campus; integrates transit; and incorporates Transportation Demand Management (TDM) strategies such as incentives for ridesharing and facilities for bicyclists.

The plan should minimize negative impacts on surrounding residential areas and on the transportation system.

4.4 PLANNED IMPROVEMENTS

To achieve a balance between existing and future land uses and the carrying capacity of transportation corridors, improvements to the roadway network will be needed. The future Circulation Diagram is illustrated in **Figure 4-1**. Major street improvements consistent with the Circulation Diagram planned for Visalia are listed in **Table 4-5**. These improvements include widening portions of State Route 198 and other major arterials, new bridge crossings, interchange improvements and grade separations. Several new arterial roads will need to be constructed as well as numerous collector and residential streets in the targeted growth areas. The proposed roads are conceptual, subject to further engineering and environmental review. Interchange improvements may be done in coordination with Caltrans and other jurisdictions.

Table 4-5 shows planned improvements where engineering details are known; additional improvements, shown on **Figure 4-1**, will also be needed to accommodate future traffic and ensure a complete street system correlated with future land use. Details on these planned improvements will be defined as the City moves forward with long-range capital improvement programming.

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
NEW ROADWAY CONSTRUCTION PROJECTS			
Avenue 272	Construct new roadway	Rd 122 to Santa Fe; 0.8 mi.	New 2-lane; 1/2 arterial
Avenue 320	Construct new roadway	Demaree to Mooney; 1 mi.	New 2-lane; 1/2 arterial
Mooney Boulevard	Construct new roadway	Riggin to Avenue 320; 1 mi.	New 2-lane; arterial
Court Street	Construct new roadway	Wren to Riggin; 0.2 mi.	New 2-lane; collector
Tulare Avenue	Construct new roadway	Lovers Lane to McAuliff; 0.5 mi.	New 2-lane; collector
Cain Street	Construct new roadway	Goshen to Douglas; 0.2 mi.	New 2-lane; collector
Kelsey Street	Construct new roadway	Doe to Riggin; 0.7 mi.	New 2-lane; collector
Sunnyview Avenue	Construct new roadway	Kelsey to Clancy; 0.5 mi.	New 2-lane; collector
Virmargo Street	Construct new roadway	Goshen to Houston; 0.5 mi.	New 2-lane; collector
Chinowth Street	Construct new roadway	Avenue 272 to Caldwell; 1 mi.	New 2-lane; collector
Chinowth Street	Construct new roadway	Goshen to Houston; 0.2 mi.	New 2-lane; collector
Court Street	Construct new roadway	Avenue 272 to Ave 276; 0.5 mi.	New 2-lane; collector
Linwood Street	Construct new roadway	Avenue 272 to Ave 276; 0.5 mi.	New 2-lane; collector
Linwood Street	Construct new roadway	Riggin to Avenue 320; 1 mi.	New 2-lane; collector
Pinkham Street	Construct new roadway	Avenue 272 to Caldwell; 0.9 mi.	New 2-lane; collector
Roeben Street	Construct new roadway	Caldwell to Whitendale; 0.5 mi.	New 2-lane; collector
Tulare Avenue	Construct new roadway	Shirk to Roeben; 0.5 mi.	New 2-lane; collector
Avenue 276 (Visalia Pkwy)	Construct new roadway	Ben Maddox to Rd 148; 2 mi.	New 2-lane; collector
Avenue 308 (Ferguson)	Construct new roadway	American (Rd 76) to Plaza; 0.5 mi.	New 2-lane; collector
Avenue 316	Construct new roadway	Plaza to Chinowth; 3.2 mi.	New 2-lane; collector
County Center Drive	Construct new roadway	Avenue 272 to Packwood Creek; 0.7 mi.	New 2-lane; collector
County Center Drive	Construct new roadway	Pratt to Avenue 320; 0.5 mi.	New 2-lane; collector
Giddings Street	Construct new roadway	Shannon Pkwy to Avenue 316; 0.3 mi.	New 2-lane; collector
Hurley Avenue	Construct new roadway	Camp to American (Rd 76); 0.3 mi.	New 2-lane; collector
Hurley Avenue	Construct new roadway	Kelsey to Shirk; 1 mi.	New 2-lane; collector
Hurley Avenue	Construct new roadway	Road 76 to Plaza; 0.5 mi.	New 2-lane; collector
"K" Avenue	Construct new roadway	Lovers Lane to McAuliff; 0.5 mi.	New 2-lane; collector
Kelsey Street	Construct new roadway	Riggin to Avenue 320; 1 mi.	New 2-lane; collector

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
McAuliff Street	Construct new roadway	Avenue 272 to Caldwell; 1 mi.	New 2-lane; collector
McAuliff Street	Construct new roadway	Walnut to Caldwell; 1 mi.	New 2-lane; collector
Road 76 (American)	Construct new roadway	Ferguson (Ave 308) to Riggin; 0.5 mi.	New 2-lane; collector
Road 76 (American)	Construct new roadway	Hurley to Legacy; 0.2 mi.	New 2-lane; collector
Road 88	Construct new roadway	Riggin to Avenue 320; 1 mi.	New 2-lane; collector
Road 96 (Roeben St)	Construct new roadway	Riggin to Avenue 320; 1.4 mi.	New 2-lane; collector
Tulare Avenue	Construct new roadway	Rd 148 to Rd 152; 0.6 mi.	New 2-lane; collector
Doe Avenue	Construct new roadway	Shirk to Roeben; 0.5 mi.	New 2-lane; collector
Shannon Parkway	Construct new roadway	Dinuba Blvd. (SR 63) to Santa Fe; 0.5 mi.	New 2-lane; collector
St John's Parkway	Construct new roadway	McAuliff to Rd 148; 0.5 mi.	New 2-lane; collector
Virmargo Street	Construct new roadway	Houston to St. John's Parkway; 0.4 mi.	New 2-lane; collector
Whitendale Avenue	Construct new roadway	Shirk to Roeben; 0.5 mi.	New 2-lane; collector
Burke Street	Construct new roadway	Roosevelt to Houston; 0.3 mi.	New 2-lane; collector
Oak Ave	Construct new roadway	Tipton to Burke; 0.2 mi	New 2-lane; local
School Ave	Construct new roadway	Tipton to Burke; 0.2 mi	New 2-lane; local
Avenue 276 (Visalia Pkwy)	Construct new roadway	Demaree to Ben Maddox; 3 mi.	New 4-lane; Arterial
Ben Maddox Way	Construct new roadway	Avenue 272 to Caldwell; 0.9 mi.	New 4-lane; arterial
Road 148	Construct new roadway	Houston (SR 216) to St. John's Pkwy; 0.2 mi.	New 4-lane; Arterial
Road 148	Construct new roadway	Mineral King to Houston; 1.1 mi.	New 4-lane; Arterial
Road 148	Construct new roadway	Walnut to Noble; 0.9 mi.	New 4-lane; Arterial
Santa Fe Street	Construct new roadway	Riggin/St John's Parkway to Shannon Parkway; 0.3 mi.	New 4-lane; arterial
Stonebrook Street	Construct new roadway	Avenue 272 to Caldwell; 1 mi.	New 4-lane; collector

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
EXISTING ROADWAY WIDENING PROJECTS			
Houston Ave.	Widen existing roadway	Ben Maddox to Lovers Lane; 1 mi.	Widen from 2 to 4 lanes
Houston Ave.	Widen existing roadway	Santa Fe to Ben Maddox; .5 mi.	Widen from 2 to 4 lanes
Murray Ave.	Widen existing roadway	Giddings to Santa Fe; 1 mi.	Widen from 2 to 4 lanes
Santa Fe St.	Widen existing roadway	K St to Tulare; .9 mi.	Widen from 2 to 4 lanes
Santa Fe St.	Widen existing roadway	Tulare to Houston; 1.5 mi.	Widen from 2 to 4 lanes
Walnut Ave.	Widen existing roadway	Yale to Central; .2 mi.	Widen from 2 to 4 lanes
Akers Street	Widen existing roadway	Ferguson to Riggin; 0.5 mi.	Widen from 2 to 4 lanes
Court St.	Widen existing roadway	Walnut to Tulare; .4 mi.	Widen from 2 to 4 lanes
Ferguson Ave.	Widen existing roadway	Plaza to Kelsey; .5 mi.	Widen from 2 to 4 lanes
Goshen Avenue	Widen existing roadway	Santa Fe to Lovers Lane; 1.6 mi.	Widen from 2 to 4 lanes
McAuliff Street	Widen existing roadway	Mineral King to Mill Creek Pkwy; 0.6 mi.	Widen from 2 to 4 lanes
Santa Fe Street	Widen existing roadway	Caldwell to "K"; 0.7 mi.	Widen from 2 to 4 lanes
Whitendale Avenue	Widen existing roadway	Sallee to Fairway; 0.4 mi.	Widen from 2 to 4 lanes
Santa Fe St.	Widen existing roadway	Caldwell to Ave. 272; 1 mi.	Widen from 2 to 4 lanes
Santa Fe Street	Widen existing roadway	Houston to Riggin; 1 mi.	Widen from 2 to 4 lanes
Shirk Road	Widen existing roadway	Caldwell to SR198; 4 mi.	Widen from 2 to 4 lanes
Shirk Road	Widen existing roadway	SR198 to Goshen Ave; 1 mi.	Widen from 2 to 4 lanes
Walnut Avenue	Widen existing roadway	Cedar to Rd 148; 1.2 mi.	Widen from 2 to 4 lanes
Akers Street	Widen existing roadway	Avenue 276 to Avenue 272; 0.5 mi.	Widen from 2 to 4 lanes
Akers Road	Widen existing roadway	Caldwell to Visalia Pkwy (Ave. 276); .5 mi.	Widen from 2 to 4 lanes
Demaree St.	Widen existing roadway	Pratt to Ave 320; 0.5 mi.	Widen from 2 to 4 lanes
Goshen Ave.	Widen existing roadway	Camp to American (Rd 76); 0.6 mi.	Widen from 2 to 4 lanes
Hwy 63 (Dinuba Blvd)	Widen existing roadway	Riggin to St John's River; 0.6 mi.	Widen from 2 to 4 lanes
Road 148	Widen existing roadway	Ave 272 to Ave 276; 0.5 mi.	Widen from 2 to 4 lanes
Road 148	Widen existing roadway	Ave 276 to Walnut; 1.5 mi.	Widen from 2 to 4 lanes
Shirk Street	Widen existing roadway	Goshen to Riggin; 1 mi.	Widen from 2 to 4 lanes
Walnut Avenue	Widen existing roadway	Shirk to Akers; 1 mi.	Widen from 2 to 4 lanes

Table 4-5: Planned Circulation System Improvements			
Facility	*Project Scope*	*Length*	*Type of Improvement*
Walnut Avenue	Widen existing roadway	Rd 148 to Rd 152; 0.5 mi.	Widen from 2 to 4 lanes
Lovers Lane	Widen existing roadway	Ave 272 to Caldwell; 1 mi.	Widen from 2 to 4 lanes
Riggin Avenue	Widen existing roadway	Road 80 to SR 63	Widen from 2 to 4 lanes
Caldwell Avenue	Widen existing roadway	Akers St to Linwood Ave; 0.5 mi.	Widen from 2 to 4 lanes
Plaza Drive	Widen existing roadway	Crowley to Avenue 304 (Goshen)	Widen from 2 to lanes
Mooney Boulevard (SR 63)	Widen existing roadway	Avenue 272 to Avenue 276; 0.5 mi.	Widen from 4 to 6 lanes
BRIDGE STRUCTURE PROJECTS			
Preston Street	New bridge	Preston St at Mill Creek Ditch	New 2-lane bridge; local
McAuliff Street	New over crossing	McAuliff St/SR 198	New bridge structure
Ben Maddox Way	Widen over crossing	Ben Maddox Way/SR 198	Widen bridge structure
TRAFFIC SIGNAL IMPROVEMENT PROJECTS			
Acequia Ave at Bridge St	Not applicable	Not applicable	New Traffic Signal
Acequia Ave at Burke St	Not applicable	Not applicable	New Traffic Signal
Acequia Ave at Santa Fe St	Not applicable	Not applicable	New Traffic Signal
Akers St at Ferguson Ave	Not applicable	Not applicable	New Traffic Signal
Akers St at Riggin Ave	Not applicable	Not applicable	New Traffic Signal
Akers St at Visalia Parkway	Not applicable	Not applicable	New Traffic Signal
Beech Ave at Court St	Not applicable	Not applicable	New Traffic Signal
Ben Maddox Way at Douglas Ave	Not applicable	Not applicable	New Traffic Signal
Ben Maddox Way at K Ave	Not applicable	Not applicable	New Traffic Signal
Bridge St at Center Ave	Not applicable	Not applicable	New Traffic Signal
Bridge St at Main St	Not applicable	Not applicable	New Traffic Signal
Bridge St at Murray Ave	Not applicable	Not applicable	New Traffic Signal
Bridge St at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Burke St at Center Ave	Not applicable	Not applicable	New Traffic Signal
Burke St at Goshen Ave	Not applicable	Not applicable	New Traffic Signal
Burke St at Main St	Not applicable	Not applicable	New Traffic Signal
Burke St at St John's Pkwy	Not applicable	Not applicable	New Traffic Signal

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
Burke St at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Burrel Ave at Mooney Blvd	Not applicable	Not applicable	New Traffic Signal
Cain St at Main St	Not applicable	Not applicable	New Traffic Signal
Cain St at Mineral King Ave	Not applicable	Not applicable	New Traffic Signal
Cameron Ave at County Center	Not applicable	Not applicable	New Traffic Signal
Cameron Ave at Court St	Not applicable	Not applicable	New Traffic Signal
Campus Ave at County Center	Not applicable	Not applicable	New Traffic Signal
Center Ave at Conyer St	Not applicable	Not applicable	New Traffic Signal
Center Ave at SantavFe St	Not applicable	Not applicable	New Traffic Signal
Central St at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Chinowth St at Goshen Ave	Not applicable	Not applicable	New Traffic Signal
College Ave at Lovers Lane	Not applicable	Not applicable	New Traffic Signal
County Center at Ferguson Ave	Not applicable	Not applicable	New Traffic Signal
County Center at Houston Ave	Not applicable	Not applicable	New Traffic Signal
County Center at Packwood Ave	Not applicable	Not applicable	New Traffic Signal
County Center at Riggin Ave	Not applicable	Not applicable	New Traffic Signal
County Center at Royal Oaks Ave	Not applicable	Not applicable	New Traffic Signal
Court St at Ferguson Ave	Not applicable	Not applicable	New Traffic Signal
Court St at Granite/Pearl St	Not applicable	Not applicable	New Traffic Signal
Court St at Paradise Ave	Not applicable	Not applicable	New Traffic Signal
Court St at Whitendale Ave	Not applicable	Not applicable	New Traffic Signal
Crenshaw St at Whitendale Ave	Not applicable	Not applicable	New Traffic Signal
Cypress Ave at Linwood St	Not applicable	Not applicable	New Traffic Signal
Damsen Ave at Demaree St	Not applicable	Not applicable	New Traffic Signal

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
Demaree St at Ferguson Ave	Not applicable	Not applicable	New Traffic Signal
Demaree St at Mill Creek Pkwy	Not applicable	Not applicable	New Traffic Signal
Divisadero St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Divisadero St at Whitendale Ave	Not applicable	Not applicable	New Traffic Signal
Doe Ave at Shirk St	Not applicable	Not applicable	New Traffic Signal
Encina St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Ferguson Ave at Linwood St	Not applicable	Not applicable	New Traffic Signal
Ferguson Ave at Mooney Blvd	Not applicable	Not applicable	New Traffic Signal
Giddings St at Prospect Ave	Not applicable	Not applicable	New Traffic Signal
Giddings St at Riggin Ave	Not applicable	Not applicable	New Traffic Signal
Goshen Ave at Mooney Blvd	Not applicable	Not applicable	New Traffic Signal
Grape St at NE 3rd	Not applicable	Not applicable	New Traffic Signal
Houston Ave at Jacob St	Not applicable	Not applicable	New Traffic Signal
Houston Ave at Mooney Blvd	Not applicable	Not applicable	New Traffic Signal
Houston Ave at Rinaldi St	Not applicable	Not applicable	New Traffic Signal
Hurley Ave at Shirk St	Not applicable	Not applicable	New Traffic Signal
Jacob St at Main St.	Not applicable	Not applicable	New Traffic Signal
K Ave at Pinkham St	Not applicable	Not applicable	New Traffic Signal
Lovers Lane at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Main St at Mineral King Ave	Not applicable	Not applicable	New Traffic Signal
McAuliff St at Noble Ave	Not applicable	Not applicable	New Traffic Signal
McAuliff St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Murray Ave at Santa Fe St	Not applicable	Not applicable	New Traffic Signal

Table 4-5: Planned Circulation System Improvements

Facility	*Project Scope*	*Length*	*Type of Improvement*
Noble Ave at Pinkham St	Not applicable	Not applicable	New Traffic Signal
Riggin Ave at Shirk Rd	Not applicable	Not applicable	New Traffic Signal
Roeben St at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Roeben St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Santa Fe St at Tulare Ave	Not applicable	Not applicable	New Traffic Signal
Santa Fe St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Shirk St at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
Visalia Mall entrance at Walnut Ave	Not applicable	Not applicable	New Traffic Signal
West St at Whitendale Ave	Not applicable	Not applicable	New Traffic Signal
Whitendale Ave at Woodland Dr	Not applicable	Not applicable	New Traffic Signal
Traffic signal interconnection	Connecting existing traffic signals	1.0 mile	Signal interconnect

Source: Omni Means, 2014 & Tulare County Regional Transportation Plan, 2011.

Table 4-6: Typical Street Elements and Widths (Feet)

Street Classification	Right-of-Way Width	Curb-to-Curb Width	Travel Lanes	Parking Lanes	Bicycle Lanes	Median Strip	Planter Strip[1]	Sidewalk
6-Lane Arterial	134′	110′	6 x 12′	None	2 x 6′	26′	5′	7′
4-Lane Arterial	110′	86′	4 x 12′	None	2 x 6′	26′	5′	7′
2-Lane Arterial	74′	50′	2 x 12′	None	2 x 6′	14′	5′	7′
4-Lane Collector	110′	86′	4 x 12′	2 x 8′	2 x 5′	12′	5′	7′
2-Lane Collector	84′	62′	2 x 12′	2 x 8′	2 x 5′	12′	5′	6′
2-Lane Local	60′	40′	2 x 12′	2 x 8′	None	None	5′	5′

1. Minimum planter strip width stated in the table includes the width of the curb.

Source: Dyett and Bhatia, 2010; Omni-Means, 2012.

Street Standards

Typical street widths and design elements in Visalia are listed in **Table 4-6**. All street designs are subject to review and approval by the Public Works Department and additional local street cross-sections may be approved with area plans, development projects or subdivisions to reflect specific design concepts. Although the City of Visalia Design Standards provide guidance on cross-section widths and the City has preserved right-of-way along street corridors for future transportation-related improvements, street designs may vary with regard to raised medians, travel lanes for vehicles, bicycle lanes, parking and sidewalks within these cross sections. Future roadways will be developed on a street by street basis according to direction from the City.

Streetscape Improvements

Complementing improvements to the citywide street system are improvements to the city's streetscape and city identity. These streetscape types create a hierarchy for navigation throughout the city, and provide opportunities for public art, signage, and special landscaping and fixtures. The General Plan introduces four streetscape concepts, shown on the illustrative street sections that follow.

Figure 4-2a shows a "green street" version of a two-lane collector. Green Streets are more intimate in scale and provide greater pedestrian facilities like wide sidewalks, furnishings, curb bulb-outs, and frequent, well-marked crosswalks. This design may be appropriate for streets like Main Street, Murray Avenue, Court Street/Dinuba Boulevard, and Santa Fe Street. The shared travel/bike lane is a departure from the typical street section for a two-lane collector.

Figure 4-2b shows a "green corridor" that supports multimodal circulation, where pedestrians, bicyclists, and vehicles share the right-of-way. Street trees and lighting play an important role on these streets in providing a consistent landscape scheme and shading. Typically, street parking would be provided on a collector but not on an arterial. Arterial versions of green corridors may include major east-west and north-south connections like Goshen Avenue, Walnut Avenue, and Demaree Street. **Figure 4-2c** shows a green corridor in a Downtown context where right-of-way may be more limited and buildings are built to the street edge.

Figure 4-2d shows an arterial that accommodates transit in its own lane, and supports a pedestrian-realm that complements transit. The "transit corridor" may be considered a type of four-lane arterial. This design could be appropriate along the route of a future light rail or bus rapid transit line on Goshen Avenue, South Mooney Boulevard, Main Street or Murray Avenue.

"Gateway boulevards," as shown in **Figure 4-2e**, provide a sense of identity and entrance into the city. Double rows of trees, enhanced plantings, and lighting elements are the primary components of the streetscape design. Gateway boulevards may be an appropriate design for six-lane arterials that could include Shirk Road, Riggin Avenue, Lovers Lane, and Caldwell Avenue.

Figure 4-2a: Green Street (2-Lane Collector)

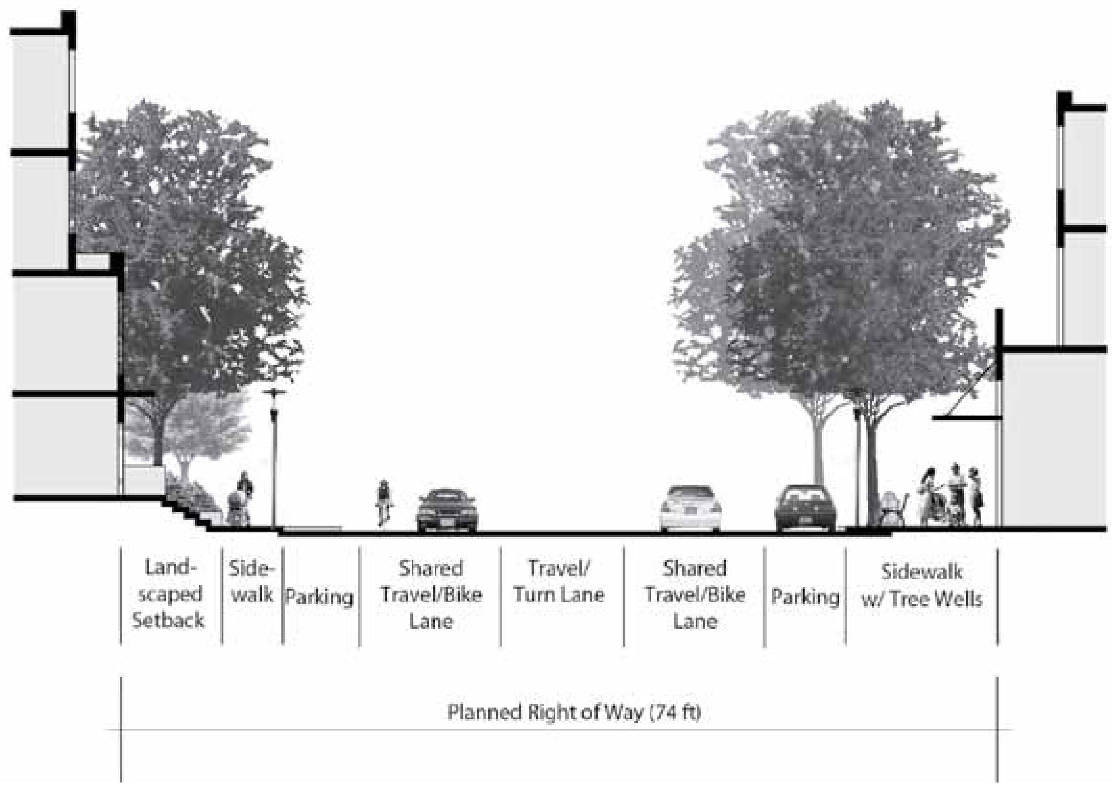


Figure 4-2b: Green Corridor (4-Lane Collector)

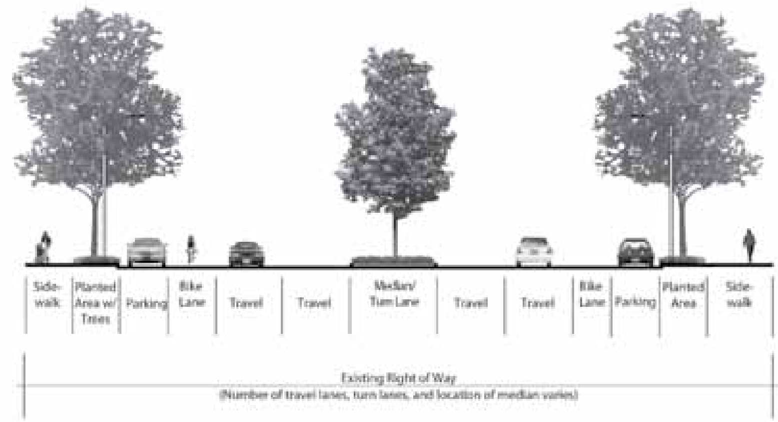


Figure 4-2d: Transit Corridor (4-Lane Arterial, with Transit)

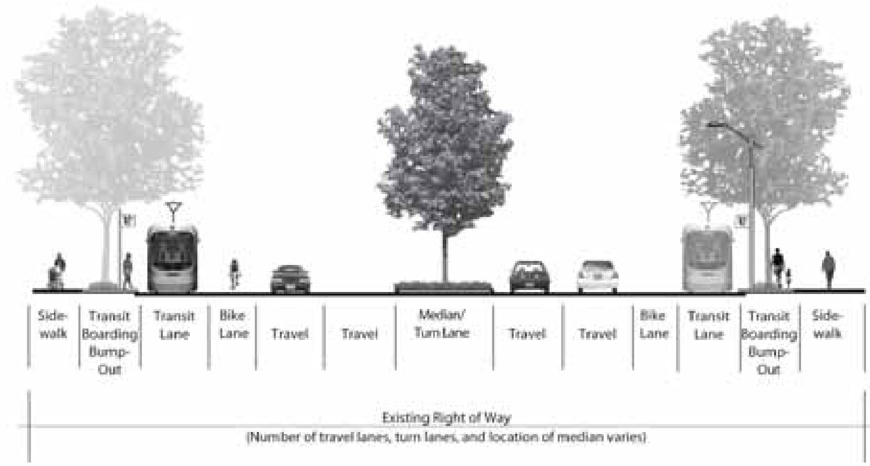


Figure 4-2c: Green Corridor - Downtown (4-Lane Collector)

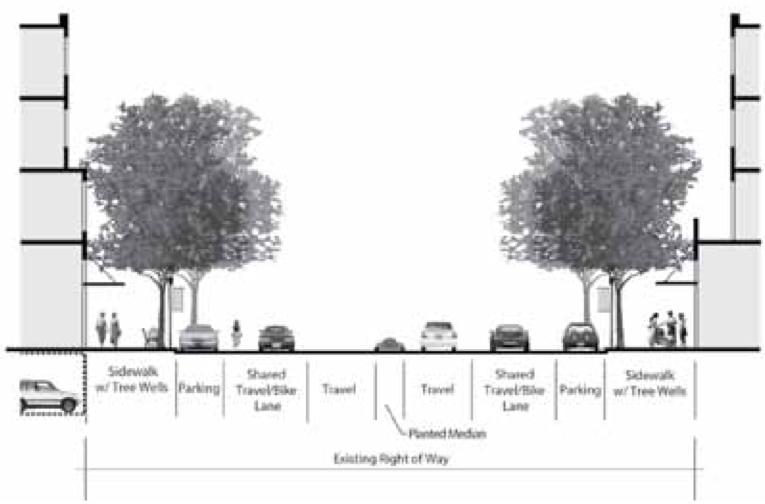
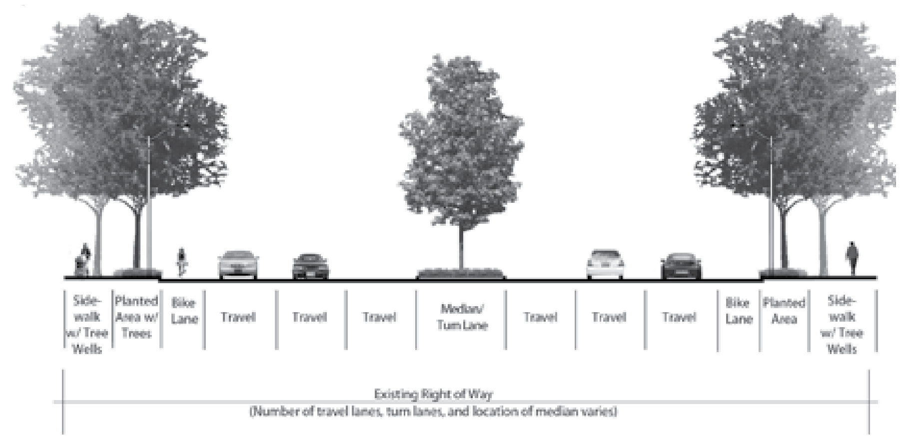


Figure 4-2e: Gateway Boulevard (6-Lane Arterial)



Future Traffic Conditions

The TCAG Regional Travel Demand Forecast Model (RTDFM) was used to identify future traffic volumes along local, collector, and arterial roads and freeways. The model treats these as a system of links, or streets, that connect future land uses—i.e., residential and non-residential uses—based on each city's and the county's general plan. Tulare Council of Governments (TCAG) provided the transportation model forecasts for land use and circulation.

Table 4-7 identifies 2030 forecasted AM and PM peak hour traffic LOS. As shown in **Table 4-7**, all of the study intersections are projected to operate at acceptable LOS with planned improvements, including traffic signalization and lane modifications that will be required during the life of the General Plan.[1] The lane geometry and signal control of each study intersection is shown in **Figure 4-2**.

1 Mitigation measures for these impacts will be evaluated in the Draft EIR. These may include signalization and intersection improvements as well as shifting traffic to alternate routes and an expanded grid—options that the TCAG model cannot evaluate because they are fine-grained, but can be studied with "post-processing" analysis techniques.

Table 4-7: Future Intersection LOS (2030)

			AM Peak Hour		*PM Peak Hour*	
No.	*Intersection*	*Control Type*	*Delay*	*LOS*	*Delay*	*LOS*
1	Riggin Avenue/Shirk Road	Signal	25.7	C	31.9	C
2	Riggin Avenue/Demaree Street	Signal	22.3	C	26.9	C
3	Riggin Avenue/Giddings Street	Signal	14.8	B	16.6	B
4	Riggin Avenue/Dinuba Boulevard	Signal	29.3	C	37.6	D
5	Ferguson Avenue/Linwood Street	AWSC	18.7	C	12.2	B
6	Goshen Avenue/Plaza Drive	Signal	25.3	C	25.7	C
7	Houston Avenue/Demaree Street	Signal	42.0	D	31.8	C
8	Houston Avenue/Ben Maddox way	Signal	22.6	C	41.0	D
9	Houston Avenue/McAuliff Street	Signal	27.9	C	16.9	B
10	Hurley Street/Plaza Drive	Signal	24.9	C	38.2	D
11	Hillsdale Avenue/Akers Street	Signal	25.6	C	34.2	C
12	Mineral King Avenue/Akers Street	Signal	34.0	C	31.2	C
13	Noble Avenue/Akers Street	Signal	48.3	D	45.5	D

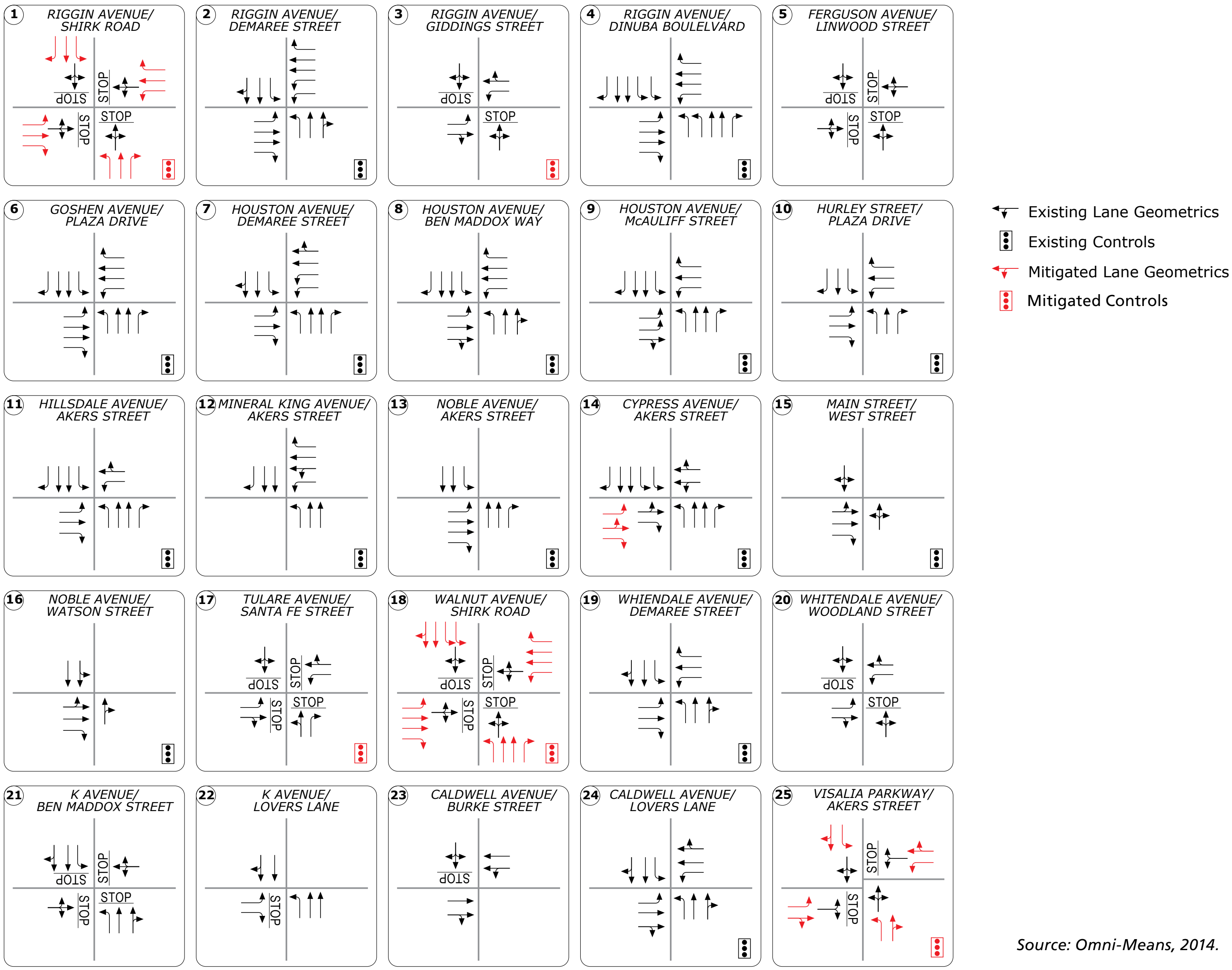
Table 4-7: Future Intersection LOS (2030)

No.	*Intersection*	*Control Type*	*AM Peak Hour*		*PM Peak Hour*	
			Delay	*LOS*	*Delay*	*LOS*
14	Cypress Avenue/Akers Street	Signal	20.0	C	30.5	C
15	Main Street/West Street	Signal	6.3	A	7.7	A
16	Noble Avenue/Watson Street	Signal	13.7	B	11.5	B
17	Tulare Avenue/Santa Fe Street	Signal	27.8	C	33.9	C
18	Walnut Avenue/Shirk Road	Signal	30.3	C	25.2	C
19	Whitendale Avenue/Demaree Street	Signal	14.5	B	16.6	B
20	Whitendale Avenue/Woodland Drive	Signal	8.8	A	9.7	A
21	K Avenue/Ben Maddox Way	AWSC	18.8	C	34.1	D
22	K Avenue/Lovers Lane	Signal	14.3	B	14.7	B
23	Caldwell Avenue/Burke Street	Signal	12.1	B	13.3	B
24	Caldwell Avenue/Lovers Lane	Signal	25.5	C	54.5	D
25	Visalia Parkway/Akers Street	Signal	18.0	B	17.4	B

AWSC = All-Way-Stop Control
For Signalized Intersections Average Delay = Average Intersection Delay; For Signalized Intersections LOS = Average Intersection Level-of-Service; AWSC Intersections Average Delay = Worst-Case Intersection Movement Delay; For AWSC Intersections LOS = Worst-Case Movement's Level-of-Service

Source: Omni-Means, 2014.

Figure 4-3: Year 2030 Improved Lane Geometrics and Control



Source: Omni-Means, 2014.

Table 4-8 identifies projected average daily traffic and LOS in 2030 at 33 study roadway segments. Projected 2030 traffic volumes, consistent with the proposed General Plan land uses, are shown below.

Table 4-8: Future Roadway LOS (2030)

Roadway Segment	*Limits*	*No. of Lanes*	*Facility Type*	*AADT*	*LOS*
Akers Street	Rialto – Caldwell Avenue	4	Arterial	15,540	A
Akers Street	Goshen Avenue – Ferguson Ave.	4	Arterial	32,550	D
Caldwell Avenue	Shirk Street - Aspen	4	Arterial	18,300	A
Caldwell Avenue	Ben Maddox Way – Pinkham Ave.	4	Arterial	21,200	B
Center Avenue	Floral Street – Court Street	2	Arterial	3,220	A
County Center	Beech Street – Walnut Avenue	2	Collector	6,110	B
Demaree Street	Damsen - Nicholas	4	Arterial	32,010	D
Demaree Street	Walnut Avenue – Tulare Avenue	4	Arterial	25,800	B
Goshen Avenue	Demaree Street – Chinowth Street	4	Arterial	35,250	D
Main Street	Floral Street – Court Street	2	Collector	3,710	A
Noble Avenue	Pinkham Street – Lovers Lane	2	Arterial	13,000	C
Riggin Avenue	Akers Street – Linwood Street	4	Arterial	19,800	B
Santa Fe Street	Center Avenue – School Street	4	Collector	12,310	B
Santa Fe Street	Walnut Avenue – Tulare Avenue	4	Collector	13.610	B
Shirk Avenue	Goshen Avenue – Doe Avenue	4	Arterial	20,660	A
Shirk Avenue	Walnut Avenue – State Route 198	4	Arterial	24,900	B
Walnut Avenue	Atwood – Linwood Street	4	Arterial	14,400	A
Walnut Avenue	Conyer Street – Court Street	4	Arterial	17,660	A
Walnut Avenue	Yale – Mall Entrance	4	Arterial	13,040	A
Whitendale Avenue	Crenshaw – Linwood Street	2	Collector	6,940	B
Whitendale Avenue	West Street – Court Street	2	Collector	7,060	B
State Route 63	Caldwell Avenue – Walnut Avenue	6	State Route	29,730	A
State Route 63	Walnut Avenue – Tulare Avenue	6	State Route	31,900	A
State Route 63	School Avenue – Murray Avenue	4	State Route	26,630	C
State Route 99	Caldwell Avenue – State Route 198	6	State Route	97,200	C

Table 4-8: Future Roadway LOS (2030)

Roadway Segment	*Limits*	*No. of Lanes*	*Facility Type*	*AADT*	*LOS*
State Route 99	State Route 198 – Avenue 304	6	State Route	84,420	B
State Route 99	Avenue 304 – Betty Drive	6	State Route	84,420	B
State Route 198	**State Route 99 – Akers Street**	**4**	**State Route**	**76,020**	**E**
State Route 198	**Akers Street – Mooney Boulevard**	**4**	**State Route**	**89,890**	**F**
State Route 198	**Mooney Boulevard – Lovers Lane**	**4**	**State Route**	**84,400**	**F**
State Route 198	Lovers Lane – Road 156	4	State Route	42,810	A
State Route 216	Mill Creek Parkway – Douglas Ave.	4	State Route	24,540	B
State Route 216	Lovers Lane – McAuliff Street	2	State Route	15,840	C

Source: TCAG Regional Travel Demand Forecast Model; Omni-Means, 2014.

As shown in **Table 4-8**, the three roadway segments along State Route 198 between State Route 99 and Lovers Lane are projected to operate at unacceptable LOS F conditions at buildout. The State Route 198 Route Concept Report identifies this as a full-build six-lane freeway in the future between Road 80 and Downtown Visalia, which would accommodate traffic projections along these segments. However, State Route 198 between State Route 99 and Road 80 and east of Downtown Visalia to Lovers Lane needs to be a six-lane freeway based upon the TCAG RTDFM forecasts.

Objectives

T-O-5 Plan and develop a transportation system for Visalia that contributes to community livability, recognizes and respects community characteristics, and minimizes negative impacts on adjacent land uses.

Policies

T-P-22 Require all residential subdivisions to be designed to discourage use of local streets as a bypass to congested arterials, and when feasible, require access to residential development to be from collector streets.

Local streets should not serve as "cut-throughs" for through traffic; at the same time, the local street network should still emphasize connectivity and minimize dead-ends and cul-de-sacs, while also providing for neighborhood safety. A finer-grained street grid can provide for more neighborhood connectivity.

T-P-23 Require that all new developments provide right-of-way, which may be dedicated or purchased, and improvements (including necessary grading, installation of curbs, gutters, sidewalks, parkway/landscape strips, bike and parking lanes) other city street design standards. Design standards will be updaed following General Plan adoption.

Developments must also dedicate or sell necessary rights-of-way when subdivision or development of property adjacent to Circulation Element streets is proposed.

T-P-24 Require that proposed developments make necessary off-site improvements if the location and traffic generation of a proposed development will result in congestion on major streets or failure to meet LOS D during peak periods or if it creates safety hazards.

Such improvements may be eligible for credit or reimbursement from traffic impact fees.

T-P-25 Require that where arterial streets are necessary through residential areas, residential development shall be oriented away (side-on or rear-on) from such streets and be properly buffered so that traffic carrying capacity of the street will be preserved and the residential environment will be protected from the adverse characteristics of the arterial street.

This policy also may apply to collector streets if circumstances warrant.

T-P-26 Require that future commercial developments or modifications to existing developments be designed with limited points of automobile ingress and egress, including shared access, onto major streets.

T-P-27 Work with Caltrans to modify the State Route 198 Route Concept Report to ensure that the facility is designated as a six-lane freeway from Downtown Visalia east to Lovers Lane.

T-P-28 Promote traffic safety by requiring that ingress and egress to shopping centers be carefully designed, with minimal use of left-turn movements into and out of these centers.

Existing points of automobile ingress and egress, including shared access, should be consolidated wherever possible. Left turn movements into commercial areas from divided arterials, must be justified by demonstrating substantial reduction in U-turns at arterial roadways or other benefits.

T-P-29 Require, where possible, that arterials and collectors form four-leg, right-angle intersections. Jogged, offset, and skewed intersections at major streets in near proximity shall be avoided, where possible.

4.5 PUBLIC TRANSIT

The City of Visalia has a variety of public transportation options including fixed route service and demand-responsive systems as well as local and regional systems. Visalia's Transit Division operates numerous mass transportation services, allowing residents to travel conveniently from neighborhoods to major shopping centers, local schools, medical offices, and work sites. The following public transportation systems are available to Visalia residents.

Local Systems

Visalia Transit

Visalia Transit (VT) provides a local fixed route system for Visalia residents and visitors alike. VT operates several fixed routes that serve city residents with some routes serving the outlying cities and communities. VT operates fixed route service 7 days a week with operational hours Monday through Friday between 6:00 a.m. and 9:30 p.m., 9:00 a.m. and 6:30 p.m. on Saturdays, and between 8:00 a.m. and 6:30 p.m. on Sundays. All fixed routes are shown in **Figure 4-3**. The VT fixed routes are summarized below:

- Route 1 – Transit Center, TCAG Transfer, Mooney Boulevard, College of Sequoias, Visalia Mall, Sequoia Mall, downtown Visalia;
- Route 2 –Transit Center, Locust Street/Court Street, Caldwell Avenue, Linwood Avenue, Whitendale Avenue, El Diamante School, S. Akers Street;
- Route 4 – Transit Center, Locust Street/Court Street, Tulare Avenue, Mt. Whitney School, Divisadero School, Kmart Shopping Center, Visalia Medical Clinic;
- Route 5 – Transit Center, Houston Avenue, Valley Oak School, Golden West School, DMV, Walmart;
- Route 6 – Transit Center, Goshen Avenue/Murray Avenue, Save-Mart Shopping Center, Industrial Park, San Joaquin Valley College, Goshen Walnut Avenue, Giddings Street, Whitendale Avenue, Mooney Boulevard, County Center Drive, Linwood Street, Akers Street, Tulare Avenue;
- Route 7A – Transit Center, Lincoln Oval, N. Court Street, W. Riggin Avenue, Demaree Street, W. Ferguson Avenue, W. Houston Avenue, Mooney Boulevard;
- Route 7B – Transit Center, Lincoln Oval, Mooney Boulevard/Houston Avenue, Ferguson Avenue/County Center Drive, Riggin Avenue/Giddings Street, Ferguson Avenue/Court Street, Locust Street/NW 2nd Street;
- Route 8A – Transit Center, Center Avenue, Santa Fe Street/Tulare Avenue, Walmart, Lovers Lane/Mineral King Avenue, Valley Oak Middle School, Ben Maddox Way, St. John's Parkway;
- Route 8B – Transit Center, Ben Maddox Way/St. John's Parkway, Valley Oak Middle School, Lovers Lane/Mill Creek, Walmart, Santa Fe Street/Tulare Avenue;
- Route 9 – Transit Center, Main Street., S. Ben Maddox Way, E. Walnut Avenue, Farmersville, Visalia Road, Exeter;
- Route 10 – Transit Center, Mineral King Avenue, Noble Avenue, Visalia Airport, Goshen,;
- Route 11 –Transit Center, Mineral King Avenue, Noble Avenue, Goshen;
- Route 12 – Caldwell Avenue, Visalia Parkway, Cameron Avenue, S. Court Street, Exeter, Farmersville; and
- Routes 106 and 610.

Visalia's Transit Division operates numerous mass transportation services, allowing residents to travel conveniently from neighborhoods to major shopping centers, local schools, medical offices, and work sites.

Dial-A-Ride Visalia

Visalia Transit provides Dial-A-Ride curb-to-curb paratransit service on a shared-ride, demand-response basis to locations within the city limits of Visalia, Goshen, Farmersville and to/from Exeter. Reduced fares are available for the following groups:

- Certificate of eligibility of ADA Paratransit services
- Visalia City Coach Disabled ID card
- Medicare Card holders
- California DMV Disabled Person or Disabled Veteran ID

Visalia Dial-A-Ride operates between 6:00 a.m. to 9:30 p.m. during the weekdays, from 9:00 a.m. to 6:30 p.m. on Saturdays and from 8:00 a.m. to 6:30 p.m. on Sundays. Fares range from $1.75 to $3.25 per passenger and monthly passes are available with limited service available on holidays.

Visalia Towne Trolley

The Visalia Towne Trolley offers three fixed routes and operates between 7:30 a.m. and 11:00 p.m. depending on the route. During the hours of operation the headway is 10 to 15 minutes. There is a $0.25 service charge to rider with an optional monthly pass for $5.00 and the service limits are bounded by Murray Avenue, Acequia Avenue, Tulare County Courthouse and Santa Fe Street.

The Loop Route

The Loop Route provides a fun, easy, and safe way for all school-aged kids to access community and recreation centers in Visalia, including:

- Manual Hernandez Community Center
- Wittman Center
- Anthony Community Center
- Boys & Girls Club
- Redwood High School Pool
- PAL Center

This program is funded through the City general fund and Measure R and does not receive money from state or federal sources.

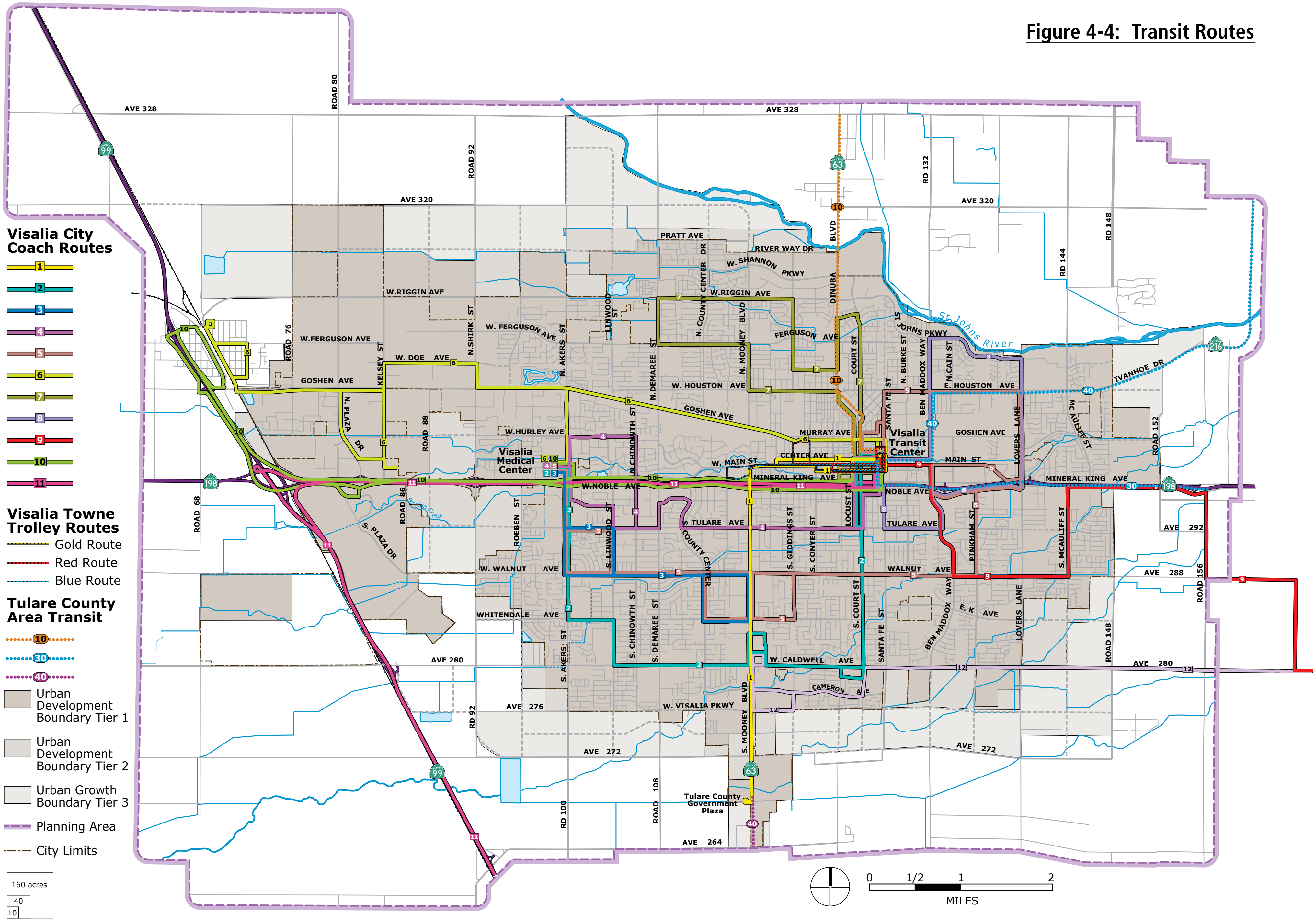
All local transit routes are shown in **Figure 4-4**.

Sequoia Shuttle

The Sequoia Shuttle serves Sequoia and Kings Canyon National Parks during the peak summer visitation period. Sequoia Shuttle departs Visalia five times per day, seven days per week. In Visalia pick-up/drop-off locations include the Holiday Inn, Fairfield Inn, La Quinta, Hampton Inn, Lamplighter Inn, Convention Center (serving Marriott Hotel and Comfort Suites), the Visalia Transit Center, the Barn Service station in Exeter, Three Rivers Comfort Inn, and the Three Rivers Memorial Building. The Sequoia Shuttle offers service between Memorial Day and Labor Day seven days a week, charging $15 per passenger.

The City operates the Sequoia Shuttle routes inside the Park under an agreement with the National Parks Service. Sequoia and Kings Canyon National Parks also provide three internal transit routes to the various attractions.

Figure 4-4: Transit Routes



Regional Systems

Visalia Transit

Visalia Transit regional routes also serve the outlying community of Goshen and the cities of Exeter and Farmersville. These services provide access to medical care facilities, schools, recreational facilities and other amenities offered in Visalia. These routes provide service between the hours of 6:00 a.m. and 9:30 p.m. on weekdays, and between 6:00 a.m. and 6:30 p.m. on Saturdays and Sundays. Regional services are provided through an agreement with Tulare County and the affected communities and schools.

Other services provided for regional travel through Visalia include Orange Belt Stages, Greyhound and Amtrak connections to Hanford (Kings County). Tulare County Area Transit (TCaT) and Kings County Area Regional Transit (KART) provide connections to Visalia Transit Center, local schools, medical centers and other necessities.

Tulare County Area Transit

Tulare County Area Transit (TCaT) provides reliable and convenient public transit service between cities as well as intra-city transit service for many small communities throughout Tulare County. Fixed route services are offered Monday through Saturday, demand-response Dial-A-Ride services are offered Monday through Friday. All ages are welcome to ride all transit service. TCaT offers eight fixed routes that serve a majority of the population centers and communities. Fixed route service is listed below:

- Route 10 – serves north Tulare County with stops at the Justice Complex, Dinuba, Sultana, Cutler, Orosi, Yettem and Seville.
- Route 20 – serves southern Tulare County with stops in Tulare, Tipton, Pixley, Earlimart, Delano and Richgrove.
- Route 30 – serves eastern Tulare County with stops at the Transit Center, in Ivanhoe, Woodlake, Lemon Cove and Three Rivers.
- Route 40 – serves central Tulare County with stops at the County Government Center, in Tulare, Lindsay, Strathmore and Porterville.
- Route 50 – serves northwest Tulare County with stops in Dinuba, London, Traver and Delft Colony.
- Route 60 – serves southeast Tulare County with stops in Lindsay, Strathmore, Plainview and Woodville.
- Route 70 –serves southeast Tulare County will service to Springville and Porterville.
- Route 90 – serves Woodville, Poplar and Porterville.

TCaT regional transit routes are shown in **Figure 4-4.**

Kings Area Rural Transit

Kings Area Rural Transit (KART) is Kings County's complete public rural and urban transportation provider. KART provides daily routes to the cities of Hanford and Lemoore, and regular service to most other communities in the county and daily weekday service to Visalia. In addition, KART provides transportation to Fresno every Monday, Wednesday and Friday and Dial-A-Ride service to eligible residents of Hanford, Lemoore, Armona and Avenal.

All KART bus routes begin and end at the Intermodal transfer facility west of Amtrak on 7th Street in Downtown Hanford. KART fixed routes provide service to Visalia via the Hanford-Visalia route. The Hanford-Visalia route makes stops at the College of Sequoias, Mooney Boulevard/Packwood Creek and Visalia Transit Center.

Orange Belt Stages

Inter-regional, statewide and nationwide bus transportation is provided to the Visalia area via Orange Belt Stages. The Orange Belt Stages depot is located centrally in the Downtown Visalia area, at 425 East Oak Street between Bridge and Santa Fe Streets (the Visalia Transit Center).

Potential Future Transit Improvements

The General Plan identifies potential transit corridors along Goshen Avenue and Mooney Boulevard, with Downtown segments along Murray Avenue and Main Street. These corridors may support high-capacity transit in the form of light rail or bus rapid transit (BRT), and provide a framework for transit-oriented development in Visalia.

Objectives

T-O-6 Work with other agencies and jurisdictions that provide regional public transportation to provide connectivity between Visalia and adjacent jurisdictions.

T-O-7 Develop and maintain a coordinated mass transportation system that will encourage increased transit use through convenient, safe, efficient, and cost-effective services.

Policies

T-P-30 Give high priority to public transportation systems that are responsive to the needs of commuters, the elderly, persons with disabilities, the youth, and low income citizens. Continue to work with transit providers to expand services to these populations and to underserved areas of the City.

T-P-31 Seek cooperation with Tulare County Association of Governments and Visalia City Coach to attain a balance of public transportation opportunities.

These efforts may include the establishment of criteria to implement transit improvements, development of short and long range transit service plans, evaluation and identification of needed corridor improvements, transit centers, and park-and-ride lots with amenities for bicyclists.

T-P-32 Work with transit operators to ensure that adequate transit service facilities are provided, including bus turn-outs along arterials when needed, and bus stop amenities including, but not limited to, lighted shelters, benches and route information signs.

T-P-33 Work with transit operators to establish transit stops adjacent to community and regional parks, senior housing facilities, areas with a high concentration of medical facilities, major employment centers, and major retail and commercial centers.

The Visalia Transit Center is the hub for all of Visalia's bus routes, including the Visalia Towne Trolley and the Sequoia Shuttle.

T-P-34 Develop design and development standards to improve transit service in the community, such as wider sidewalks to accommodate bus stops and bus shelters at intersections; bus pads with shelter and shading vegetation; widened rights-of-way for buses; dedicated bus lanes; on-site transit stops for commercial public, institutional and industrial facilities; and, bus facilities adjacent to day-care centers, schools, and major residential areas.

T-P-35 Schedule public transportation improvement projects in the Capital Improvements Program.

T-P-36 Participate in the planning process for a potential Cross Valley Rail Line, which could provide east-west light rail service from Visalia to Huron and potentially connect to a future High Speed Rail system.

T-P-37 Evaluate the feasibility of a future local light rail system or bus rapid transit (BRT) system in Visalia, which could connect to Tulare to the south and points east and west.

The City should preserve right of way to support the preliminary light rail corridor or BRT system along Goshen Avenue, K Street, Santa Fe Avenue, and other roadways, if either system is judged financially feasible.

T-P-38 Support regional high-speed inter-city rail development and service. Should California High Speed Rail develop a station in Hanford (or elsewhere in Kings or Tulare County), work with the California High Speed Rail Authority to develop local connections coordinated with the train schedule.

4.6 BICYCLES, TRAILS AND PEDESTRIAN CIRCULATION

Bicycling and walking are inexpensive, energy-conserving, healthful, and non-polluting modes of transportation. Visalia's flat topography and dry, moderate climate make choosing to walk or bicycle an attractive transportation option during much of the year.

As pedestrian and bicycle travel is directly related to perceived safety and convenience, providing a safe and complete network of pedestrian and bicycle facilities should continue to increase the use of these modes of travel, especially when crossing heavily traveled roads such as State Routes 63 and State Route 65.

Bikeways and Trails

From a bicyclist's perspective, Visalia is an attractive location to travel. First, the many quiet, tree-shaded side streets offer comfort and safety. Second, the size of the city makes practically all parts accessible by all residents within a 30-minute bicycle ride. During the summer time, when intense summer sun and heat are at their greatest, bicyclists and pedestrians may be deterred. Otherwise, the flat topography and mild rainfall are ideal for commuting and recreational bicycle riding.

Once considered a primarily recreational activity, bicycling is now recognized as a viable alternative to the automobile. Benefits of increased bicycle use include reduced traffic, reduced consumption of fuel resources, improved air quality and reduced health care costs due to a healthier population. Bicycling is a vital component of improving environmental, traffic and quality of life concerns for Visalia residents.

City of Visalia Bikeway Plan

The City of Visalia Bikeway Plan was adopted in February 2011 and is intended to guide bikeway policies, programs and facility improvements to improve safety, comfort and convenience for all bicyclists in the City of Visalia. The Bikeway Plan serves as a tool for the City in implementing its goal to "provide the means and support bicycling as an alternative mode of transportation for work, errand and recreational trips."

The 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.

While the City has yet to fully implement the network presented in the Bikeway Plan, several Class I, II and III facilities exist and are included in the standard cross-section specifications for the various street classifications.

Figure 4-5 shows the bikeway system, with the present facilities in solid lines and the proposed expansion of the system shown in dashed lines. Completion of this network would provide Visalia with a robust bicycle and pedestrian network, linking neighborhoods to parks, schools, employment centers, and other destinations. In addition to the bicycle infrastructure, Visalia offers bicycle racks on buses for most of the Visalia Transit fleet. The bicycle racks extend the bicycles ranges and offer connections to the cities of Woodlake, Tulare, Exeter and Farmersville.

Visalia's flat topography and mild rainfall are ideal for commuting and recreational bicycle riding. The Bikeway Plan encourages the use of walking and bicycling and recognizes three classes of bikeways, including Class I trails (top) and Class II bike lanes (bottom).

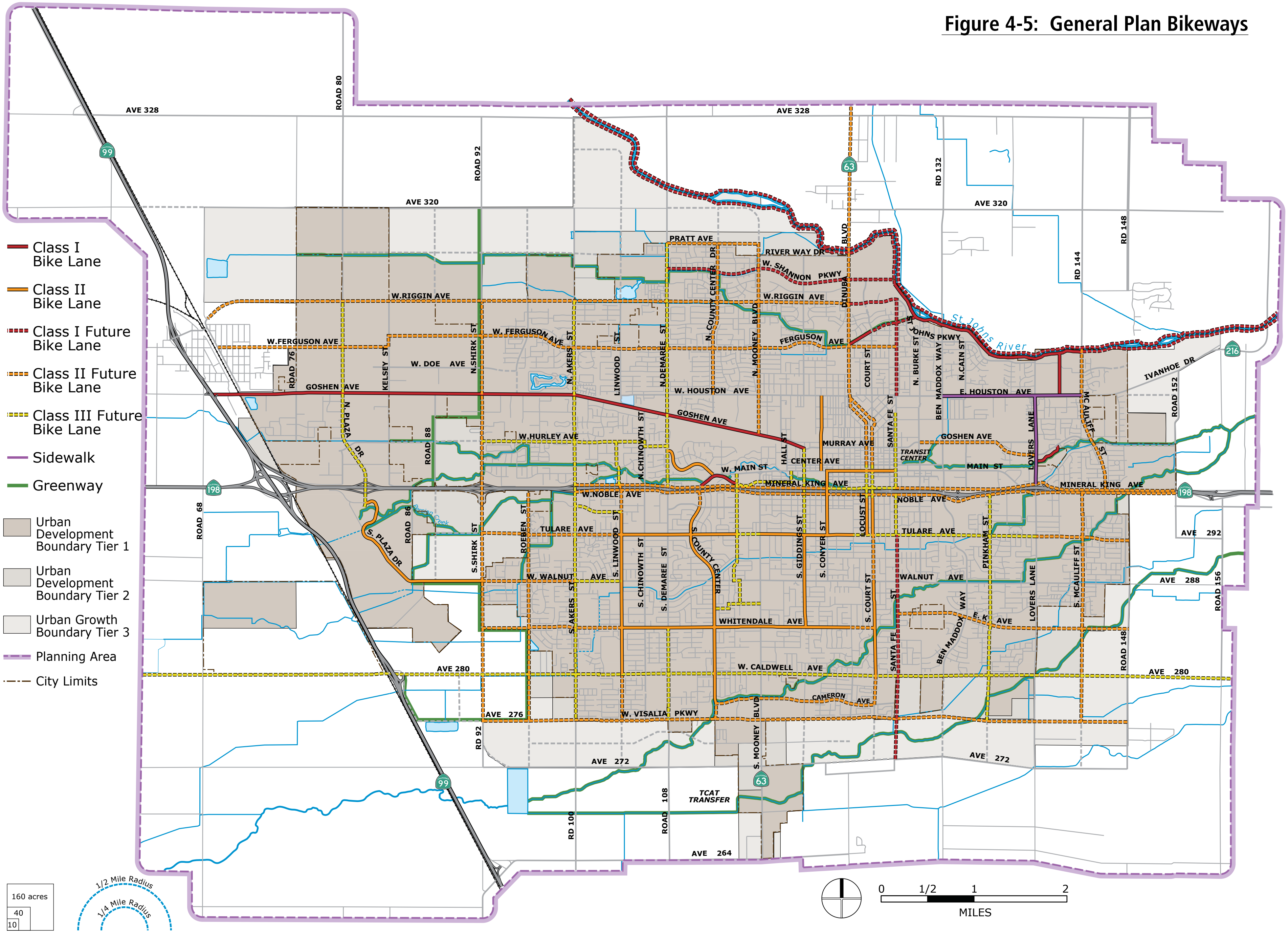


Figure 4-5: General Plan Bikeways

Pedestrian Circulation

Walking is the most universal form of travel. Every personal trip involves some element of walking, whether it is a pure pedestrian trip or combined with other modes of travel such as transit, driving or cycling. A pedestrian is legally defined as a person who walks from one place to another either by foot or using an assisted mobility device. Pedestrians include citizens of Visalia and visitors of all ages and abilities. The pedestrian circulation system in Visalia is mainly comprised of sidewalks. Currently, the street environment is mostly auto-oriented with wide roadways and discontinuous sidewalks. In some areas, there are no existing sidewalks or they have fallen into disrepair.

Besides standard sidewalks that have been developed in residential and non-residential areas, several multi-use (bike/pedestrian) trails are found throughout the city, including the St. John's Parkway, Mill Creek, Goshen Avenue, and others. Visalia Unified School District and the City of Visalia are also actively involved in pursuing federal and state Safe Routes to School (SR2S) grant programs that promote adequate pedestrian facilities in neighborhoods near schools. In addition, the City of Visalia is committed to complying with Americas with Disabilities Act (ADA) standards with new development and bringing non-standard ADA facilities into compliance.

While sidewalk capacity is generally not an issue, all areas should be designed to a scale that accommodates pedestrians and bicyclists (in areas where bikeways are unavailable). Improvements in areas within the City that currently have undersized, damaged or no pedestrian facilities should be prioritized so that the pedestrian system will be better connected. The new neighborhood centers should also be designed to be pedestrian friendly. In these areas, wider sidewalks should be considered to accommodate increased flows and to give preferential treatment to pedestrians. Pedestrian-friendly facilities should also be provided near transit stops and adjacent to medium and higher density residential areas.

Objectives

T-O-8 Encourage walking and bicycling in Visalia for commuting and recreational purposes, and for improvement of public and environmental health.

T-O-9 Promote non-motorized accessibility through development of a connected, convenient pedestrian and bikeway network.

T-O-10 Create a safe and feasible pedestrian, trail and bikeway system (on- and off-street) for commuting, recreation and other trips, serving pedestrians and cyclists of all levels.

T-O-11 *Recognize and meet the mobility needs of persons using wheelchairs and those with other mobility limitations.

Policies

Bicycle Transportation and Trails System

T-P-39 Develop bikeways consistent with the Visalia Bikeway Plan and the General Plan's Circulation Element.

- Provide Class I bikeways (right-of-ways for bicyclists and pedestrians separated from vehicles) along the

St. Johns River, Cameron Creek, Packwood Creek, Mill Creek, Modoc Ditch, the Santa Fe Railroad right-of-way and the San Joaquin Railroad right-of-way;

- Provide Class II bikeways (striped bike lanes) along selected collector and arterial streets; and
- Provide Class III bikeways (shared-use bike routes) along selected local, collector, and arterial streets.

New bikeway segments should be designed to fit together with existing bikeways to create a comprehensive, safe system including scenic routes for recreational use.

T-P-40 Develop a community-wide trail system along selected planning area waterways, consistent with the Waterways and Trails Master Plan and General Plan diagrams.

The system will feature greenway trail corridors along the St. John's River, Mill Creek, Packwood Creek, and Cameron Creek, as well as segments of Modoc and Persian creeks. The waterway corridors will provide recreational opportunities, new links between neighborhoods, parks, and Downtown, and a new way of experiencing the City and understanding its natural setting. Waterway corridors will also provide enhanced habitat and storm drainage, as described in the Community Waterways section.

T-P-41 Integrate the bicycle transportation system into new development and infill redevelopment. Development shall provide short term bicycle parking and long term bicycle storage facilities, such as bicycle racks, stocks, and rental bicycle lockers. Development also shall provide safe and convenient bicycle and pedestrian access to high activity land uses such as schools, parks, shopping, employment, and entertainment centers.

T-P-42 Periodically update the City of Visalia Bikeway Plan, as needed.

T-P-43 Develop and maintain an educational program to promote bicycle use and safety.

T-P-44 Increase the safety of those traveling by bicycle by:

- Sweeping and repairing bicycle paths and lanes on a regular basis;
- Ensuring that bikeways are signed and delineated according to Caltrans or City standards, and that lighting is provided as needed;
- Providing bicycle paths and lanes on bridges and overpasses;
- Ensuring that all new and improved streets have bicycle-safe drainage grates and are free of hazards such as uneven pavement or gravel;
- Providing adequate signage and markings warning vehicular traffic of the existence of merging or crossing bicycle traffic where bike lanes and routes make transitions into or across roadways.

T-P-45 Require that collector streets that are identified to function as links for the bicycle transportation system be provided with Class II bikeways (bike lanes) or signed as Class III bike route facilities.

In such cases, the City may accommodate cyclists on these identified streets by widening the street or eliminating on-street parking if this will not significantly affect parking opportunities for local shoppers or by clearly indicating that bicycles may share travel lanes with automobiles.

T-P-46 Cooperate with other agencies to provide connection and continuation of bicycle corridors between Visalia and surrounding areas.

T-P-47 Seek funding at the private, local, state, and federal levels for the expansion of the bicycle transportation system.

Pedestrian Circulation

T-P-48 Require construction of minimum sidewalk widths and pedestrian "clear zones" consistent with the Complete Streets cross-sections in this General Plan and with the City's Engineering and Street Design Standards for each designated street type.

T-P-49 *Work with the Visalia Unified School District, other school districts, and the County Superintendent of Education, to promote creation of school attendance areas so as to minimize students' crossings of major arterial streets and facilitate students' safe travel to school on foot.

T-P-50 *Provide pedestrian facilities that are accessible to persons with disabilities and ensure that roadway improvement projects address accessibility and use universal design concepts.

T-P-51 Locate sidewalks, pedestrian paths, and appropriate crosswalks to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths shall be developed to allow for unobstructed pedestrian flow from within a neighborhood.

T-P-52 Require, where security walls or fences are proposed for residential developments along arterial or collector streets, that pedestrian access be provided between the arterial or collector and the subdivision to allow access to transit vehicles operating on an arterial or collector street.

4.7 PARKING

Parking decisions affect land use and development patterns, as well as travel behavior. The placement and type of parking must accommodate the needs of businesses, pedestrians, motorists, and residents, while not overwhelming the urban design.

Parking regulations can help to provide accessible, attractive, secured parking facilities as well as manage supply. New ideas about parking include shared parking, multi-use parking lots, and the use of pervious surfaces with water runoff filtering systems and the use of solar panels to provide shade as well as energy production.

Pedestrian-friendly streets should be provided near transit stops and adjacent to medium and higher density residential areas (top).

Pedestrian access should be provided between neighborhoods and adjacent arterials or collectors to facilitate walking, including walking to transit (bottom)..

Following the Downtown parking and circulation study, the City will develop flexible parking requirements based on "best practices.".

Downtown Parking

The City of Visalia is currently preparing a Downtown parking and circulation study. The study will analyze traffic patterns, biking, walking, parking and how to improve traffic flow in the 70-block area bounded by Oak Street on the north, Santa Fe Street on the east, Noble Avenue on the south and Conyer on the west. The study is still underway.

Among the items to be studied are: integration of future development with a balanced street/transit/bicycle network; level of service for vehicles on downtown streets; transit ridership; existing bike routes and bike facilities; walkability of Visalia's downtown and how downtown streets will handle growth into 2020 and 2030; and parking accommodations to meet future demand. The study will also consider the option of closing Willis and West streets to through traffic, extending Burke Street, and widening Santa Fe Street to four lanes between Noble and Race streets.

Objectives

T-O-12 Provide adequate parking to accommodate demand while avoiding excessive amounts of surface parking that disrupts the urban fabric of the city.

Policies

T-P-53 Develop flexible parking requirements in the zoning ordinance for development proposals based on "best practices" and the proven potential to reduce parking demand.

These could include projects that integrate transit facilities, incorporate a mix of uses with differing peak parking demand periods (e.g., residential and office), incorporate shared parking or common area parking, or incorporate other Transportation Demand Management (TDM) Strategies for residents or tenants (car-sharing, requiring paid parking, etc.).

T-P-54 Discourage non-residential parking on residential streets by enforcing parking regulations and ensuring that businesses near residential areas are providing adequate on-site parking for their employees and customers.

T-P-55 If certain neighborhoods are particularly negatively affected by "spill-over" parking from businesses or institutions, consider establishing a residential permit parking program.

T-P-56 If needed, create public parking benefit assessment districts to fund consolidated public parking where supported by local businesses.

T-P-57 Amend the Zoning Ordinance to include updated off-street parking and loading area design standards that have multiple benefits and reduce environmental impacts. Strategies may include, but are not limited to:

- Require parking and loading to be provided on the side of or behind buildings, where feasible;
- Promote the use of time and/or motion sensitive parking lot and security lights, where feasible;

- Establish specific standards for perimeter landscaping for parking lots and structures;
- Separate pedestrian pathways from car lanes where feasible;
- Promote the use of porous pavement and low impact drainage features, as appropriate to the site; and
- Restrict use of vacant lots as vehicle parking and outdoor storage of commercial equipment, construction equipment, and similar unless screened from public view.

T-P-58 Continue to implement and update, as necessary, the latest Downtown Parking Management Plan.

A Downtown parking needs assessment and survey should be conducted periodically to determine the adequacy of the Downtown Parking Management Plan and to indicate when the Plan should be updated and how needs might be better balanced.

4.8 GOODS MOVEMENT

Truck Routes

In addition to moving people, the roadway system in Visalia carries a substantial number of trucks moving goods. These routes are designed to allow truck traffic to pass through the City with minimal impact on residential neighborhoods as well as local vehicular and pedestrian traffic.

Existing truck routes within Visalia were developed to minimize neighborhood disturbance and consist primarily of freeways, select expressways, and a few arterial and collector streets. Section 3012 of the Municipal Code has designated certain streets within the city as truck routes. Trucks may use other streets for access to particular destinations, with the exception of certain streets from which they are expressly prohibited. Truck routes may be modified by resolution by the City Council as needed. Designated truck routes are shown in **Figure 4-6**.

Objectives

T-O-13 Provide a transportation system that effectively transports goods via trucks and rail with minimal disruption to residential areas.

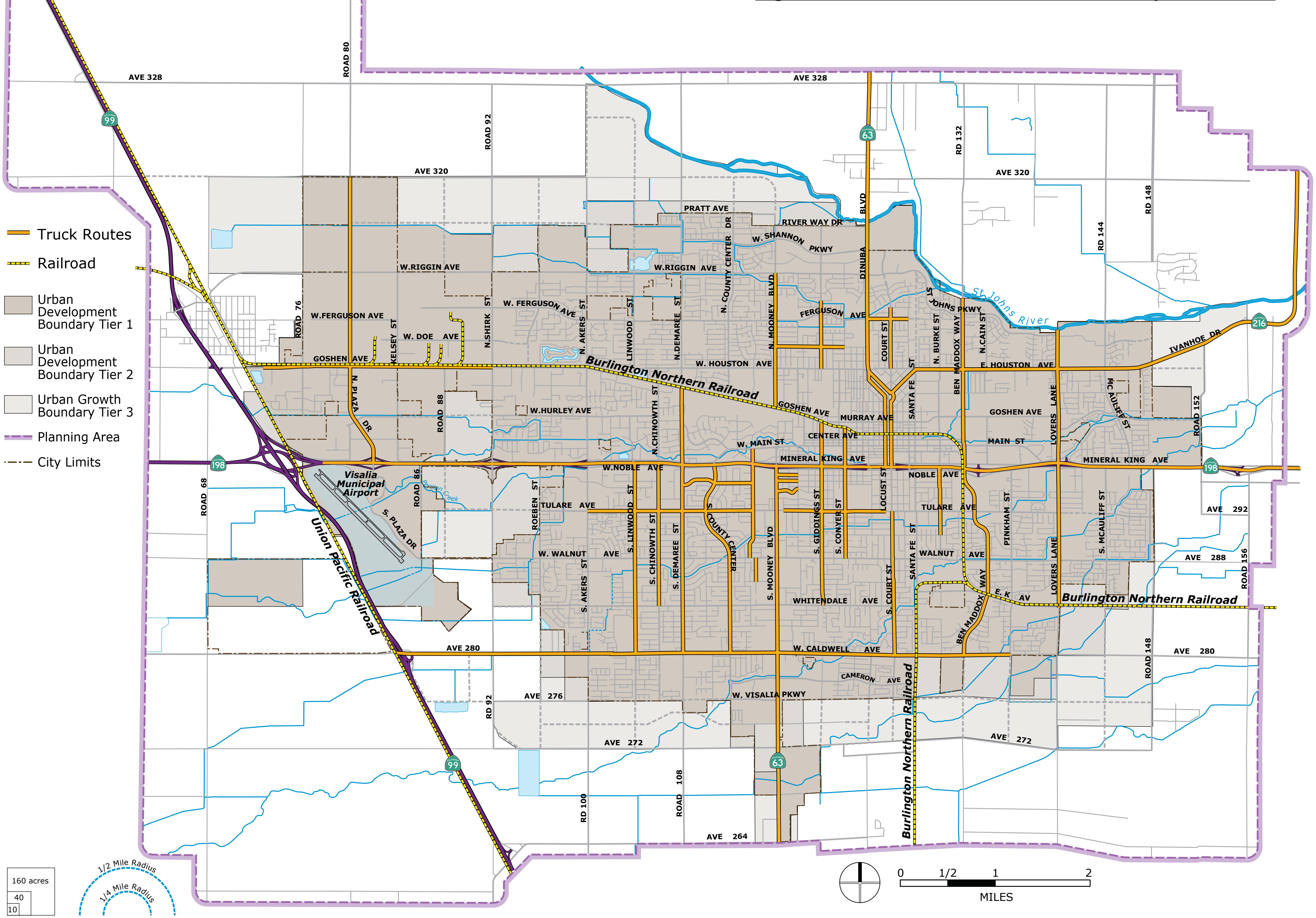
Policies

T-P-59 Identify and sign designated truck routes in Visalia, ensuring that clear signage is provided from freeways to truck routes in the city.

T-P-60 Ensure that truck routes are designed according to the Surface Transportation Assistance Act standards for intersections, pavement, and turning movements.

Truck routes have been identified to minimize neighborhood disturbance, and consist primarily of freeways, expressways, and a few arterial and collector streets.

Figure 4-6: Truck Routes, Rail Lines, and Airport Facilities



T-P-61 Encourage high-security off-street parking areas for tractor-trailer rigs in industrial areas.

T-P-62 Explore possible funding sources, including truck user fees if feasible, to help finance truck route improvements and truck parking areas, at least in part.

T-P-63 Continue to improve and maintain the condition and safety of existing railroad crossings by upgrading surface conditions and installing signs and signals where warranted.

T-P-64 Explore possible funding sources, including truck user fees if feasible, to help finance truck route improvements and truck parking areas, at least in part.

T-P-65 Prohibit the use of arterial streets for freight loading and unloading.

Rail

Union Pacific (UP), Burlington Northern & Santa Fe (BNSF), and San Joaquin Valley Railroad (SJVRR) provide freight service to Visalia, connecting the city and Tulare County to major markets in California (Oakland/San Francisco/San Jose, Sacramento, and Los Angeles) and to other destinations. Routes of principal rail lines in the county are identified in **Figure 4-6**. Freight terminals and service to specific industries are located throughout the county. Though the railroads are reluctant to provide information on the amount of freight originating in the county, it is likely that the predominant mode for freight movements in the county will continue to be by truck in the foreseeable future.

Passenger rail service (six round trips daily) in the county is provided by Amtrak on its San Joaquin service, with the nearest rail station located in Hanford (Kings County). Amtrak provides bus connections to and from Visalia (twice daily) and Goshen Junction (two times daily) to the Hanford station. Either Orange Belt Stages or Greyhound provides service to Amtrak from downtown Visalia.

Cross Valley Rail Project

The Cross Valley Rail improvement project was completed in 2003. The line allows food processing and industrial businesses to ship by rail as opposed to heavy-duty trucks. Funding was made possible through funds from public and private entities, including Congestion Management Air Quality Improvement Program funds from Tulare, Kings, and Fresno County councils of governments, contributions from the Los Gatos Tomato Company and the San Joaquin Valley Air Pollution Control District.

California High Speed Rail

The California High Speed Rail Authority is currently in the process of developing a high-speed rail system that would provide passenger transportation and goods movement services throughout California with 800 miles of track and 24 stations. The first segment of the route will be between Bakersfield and Fresno. Through the EIR process, the preferred alignment and a station has been identified in Kings County.

This station will be the Kings/Tulare Regional Station and will be located near the City of Hanford (Kings County).

The purpose of the high speed rail system is to provide a reliable mode of travel that links the major metropolitan areas of the state and delivers predictable and consistent travel times. According to the Authority, high-speed rail is projected to carry approximately 100 million passengers annually by 2030.

Objectives

T-O-14 Facilitate multi-modal freight access to maximize the range of use potential for large (40-acres) industrial uses and developable parcels.

T-O-15 Develop and maintain a coordinated mass transportation system that will encourage increased transit and rail use through convenient, safe, efficient, and cost-effective services.

T-O-16 Provide a transportation system that effectively transports goods via trucks and rail with minimal disruption to residential areas.

T-O-17 Support continued rail freight service in Tulare County.

Policies

T-P-66 Prior to the approval of subdivision maps or development of identified properties in the Industrial Park, the City shall explore with the project applicant options for acquisition/dedication of right-of-way for freight rail spurs.

T-P-67 Participate in the planning process for a potential Cross Valley Rail Line, which could provide east-west light rail service from Visalia to Huron and potentially connect to a future High Speed Rail system.

T-P-68 Evaluate the feasibility of a future local light rail system or bus rapid transit (BRT) system in Visalia, which could connect to Tulare to the south and points east and west.

The City should preserve right of way to support the preliminary light rail corridor or BRT system along Goshen Avenue, K Street, Santa Fe Street, and other roadways, as depicted on the Land Use diagram if either light rail or BRT is judged financially feasible.

T-P-69 Support regional high-speed inter-city rail development and service. Should California High Speed Rail develop a station in Hanford (or elsewhere in Kings or Tulare County), work with the California High Speed Rail Authority to develop local connections coordinated with the train schedule.

T-P-70 Support continued freight service in Tulare County, specifically development of freight rail service within close proximity to agricultural processing industries.

T-P-71 Continue to participate in and advocate for collaborative efforts to improve railroad transportation facilities and reduce conflicts with the street system.

4.9 AVIATION

Visalia owns and operates the Visalia Municipal Airport (VIS). Located at the south east interchange of State Routes 198 and 99, VIS serves Tulare County, and eastern Kings County. The airport provides commuter airline and general aviation services. The airport has four fixed base operators (FBO) that provide a variety of services including instruction, charter, maintenance and corporate transport. The airport is home to over 150 based aircraft. Those aircraft, along with transient aircraft traffic, generate approximately 80,000 annual operations (take offs and landings). This includes commercial and non-commercial flights. Currently, the airport is primarily used for general aviation operations, including local and itinerant services. Other Airport activities include air taxi service and government operations.

Two passenger air services in the county are provided at the Visalia Municipal Airport. These services include daily non-stop flights from VIS to/from Los Angeles International Airport (LAX) and a daily one-stop flight to/from Las Vegas McCarran International Airport (LAS).

The current facility has one runway (6,559 feet) which is planned to be expanded to 8,000 feet. The airport consists of two parallel taxiways, 17 enclosed hangars, 113 T-hangars, two terminals, aviation fueling station. There are single-engine aircraft, multi-engine craft, jets and gliders based at the facility. In addition to office spaces, free parking is provided at the terminal. Visalia offers two fixed based operators that offer full service maintenance and repair. Two charter service operators are also located in Visalia. A flight school (Western Air) and charter services are also available.

Objectives

T-O-18 Promote the growth and use of the Visalia Municipal Airport to satisfy projected aviation demand for both commercial and non-commercial users.

Policies

T-P-72 Finance improvements to the Airport through user fees and State or federal funds earmarked for general aviation activities and other available financing mechanisms.

T-P-73 Continue to upgrade the service capacity of the Visalia Municipal Airport, as funding appropriations and revenues permit.

T-P-74 Maintain the airport's current and future functionality by limiting land uses and population densities surrounding the airport to those that are permitted under the Zoning Ordinance, as amended for consistency with this General Plan.

Rail right-of-way may allow opportunities to transition to passenger-carrying operations as a part of a regional light rail system (top).

Visalia Municipal Airport is primarily used for general aviation operations, while also providing passenger air service (bottom).

4.10 REGIONAL COORDINATION

The transportation system of a community is vital to its prosperity. Efficient circulation is important to the economic viability and the creation and preservation of a quality of life and the environment. The transportation system is also multi-modal, meaning that it provides numerous alternatives to the automobile; these other modes include transit, pedestrian facilities, bicycle facilities, rail facilities, airport facilities, etc., so that citizens and visitors can access and travel within the city using a number of transportation options to reduce vehicle trips and improve air quality.

The City of Visalia works with other cities, the Tulare County Association of Governments (TCAG), Caltrans and the federal government to assist in transportation planning efforts in the County of Tulare. TCAG and state and federal agencies work with the cities and communities in Tulare County to plan for and fund transportation improvements beneficial to all of its residents.

Objectives

T-O-19 Ensure compatibility between circulation and transportation systems in Visalia and adjacent jurisdictions.

T-O-20 Work with Caltrans to provide an efficient system for regional travel that minimizes impacts on local streets and arterials.

T-O-21 Strive to minimize the effects of local travel on the regional highway system.

Policies

T-P-75 Work with Caltrans to achieve timely construction of programmed freeway, State highway, and interchange improvements.

T-P-76 Work with TCAG, the city of Tulare, and Caltrans to plan and develop State highway improvements between Visalia and Tulare for regional circulation, consistent with Caltrans' Transportation Concept Reports for individual state routes.

T-P-77 Work with TCAG to ensure that the Regional Transportation Plan (RTP) and Sustainable Communities Strategy are consistent with Visalia's Land Use and Transportation policies.

T-P-78 Work with the San Joaquin Valley Air Pollution Control District and TCAG to implement Transportation Control Measures identified in the RTP and air quality implementation plans.

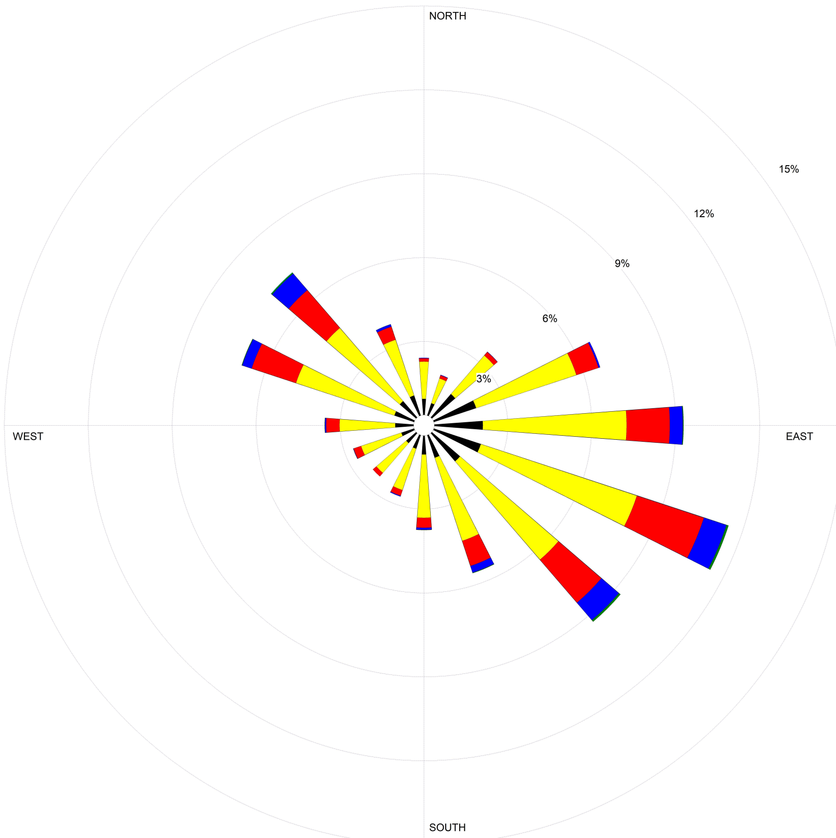
T-P-79 Update traffic study requirements, consistent with Policy T-P-18, to include analysis of impacts on the regional highway system and criteria for mitigation, consistent with this General Plan.

APPENDIX C

Wind Rose Graphics

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

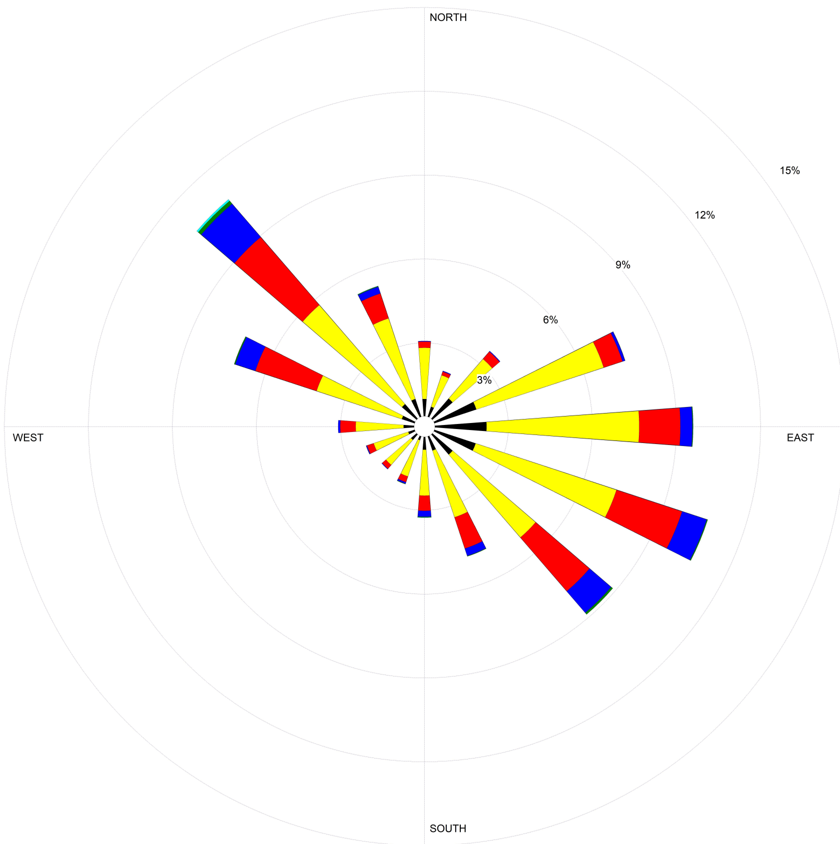


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **2.72 m/s**	CALM WINDS **17.00%**	
3.34 - 5.40	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Jan 1 - Jan 31 Midnight - 11 PM**	
1.80 - 3.34			
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

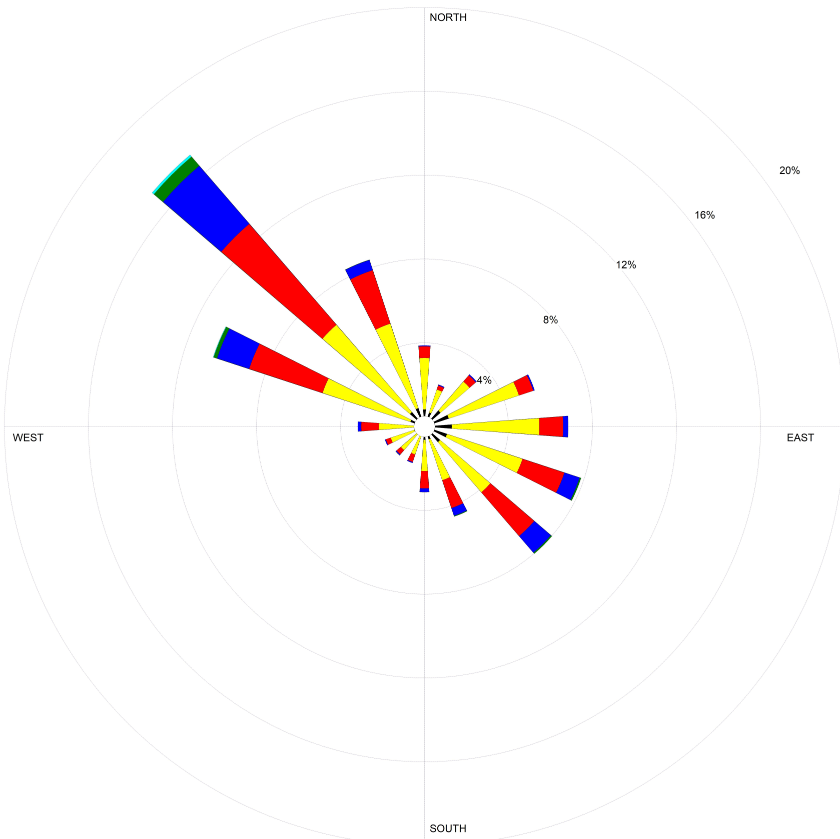


Wind Speed (m/s)	MODELER **Sara West**	DATE **8/19/2002**	COMPANY NAME **USDA-ARS**
> 11.06 / 8.49 - 11.06 / 5.40 - 8.49 / 3.34 - 5.40 / 1.80 - 3.34 / 0.51 - 1.80	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
	AVG. WIND SPEED **2.95 m/s**	CALM WINDS **13.75%**	
	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Feb 1 - Feb 29 Midnight - 11 PM**	

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA



Wind Speed (m/s)

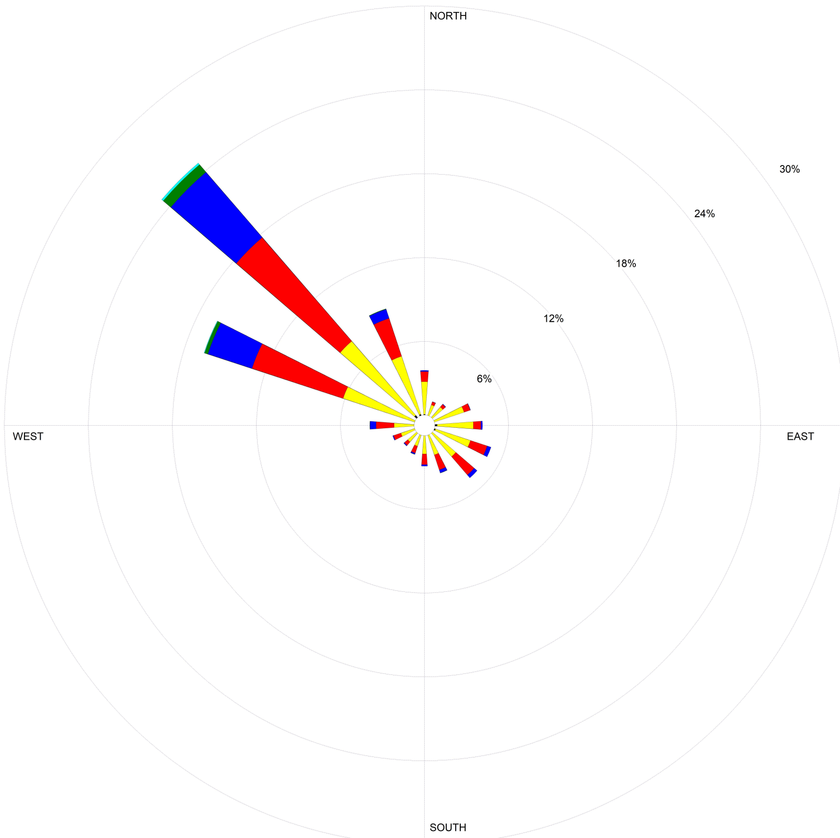
> 11.06
8.49 - 11.06
5.40 - 8.49
3.34 - 5.40
1.80 - 3.34
0.51 - 1.80

MODELER **Sara West**	DATE **8/19/2002**	COMPANY NAME **USDA-ARS**
DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
AVG. WIND SPEED **3.34 m/s**	CALM WINDS **9.90%**	
ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Mar 1 - Mar 31 Midnight - 11 PM**	

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

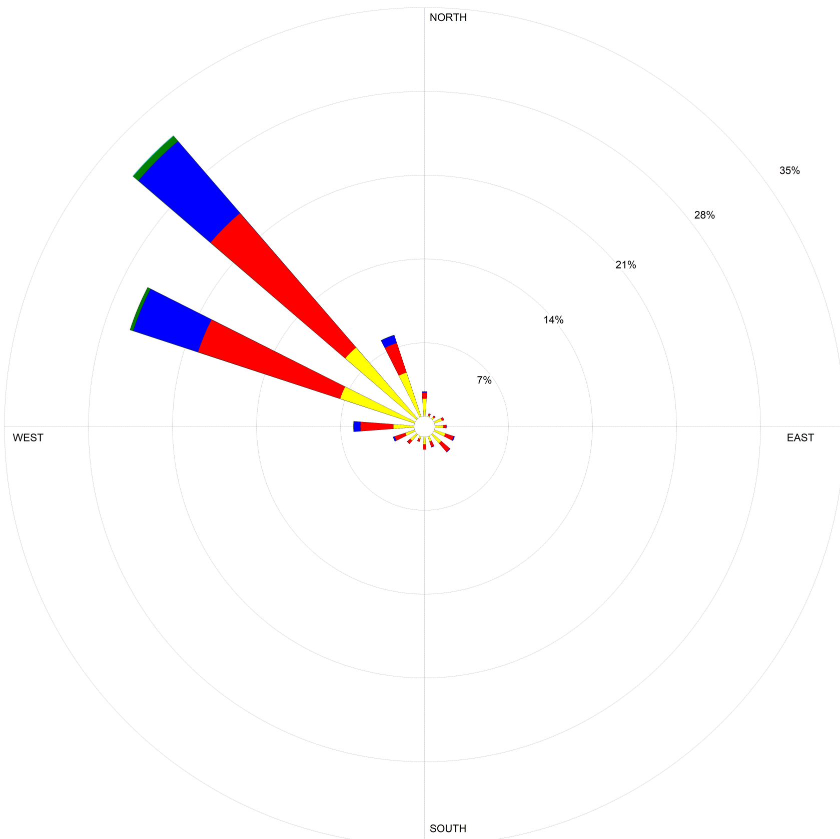


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **3.61 m/s**	CALM WINDS **7.53%**	
3.34 - 5.40	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Apr 1 - Apr 30 Midnight - 11 PM**	
1.80 - 3.34			
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

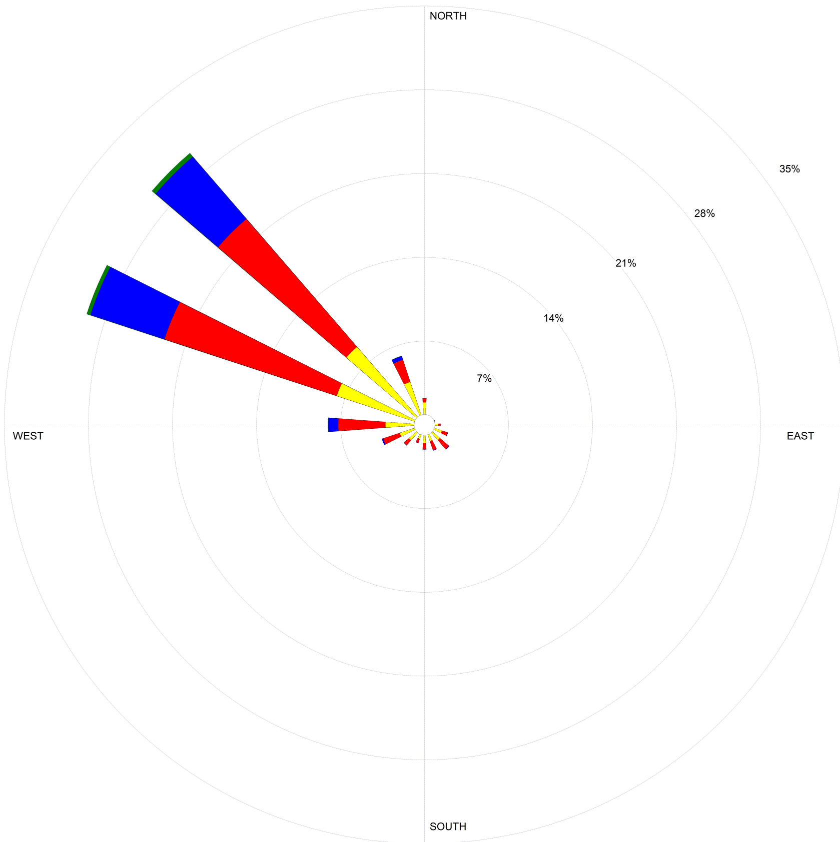


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **3.90 m/s**	CALM WINDS **3.87%**	
3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 May 1 - May 31 Midnight - 11 PM**	

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

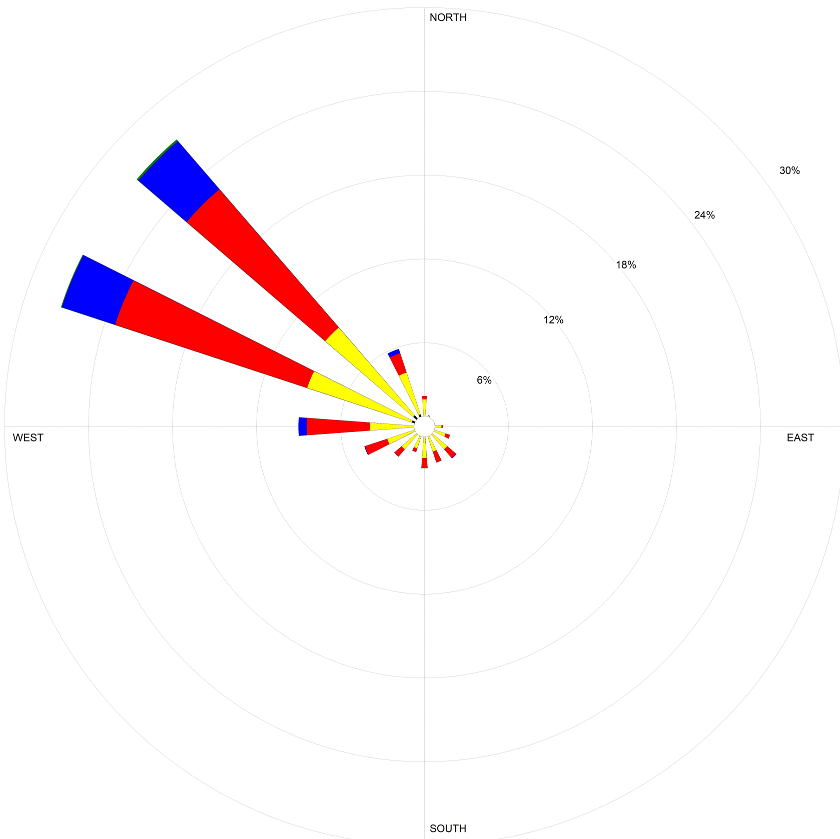


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **3.92 m/s**	CALM WINDS **3.36%**	
3.34 - 5.40	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961** **Jun 1 - Jun 30** **Midnight - 11 PM**	
1.80 - 3.34			
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

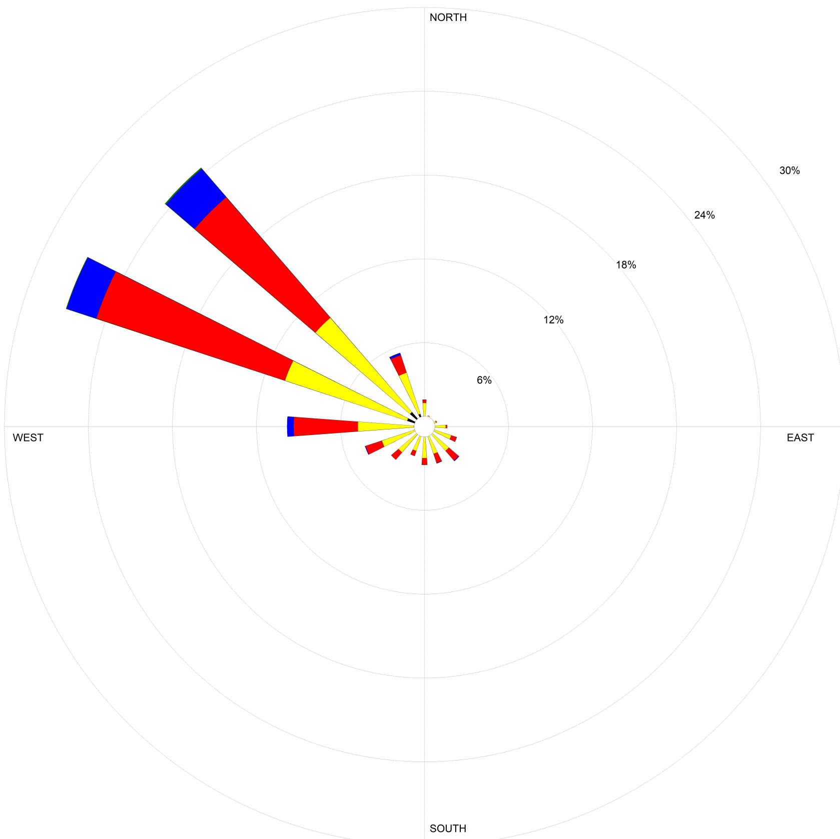


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49 3.34 - 5.40	AVG. WIND SPEED **3.59 m/s**	CALM WINDS **4.98%**	
1.80 - 3.34 0.51 - 1.80	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Jul 1 - Jul 31 Midnight - 11 PM**	

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

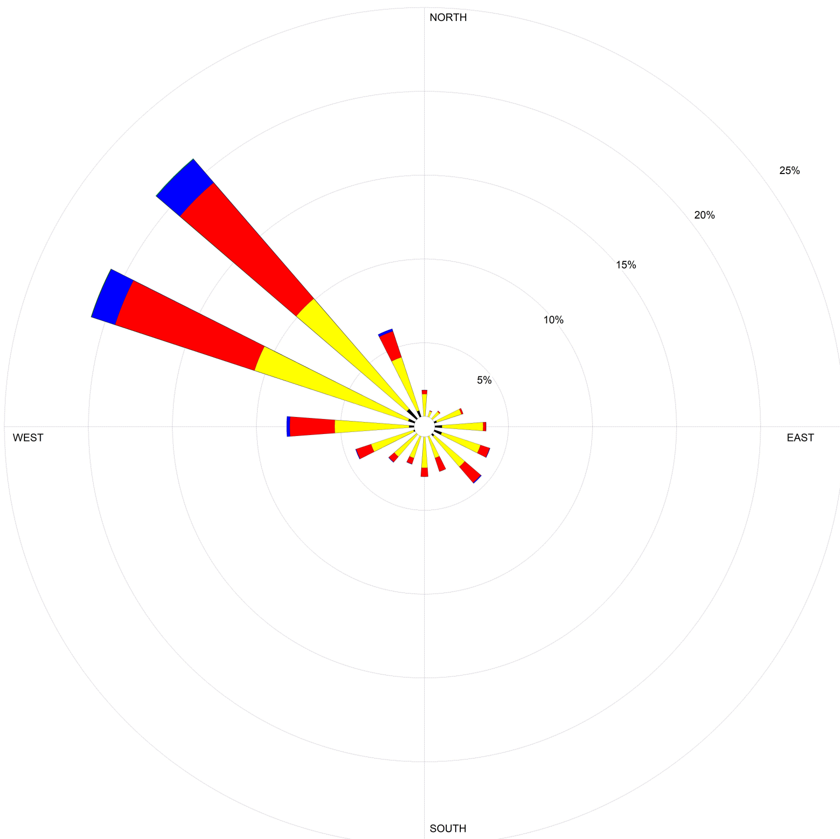


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **3.34 m/s**	CALM WINDS **6.08%**	
3.34 - 5.40	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961** **Aug 1 - Aug 31** **Midnight - 11 PM**	
1.80 - 3.34			
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA



Wind Speed (m/s)

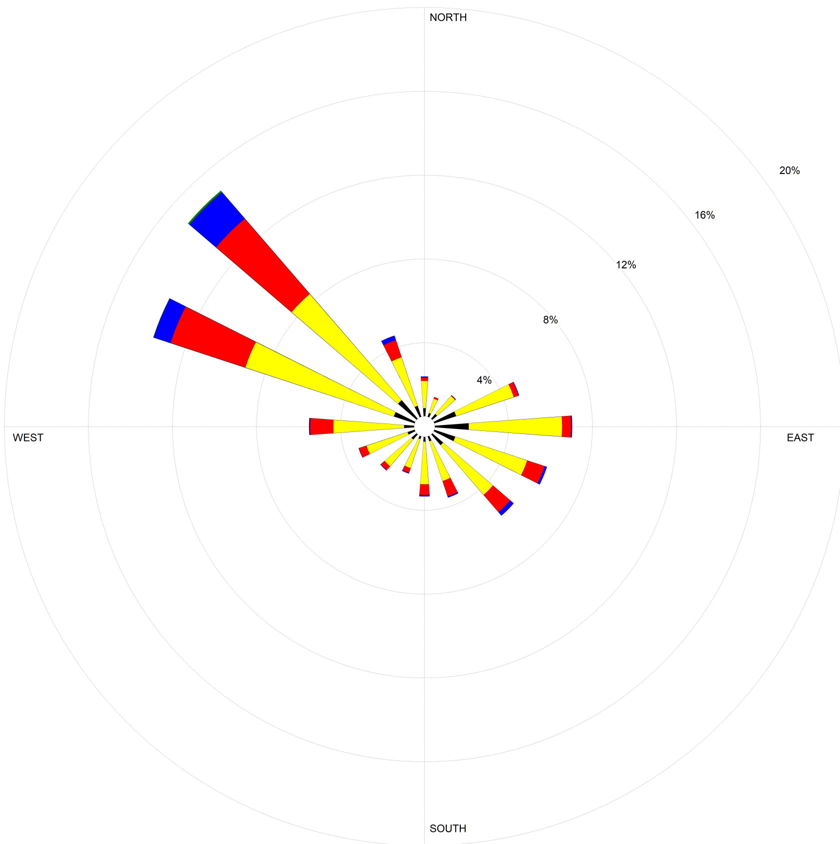
- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER **Sara West**	DATE **8/19/2002**	COMPANY NAME **USDA-ARS**
DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
AVG. WIND SPEED **3.07 m/s**	CALM WINDS **9.10%**	
ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961** **Sep 1 - Sep 30** **Midnight - 11 PM**	

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

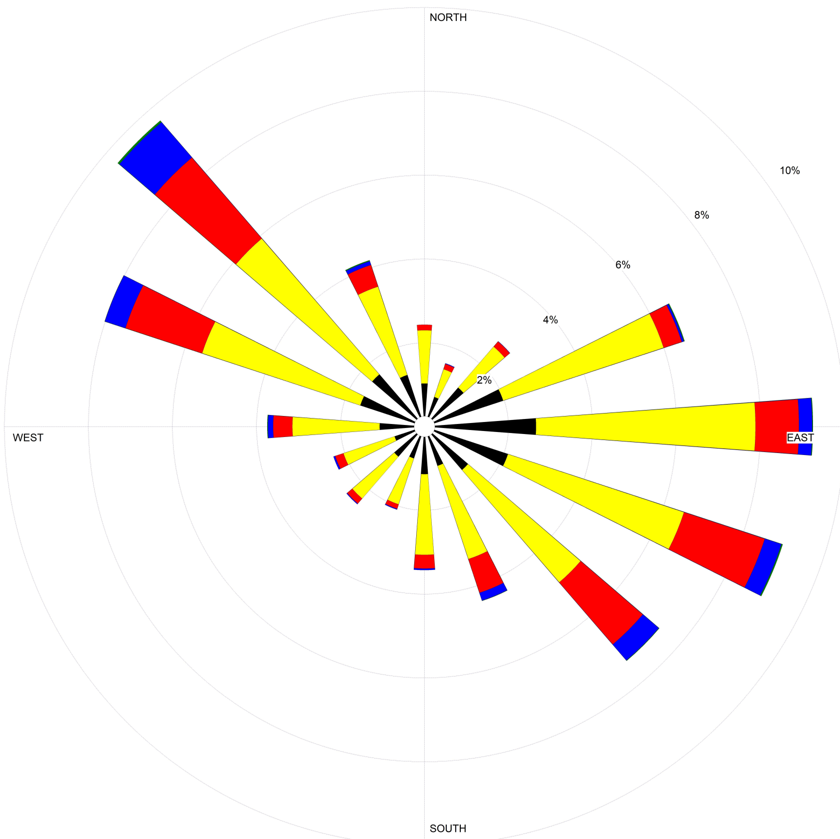


Wind Speed (m/s)	MODELER **Sara West**	DATE **8/19/2002**	COMPANY NAME **USDA-ARS**
> 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
8.49 - 11.06			
5.40 - 8.49	AVG. WIND SPEED **2.76 m/s**	CALM WINDS **16.69%**	
3.34 - 5.40			
1.80 - 3.34	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Oct 1 - Oct 31 Midnight - 11 PM**	
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA

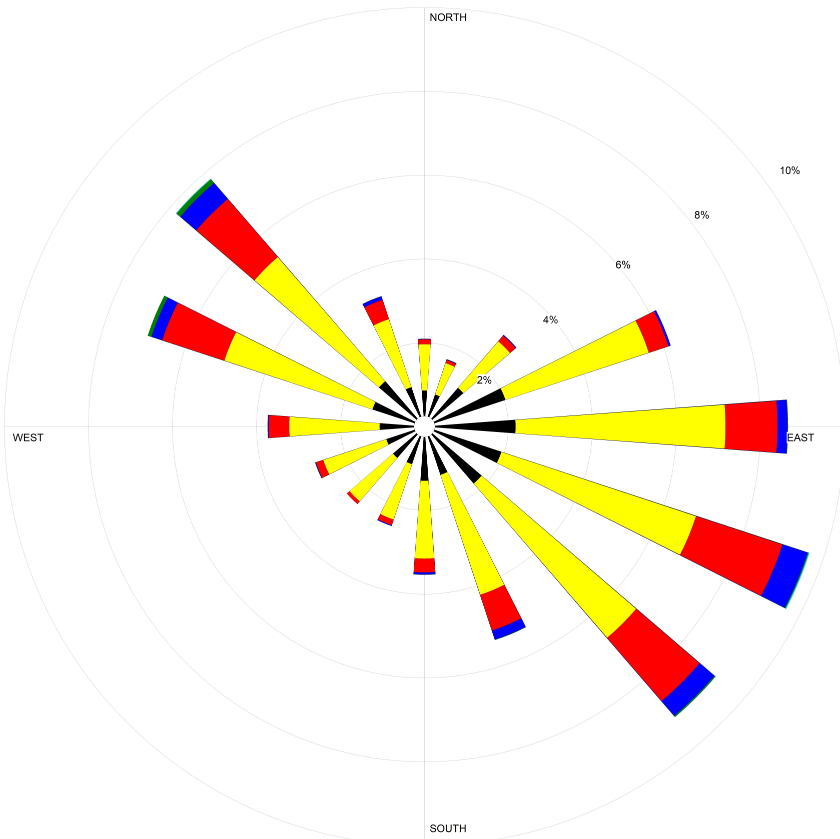


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	**Sara West**	**8/19/2002**	**USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **2.67 m/s**	CALM WINDS **20.94%**	
3.34 - 5.40	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Nov 1 - Nov 30 Midnight - 11 PM**	
1.80 - 3.34			
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #93193 - FRESNO/AIR TERMINAL, CA



Wind Speed (m/s)			
> 11.06	MODELER **Sara West**	DATE **8/19/2002**	COMPANY NAME **USDA-ARS**
8.49 - 11.06	DISPLAY **Wind Speed**	UNIT **m/s**	COMMENTS
5.40 - 8.49	AVG. WIND SPEED **2.63 m/s**	CALM WINDS **21.36%**	
3.34 - 5.40			
1.80 - 3.34	ORIENTATION **Direction (blowing from)**	PLOT YEAR-DATE-TIME **1961 Dec 1 - Dec 31 Midnight - 11 PM**	
0.51 - 1.80			

WRPLOT View 3.5 by Lakes Environmental Software - www.lakes-environmental.com

APPENDIX D

ISR Fee Worksheets

Emissions Estimator Worksheet

9/30/2021

Applicant/Business Name:	**Iron Ridge Development**
Project Name:	**Iron Ridge Development**
Project Location:	**Visalia, CA**
District Project ID No.:	

Project Construction Emissions

If applicant selected Construction Clean Fleet Mitigation Measure - Please select "Yes" from dropdown menu: **No**

			NOx					PM10				
Project Phase Name	**ISR Phase**	**Construction Start Date**	**Unmitigated Baseline(1) (TPY)**	**Mitigated Baseline(2) (TPY)**	**Achieved On-site Reductions(3) (tons)**	**Required Off-site Reductions(4) (tons)**	**Emission Reductions Required by Rule(5)**	**Unmitigated Baseline(1) (TPY)**	**Mitigated Baseline(2) (TPY)**	**Achieved On-site Reductions(3) (tons)**	**Required Off-site Reductions(4) (tons)**	**Emission Reductions Required by Rule(5)**
1	1	12/1/2021	3.7586	3.7586	0.0000	0.7517	0.7517	1.1262	1.1262	0.0000	0.5068	0.5068
	2				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	3				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	4				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	5				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	6				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	7				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	8				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	9				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
	10				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000
		Total	**3.7586**	**3.7586**	**0.0000**	**0.7517**	0.7517	**1.1262**	**1.1262**	**0.0000**	**0.5068**	0.5068

Total Achieved On-Site Reductions (tons)

ISR Phase	NOx	PM10
1	0.0000	0.0000
2	0.0000	0.0000
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	**0.0000**	**0.0000**

Project Operations Emissions (Area + Mobile)

			NOx						PM10					
Project Phase Name	**ISR Phase**	**Operation Start Date**	**Unmitigated Baseline(1) (TPY)**	**Mitigated Baseline(2) (TPY)**	**Achieved On-site Reductions(3) (tons)**	**Required Off-site Reductions(4) (tons)**	**Total Emission Reductions Required by Rule(6)**	**Average Annual Emission Reductions Required by Rule(7)**	**Unmitigated Baseline(1) (TPY)**	**Mitigated Baseline(2) (TPY)**	**Achieved On-site Reductions(3) (tons)**	**Required Off-site Reductions(4) (tons)**	**Total Emission Reductions Required by Rule(6)**	**Average Annual Emission Reductions Required by Rule(7)**
1	1	1/1/2026	2.0492	2.0492	0.0000	5.1230	5.1230	0.5123	2.4424	2.4424	0.0000	12.2120	12.2120	1.2212
	2				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	3				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	4				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	5				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	6				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	7				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	8				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	9				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
	10				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
		Total	**2.0492**	**2.0492**	**0.0000**	**5.1230**	**5.1230**	**0.5123**	**2.4424**	**2.4424**	**0.0000**	**12.2120**	**12.2120**	**1.2212**

Total Required Off-Site Reductions (tons)

ISR Phase	NOx	PM10
1	5.8747	12.7188
2	0.0000	0.0000
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	**5.8747**	**12.7188**

Notes:

TPY: Tons Per Year

(1) **Unmitigated Baseline:** The project's baseline emissions generated with no on-site emission reduction measures.

(2) **Mitigated Baseline:** The project's baseline emissions generated after on-site emisison reduction measures have been applied.

(3) **Achieved On-site Reductions:** The project's emission reductions achieved after on-site emission reduction measures have been applied.

(4) **Required Off-site Reductions:** The project's remaining emission reductions required by Rule 9510 if on-site emission reduction measures did not achieive the required rule reductions.

(5) **Emission Reductions Required by Rule:** The project's emission reductions required (20% NOx and 45% PM10) for construction from the unmitigated baseline.

(6) **Total Emission Reductions Required by Rule:** The project's emission reductions required (33.3% NOx and 50% PM10) for operations from the unmitigated baseline over a 10-year period.

(7) **Average Annual Emission Reductions Required by Rule:** The project's total emission reduction for operations required by Rule 9510 divided by 10 years.

Fee Estimator Worksheet

9/30/2021

Applicant/Business Name:	**Iron Ridge Development**
Project Name:	**Iron Ridge Development**
Project Location:	**Visalia, CA**
District Project ID No.:	

NOTES:

(1) The start date for each ISR phase is shown in TABLE 1.

(2) If you have chosen a **ONE-TIME** payment for the project, then the total amount due for ALL PHASES is shown under TABLE 2.

(3) If you have chosen a **DEFERRED** payment schedule or would like to propose a **DEFERRED** payment schedule for the project, the total amount due for a specific year is shown in TABLE 3 according to the schedule in TABLE 1.

***** If you have not provided a proposed payment date, the District sets a default invoice date of 60 days prior to start of the ISR phase.

If applicant selected Fee Deferral Schedule - Please select "Yes" from dropdown menu	**No** ▼

TABLE 1 - PROJECT INFORMATION

Project Phase Name	ISR Phase	Start Date per Phase	Scheduled Payment Date*
1	1	12/1/21	FALSE
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
T O T A L (tons)			

TABLE 2 - No Fee Deferral Schedule (FDS) / **TABLE 2 - NO FDS**

ISR Phase	Pollutant	Required Offsite Reductions (tons)	2021
1	NOx	5.8747	5.8747
1	PM10	12.7188	12.7188
2	NOx	0.0000	0.0000
2	PM10	0.0000	0.0000
3	NOx	0.0000	0.0000
3	PM10	0.0000	0.0000
4	NOx	0.0000	0.0000
4	PM10	0.0000	0.0000
5	NOx	0.0000	0.0000
5	PM10	0.0000	0.0000
6	NOx	0.0000	0.0000
6	PM10	0.0000	0.0000
7	NOx	0.0000	0.0000
7	PM10	0.0000	0.0000
8	NOx	0.0000	0.0000
8	PM10	0.0000	0.0000
9	NOx	0.0000	0.0000
9	PM10	0.0000	0.0000
10	NOx	0.0000	0.0000
10	PM10	0.0000	0.0000
TOTAL (tons)	NOx	5.8747	5.8747
TOTAL (tons)	PM10	12.7188	12.7188

TABLE 3 - APPROVED FEE DEFERRAL SCHEDULE (FDS) BY PAYMENT YEAR

	2021	2022	2023	2024	2025	2026	2027	2028	2029
Phase 1 NOx									
Phase 1 PM10									
Phase 2 NOx									
Phase 2 PM10									
Phase 3 NOx									
Phase 3 PM10									
Phase 4 NOx									
Phase 4 PM10									
Phase 5 NOx									
Phase 5 PM10									
Phase 6 NOx									
Phase 6 PM10									
Phase 7 NOx									
Phase 7 PM10									
Phase 8 NOx									
Phase 8 PM10									
Phase 9 NOx									
Phase 9 PM10									
Phase 10 NOx									
Phase 10 PM10									
TOTAL NOx (tons)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL PM10 (tons)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offsite Fee NOx ($)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Offsite Fee PM10 ($)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Administrative Fee ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Offsite Fee ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Project Offsite Fee ($)	$0.00								

Offsite Fee by Pollutant ($)	NOx	$54,928
	PM10	$114,609
Administrative Fee ($)		$6,781.48
Offsite Fee ($)		$169,537.00
Total Project Offsite Fee ($)		$176,318.48

Rule 9510 Fee Schedule ($/ton)		
Year	Nox	PM10
2021 and Beyond	$9,350	$9,011

BIOLOGICAL ANALYSIS REPORT

D.R. HORTON, AMERICA'S BUILDER

IRON RIDGE PROJECT

SEPTEMBER 2021

BIOLOGIAL ANALYSIS REPORT

IRON RIDGE PROJECT

Prepared for:

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Contact Person: Corine Demetreos, Forward Planner
Phone: 559.631.6208

Consultant:

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Clovis, CA 93612
Contact: Ernie Escobedo
Phone: 559.449.2400

September 2021

Project #210315

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Acronyms and Abbreviations

AMSL	Above Mean Sea Level
BAR	Biological Analysis Report
BIOS	Biogeography Information and Observation System
BSA	Biological Study Area
CAGS	California Ground Squirrel
CCR	California Code of Regulations
COB	City of Bakersfield
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
IPaC	Information for Planning and Construction
MBGP	Metropolitan Bakersfield General Plan
MBHCP	Metropolitan Bakersfield Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SJKF	San Joaquin Kit Fox
SWHA	Swainson's Hawk
USACE	U.S. Army Corps of Engineers

EXECUTIVE SUMMARY

Quad Knopf, Inc. (QK) has prepared this Biological Analysis Report (BAR) to evaluate the potential for sensitive biological resources to be impacted by the construction of the Iron Ridge I and Iron Ridge II subdivision projects (Project) within the City of Visalia, Tulare County, California.

The proposed project is located on the Central Valley floor in East Tulare County, California, two miles northeast of the Highway 99 and State Route 198 intersection. D.R. Horton, America's Builder (the Applicant) proposes to develop approximately 50 acres to create residential lots and the appurtenant infrastructure consistent with the General Plan designation of Residential Low Density. Along the adjacent Shirk Street, a ten-foot-wide landscape strip with masonry wall and required building setbacks will serve as the buffer between residential development and Shirk Street as required by the of Visalia City Municipal Code. A 3.82-acre linear park will extend across the north edge of the Project site which will include an approximately 2,000-foot public trail with exercise stations.

A database review and reconnaissance site visit were completed by QK Environmental Scientists to characterize existing conditions and determine the potential for special-status species and other sensitive biological resources to occur on-site that may be impacted by the Project.

The sensitive biological resource database and literature search identified four (4) natural communities, 21 plant species, and 34 animal species with potential to occur on the Project. Of those, all but three animal species were eliminated from consideration due to lack of habitat or otherwise unsuitable conditions. No special plant species or natural communities are expected to occur on or near the Project area.

Direct and indirect impacts of the Project to these and other potentially occurring species could include injury or mortality of individuals and loss of habitat. Avoidance minimization measures are recommended which, when implemented, would reduce Project impacts to biological resources to less than significant levels.

SECTION 1 - INTRODUCTION

Quad Knopf, Inc. (QK) has prepared this Biological Analysis Report (BAR) to evaluate the potential for sensitive biological resources to be impacted by the construction of the Iron Ridge I and Iron Ridge II subdivision projects (Project) within the City of Visalia, Tulare County, California.

1.1 - Project Location

The Iron Ridge Project is a 50.31-acre residential development project proposed to be constructed within the City of Visalia. The Project is located two miles northeast of the Highway 99 and State Route 198 intersection, west of North Shirk Road, east of Road 88, and 0.25 miles south of W Goshen Avenue (Figures 1-1 and 1-2). The Project is within Section 28, Township 18S, Range 24E, Mount Diablo Base and Meridian.

1.2 - Project Description

D.R. Horton, America's Builder (the Applicant) proposes to develop approximately 50 acres to create residential lots and the appurtenant infrastructure consistent with the City of Visalia General Plan designation of Residential Low Density. The approximate density is 4.73 dwelling units per gross acre. The Project proposed to remove the Very Low Density Residential (and subsequent R-1-20 zone) and replace it with Low Density Residential (R-1-5 zone) in order to create a homogenous neighborhood. The Project will be built in two Phases (Phase I and Phase II).

Phase I includes the 10-acre parcel in the northeast of the Project site and will include the construction of 41 residential lots, and Phase II includes the 40-acre parcel to the west and will include the construction of 197 residential lots. Along the adjacent Shirk Street and Road 88, ten-foot-wide landscape strips with masonry wall and required building setbacks will serve as buffers between residential development and Shirk Street and Road 88. A 3.82-acre linear park will extend across the north edge of the Project site which will include an approximately 2,000-foot public trail with exercise stations. The linear park and adjacent light industrial properties to the north will be separated by a 6-foot block wall as required by the City's Municipal Code.

1.3 - Purpose, Goals, and Objectives

The purpose of this BAR is to identify where potential special-status biological resources may occur within the Project site, determine how those resources may be impacted by the proposed Project, and recommend avoidance, minimization, and mitigation measures to reduce the potential for impact to those resources to a less than significant level. This BAR has been prepared to support an analysis of biological conditions as required by the California Environmental Quality Act (CEQA). Information contained in this BAR would, at least partially, support an analysis of project effects required by the National Environmental Policy Act (NEPA) and to support regulatory permit applications, if needed.

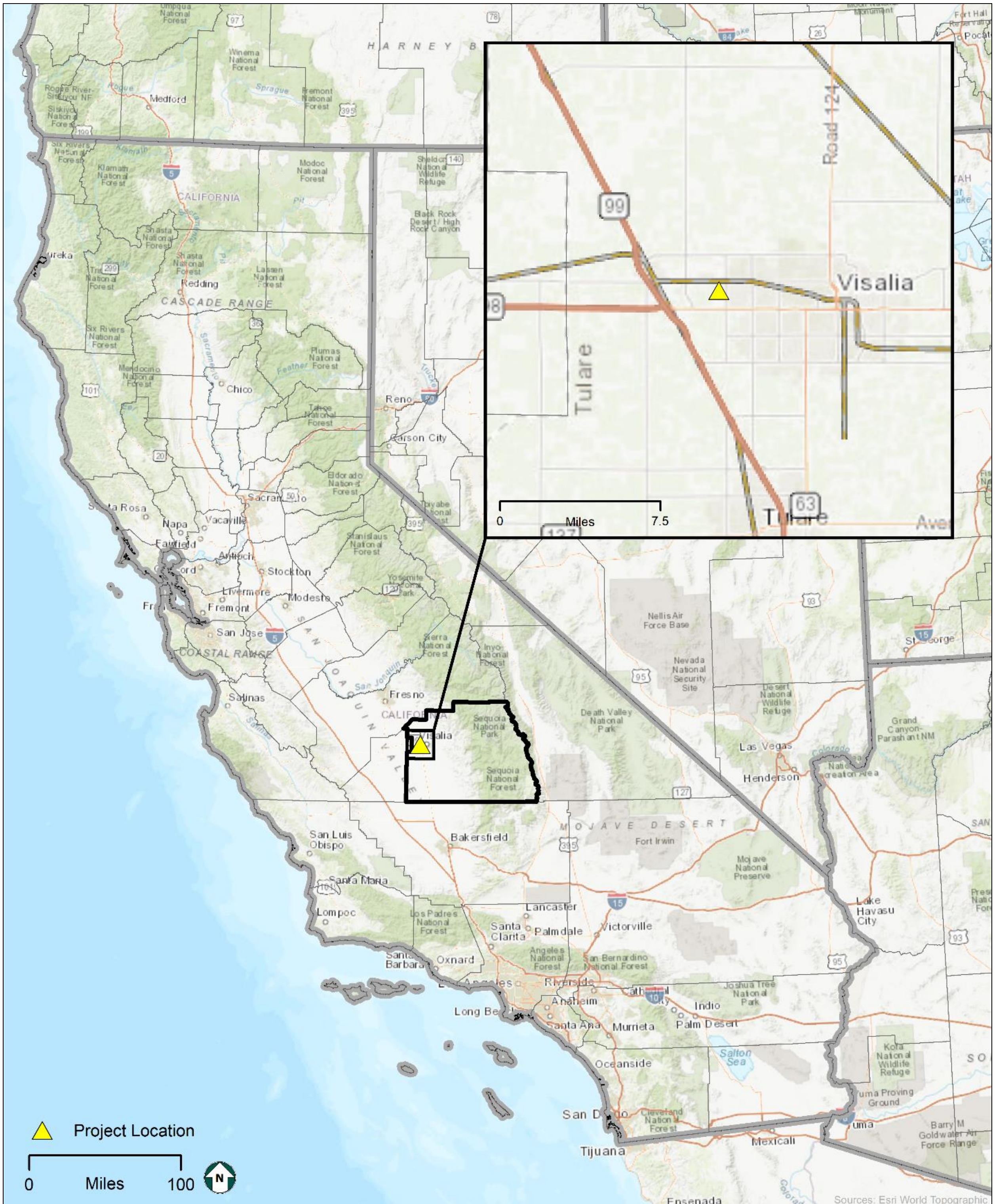

Figure 1-1
Regional Map
Iron Ridge, Visalia, California

Figure 1-2
Project Location Map
Iron Ridge, Visalia, California

SECTION 2 - METHODS

2.1 - Definition of Biological Study Area

The Biological Study Area (BSA) consists of the proposed Project and a surrounding 250-foot buffer (Figure 2-1).

2.2 - Definition of Special-Status Species

Special-status species evaluated in this BAR include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the project,
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA),
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW),
- Other species included on the CDFW's Special Animals List,
- Plant species with a California Rare Plant Rank (CRPR), and
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **No Potential to Occur**. Habitat on and adjacent to the site is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identified on-site if present (e.g., oak trees).
- **Yes, Potential to Occur**. Conditions on the site may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Negative survey results independent of other information does not exclude the potential for a species to occur.
- **Present.** Species was observed on the site or has been recorded (e.g., California Natural Diversity Database, California Native Plant Society) on the site recently (within the last 5 years).

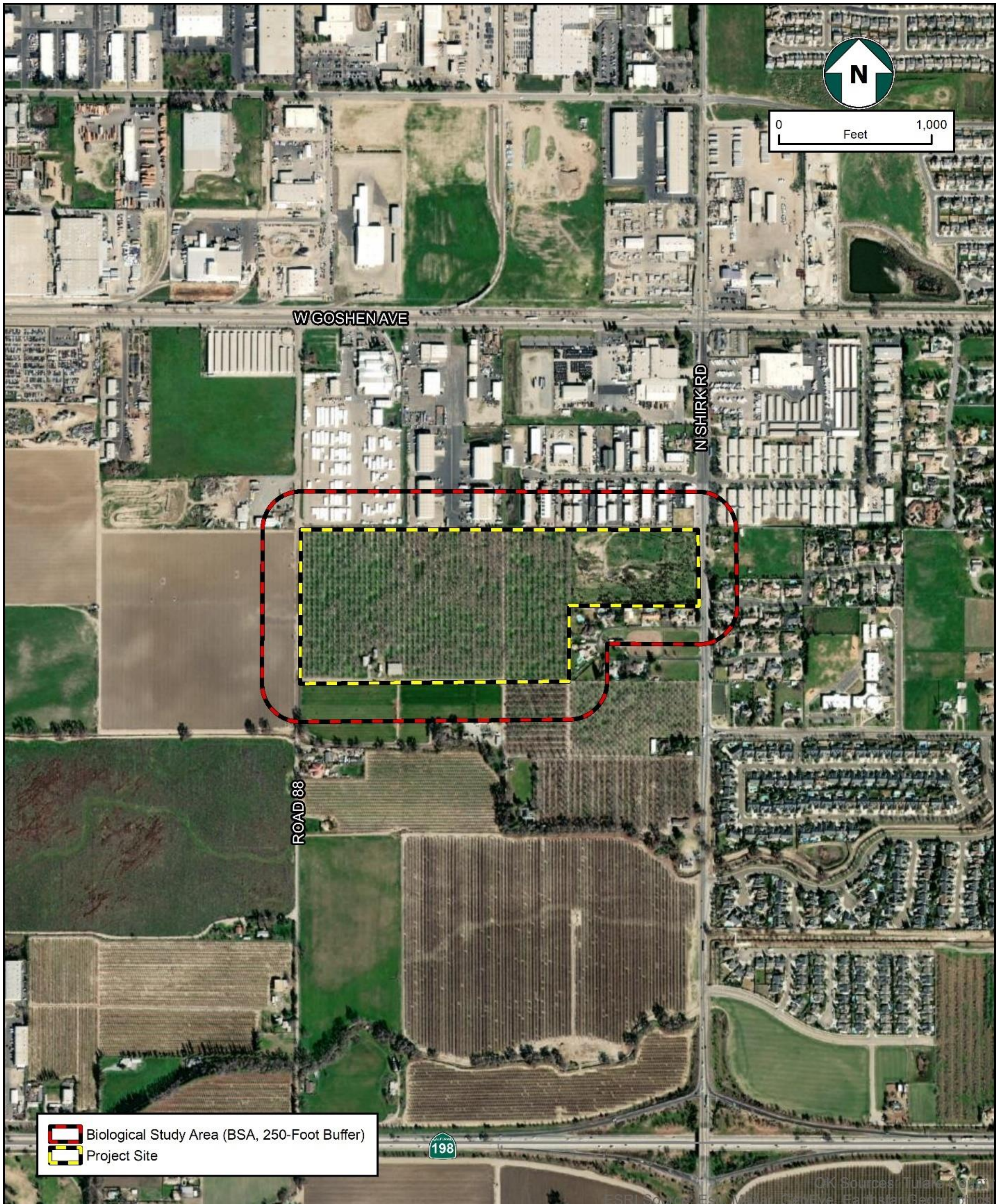

Figure 2-1
Biological Study Area
Iron Ridge, Visalia, California

2.3 - Literature Review and Database Analysis

The following sources were reviewed for information on sensitive biological resources in the Project vicinity:

- CDFW's California Natural Diversity Database (CDFW 2021a)
- CDFW's Biogeographic Information and Observation System (CDFW 2021b)
- CDFW's Special Animals List (CDFW 2021c)
- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021)
- USFWS Information for Planning and Consultation system (USFWS 2021a)
- USFWS Critical Habitat Mapper (USFWS 2021b)
- USFWS National Wetlands Inventory (USFWS 2021c)
- USGS National Hydrography Dataset (USGS 2021a)
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2021)
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2021a)
- NRCS List of Hydric Soils (NRCS 2021b)
- Current and historical aerial imagery (Google LLC 2020, Netronline 2021)
- Topographic maps (USGS 2021b)

For each of these data sources, the search was focused on the *Visalia* and *Goshen* USGS 7.5-minute quadrangles in which the Project is located, plus the surrounding ten (10) quadrangles: *Monson, Ivanhoe, Exeter, Cairns Corner, Tulare, Paige, Traver, Burris Park, Remnoy,* and *Waukena*.

The California Natural Diversity Database (CNDDB) provides element-specific spatial information on individually documented occurrences of special-status species and sensitive natural communities. Some of the information available for review in the CNDDB is still undergoing review by the CDFW; these records are identified as unprocessed data. The CNPS database provides similar information as the CNDDB, but at a much lower spatial resolution. Much of this information in these databases is submitted opportunistically and is often focused on protected lands or on lands where various developments have been proposed. Neither database represents data collected during comprehensive surveys for special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility that a special-status species could be present. The National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), and Web Soil Survey provide comprehensive data, but at a low resolution that requires confirmation in the field. The CDFW Special Animals List and USFWS Information for Planning and Consultation system provide no spatial data on wildlife occurrences and provide only lists of species that might potentially be present.

The results of database inquiries were reviewed to develop a comprehensive list of sensitive biological resources that may be present in the vicinity of the Project. This list was then evaluated against existing conditions observed during the site visit of the BSA to determine which sensitive resources are or could be present, and then the potential for impacts to those resources to occur from Project implementation.

2.4 - Reconnaissance-Level Field Surveys

A reconnaissance survey of the BSA was conducted on August 30, 2021, by QK Environmental Scientists Courtney Chaney and Shannon Gleason (Table 2.1). The survey consists of walking meandering pedestrian transects throughout the BSA, where feasible. A portion of the buffer was inaccessible because it overlapped with private residential and industrial properties. Those areas were surveyed visually with the aid of binoculars to gather a representative inventory of the plant and wildlife species present. The entire Project area was surveyed on foot.

Table 2-1
Reconnaissance Survey Personnel and Timing
Wonderful: Lost Hills Expansion Project, Kern County, California

Date	Personnel	Time	Weather Conditions	Temperature
August 30, 2021	Courtney Chaney, Shannon Gleason	1122-1305	Sunny, hazy	89.5-100.0°F

General tasks completed during the survey included an inventory of plant and animal species observed, characterization of vegetation associations and habitat conditions, evaluation for presence of wetlands and waters within the BSA, an assessment of the potential for federal- and State- listed and special-status plant and wildlife species to occur on and near the Project site, and assessment for migratory birds and raptors to nest on and near the Project site. All locational data was recorded using ESRI Collector for ArcGIS software installed on an iPad and site conditions were documented with representative photographs.

SECTION 3 - REGULATORY SETTING

Regulated or sensitive resources that were studied and analyzed include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement areas, and locally protected resources such as protected trees. Regulatory authority over biological resources is shared by federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, City of Visalia).

Potential impacts to biological resources were analyzed based on the following list of statutes. Summaries of these statues are provided in Appendix A.

- CEQA
- FESA
- CESA
- Federal Clean Water Act
- California Fish and Game Code
- Migratory Bird Treaty Act
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Visalia General Plan

SECTION 4 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project site and BSA and describes existing baseline conditions. The environmental setting of the BSA was obtained from various sources of literature, databases, and aerial photographs. Information on site conditions was gathered during a survey of the Project site conducted by QK biologists.

4.1 - Physical Characteristics

The BSA is in a region dominated by agricultural orchards and urban development. The BSA is located on the eastern San Joaquin Valley floor, west of the Sierra Nevada Mountain range. Residential development is located to the east and south of the Project site, light industrial is located to the north, and agricultural land is located to the south and west. The Project is located on the west section of the City of Visalia, Tulare County, a census-designated place. Land use within the Project site boundary contained two types of vegetative cover. The 40-acre parcel on the west portion of the Project site is currently contained an orchard of walnut trees. The 10-acre parcel on the east side of the Project site has been previously disturbed and is predominately barren but had sparse patches of non-native vegetation. Representative photographs of the current conditions of the BSA are included in Appendix B.

4.1.1 - TOPOGRAPHY

The Project site is on the floor of the San Joaquin Valley west of the Sierra Nevada foothills. The topography on the site is relatively flat, with an elevation range of approximately 300 to 320 feet above mean sea level.

4.1.2 - CLIMATE

The region in which the BSA is located is characterized by a Mediterranean climate of hot summers and wet, mild winters. Average high temperatures range from 56.0°F in January to 97.5°F in July, and it is not uncommon for temperatures to exceed 100°F during the summer (WRCC, 2021). Average low temperatures range from 36.8°F in December to 63.5°F in July. Precipitation occurs primarily as rain, most of which falls between November and April. Precipitation may also occur as dense fog during the winter known as Tule Fog. Rain rarely falls during the summer months and there have been numerous years of drought conditions for region resulting in lower-than-average rainfall.

4.1.3 - LAND USE

Land use surrounding the Project area consist of urban development, light industrial, fallow agriculture, orchards, non-native grassland, and barren land. Land use within the Project boundary consists of annual grassland, barren land, and deciduous orchards. The Project is bounded by paved and unpaved streets and private residences. The Project site is bounded by light industrial development to the north, North Shirk Road and residential development to the east, an unnamed dirt road, residential, orchards, and fallow agriculture with non-native grassland to the south, and Road 88 and fallow agriculture to the west.

4.1.4 - Soils

The BSA is underlain by two soil types: Colpien loam and Akers-Akers (Figure 4-1).

The Colpien series consists of very deep, moderately well drained soils on terraces that formed in alluvium derived mainly from granitic rocks. These soils are artificially drained. Slopes are 0 to 2 percent. The average annual precipitation is about 10 inches and the average annual temperature is about 63 degrees F. This soil is used for irrigated cropland to grow cotton, corn, wheat, grapes, stone fruits, walnuts, and alfalfa. It is also used for dairy and cattle production and building site development. This soil is considered nonhydric (NRCS 2021).

The Akers series consist of very deep, well drained soils formed in alluvium derived from granitic rock. Akers soils are on terraces. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 63 degrees F. This soil is used for irrigated cropland to grow cotton, corn, wheat, table grapes, walnuts, plums, and alfalfa. It is also used for dairy and cattle production and building site development.

4.1.5 - Hydrology

The NWI and NHD showed three waterways in the vicinity of the Project, and none were observed on site during the reconnaissance survey (USFWS 2021C; USGS 2021). One aquatic resource to the south, Mill Creek Ditch, was dry at the time of the survey. Two freshwater ponds to the north of the Project site were field verified to no longer be present. (Figure 4-2) The Project is situated within areas of 1% Annual Chance Flood Hazard and 0.2% Annual Chance Flood Hazard as designated by FEMA (FEMA 2021) (Figure 4-3).

4.2 - Vegetation and Other Land Cover

Four habitat types were observed within the BSA: Orchard, Annual Grassland, Urban, and Barren (Figure 4-4). The habitats observed on-site have been described in the context of the CWHR (Mayer and Laudenslayer 1988).

Table 4-1
Habitat Acreages Observed On-Site

Habitat Type	BSA Acreages
Orchard	42.80
Urban	28.09
Annual Grassland	18.29
Barren	6.80

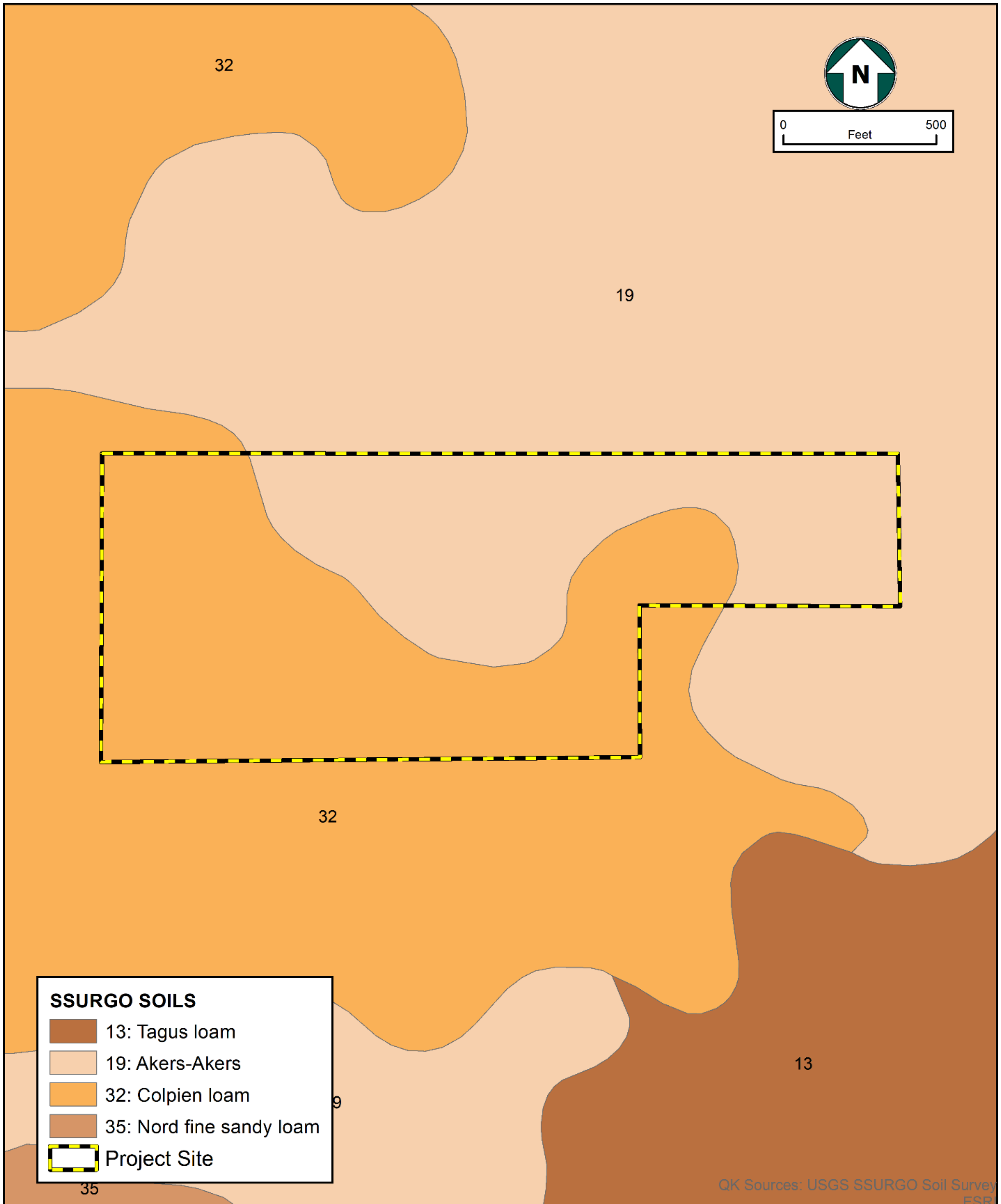

Figure 4-1
Soils Mapped within the BSA
Iron Ridge, Visalia, California

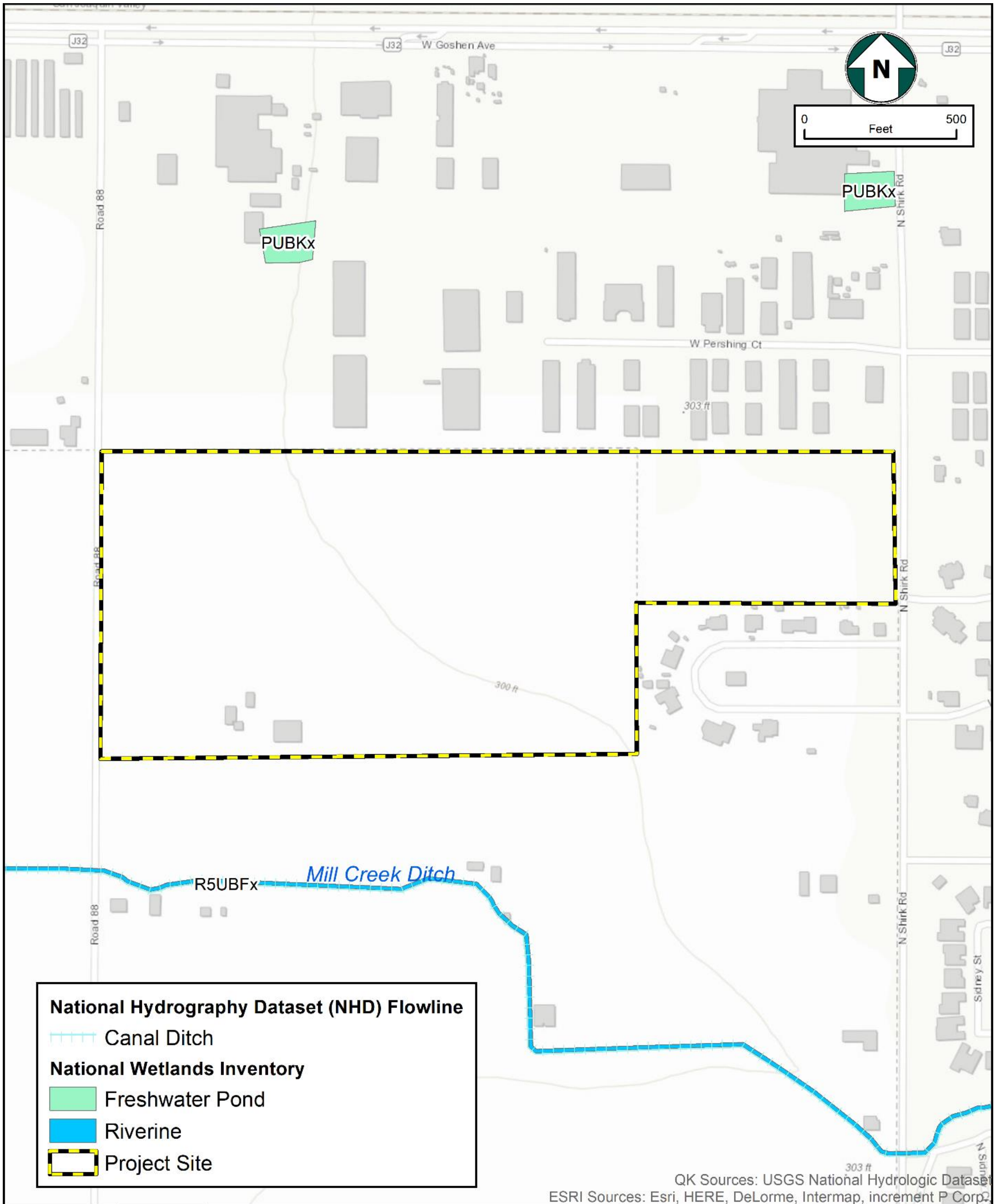

Figure 4-2
NWI and NHD Records of Aquatic Resources
Iron Ridge, Visalia, California

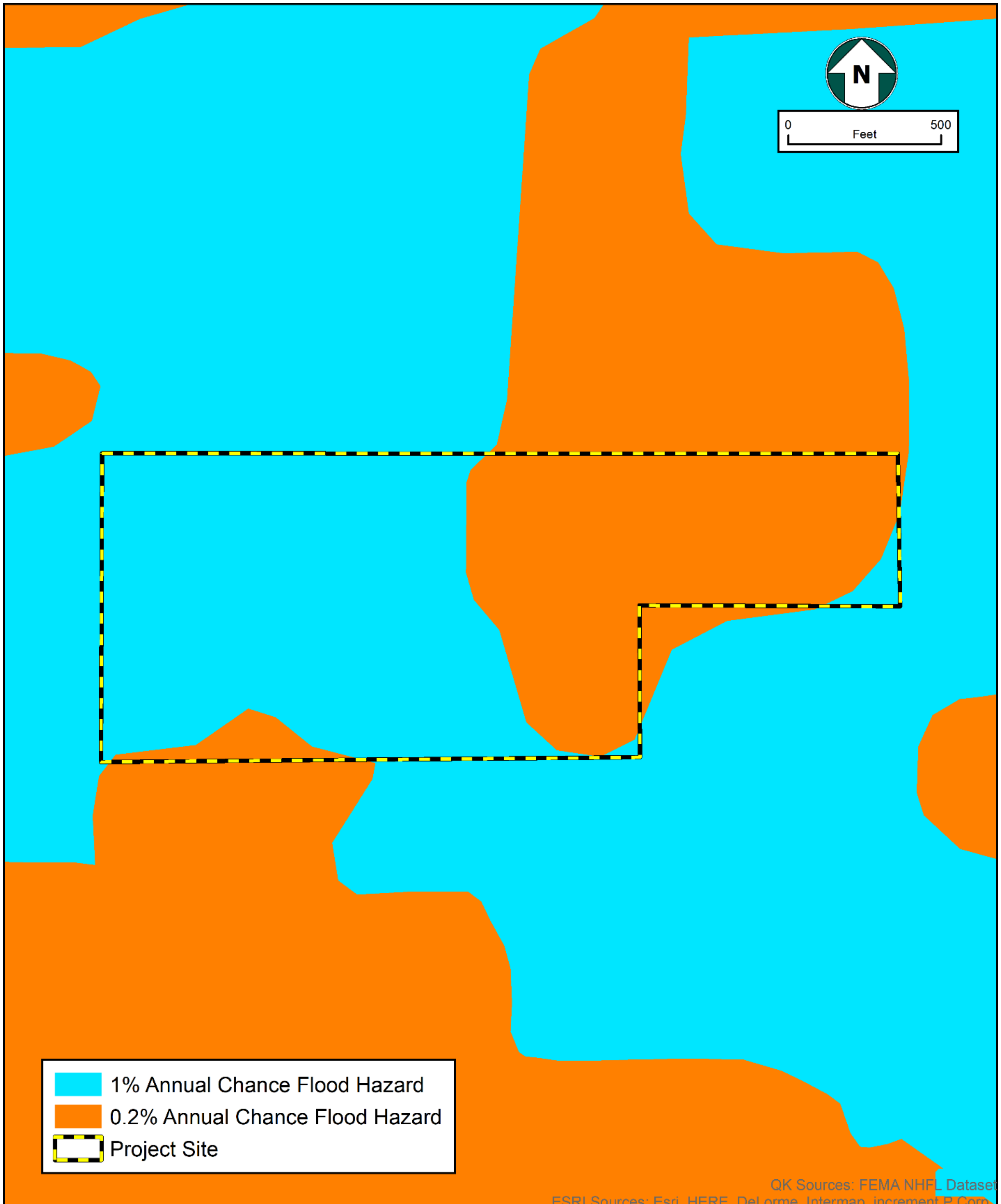

Figure 4-3
FEMA Flood Zone Map
Iron Ridge, Visalia, California

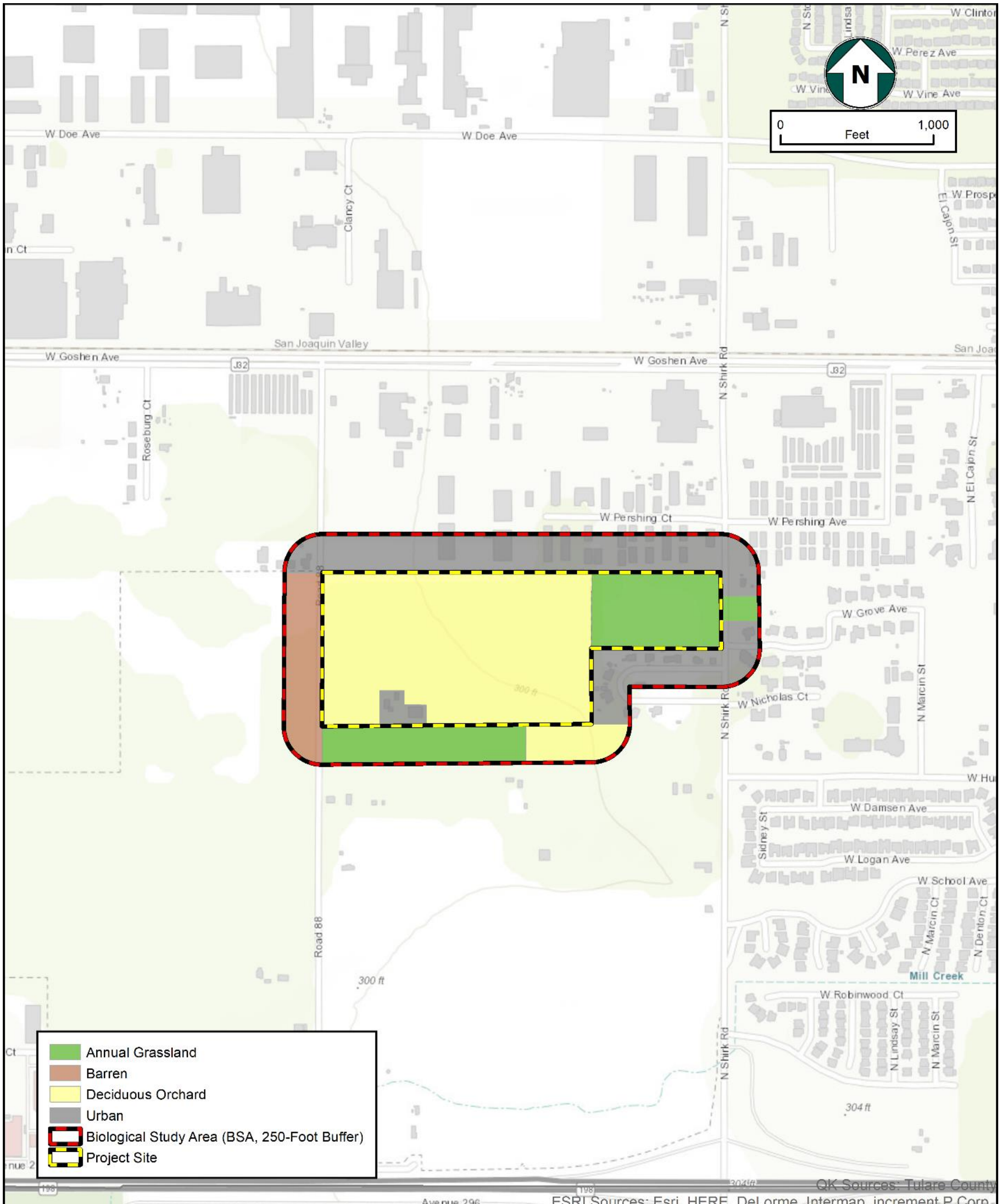

Figure 4-4
Vegetation Communities within the BSA
Iron Ridge, Visalia, California

4.2.1 - URBAN

Mayer and Laudenslayer (1988) describe Urban as a developed habitat with five types of vegetative structure including tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Common in city parks, green belts, and cemeteries, tree groves vary in height, tree spacing, crown shape, and understory conditions, depending on species planted and landscape design. Street tree strips show variation in spacing of trees, depending upon species and design considerations, and are typically planted in grass. Shade trees/lawns are typical of residential areas and reminiscent of natural savannas. Lawns are structurally the most uniform vegetative units of the Urban habitat and shrub cover, including hedges, is more limited in distribution. Species composition in Urban habitats varies with planting design and climate and monoculture is commonly observed in tree groves and street tree strips. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. Downtown has the lowest diversity comprised of over 90 percent avian density and biomass including rock dove, European starling, and house sparrow. Wildlife that utilize urban residential scrub jay, mockingbird, house finch, raccoon, opossum, striped skunk, and California slender salamander. Wrentits, bushtits, plain titmouse, chestnut-backed chickadee, California quail, black-tailed deer, ringtail, black-tailed jackrabbit, gopher snake and western fence lizard typically occur in suburban areas. Urban habitat is the result of modifying pre-settlement vegetation and introducing new species. They are not limited to any particular physical setting and occur throughout California.

The BSA contains urban habitat in the 250-foot buffer surrounding the Project site, consisting of light industrial development to the north and residential properties to the east. There is a residential property on the Project site along its southern boundary.

4.2.2 - DECIDUOUS ORCHARD

Mayer and Laudenslayer (1988) describe Orchards as manmade habitats that are typically monoculture operations. Deciduous orchards include trees, such as, almonds, apples, apricots, cherries, figs, nectarines, peaches, pears, pecans, pistachios, plums, pomegranates, prunes, and walnuts. Trees range in height at maturity for many species from 15 to 30 feet, or 60 feet or more in pecans and walnuts. Crowns usually touch and are usually in a linear pattern. Spacing between trees is uniform depending on desired spread of mature trees. Understory vegetation is usually composed of low-growing grasses, legumes, and other herbaceous plants, but may be managed to prevent understory growth totally or partially, such as along tree rows. Small mammals are often found along orchard rows or adjacent to fence posts. Nests in orchard trees are uncommon but birds may use orchards for perching or hunting. Other animals may traverse these lands, but limited foraging, breeding, and sheltering occurs here. Orchards are placed on both flat and sloped land and are often found adjacent to similar habitats. These habitats are extremely common across the Central Valley, the central coast, and parts of southern California.

The 40-acre rectangular parcel on the western side of the Project site is dominated by Orchard habitat containing mature walnut trees. Limited understory vegetation was present at the time of survey consisting of low-lying grasses and herbs.

4.2.3 - Barren

Mayer and Laudenslayer (1988) describe Barren habitat as a permanently non-vegetated habitat, which is any habitat with <2% total vegetation cover by herbaceous, desert, or non-wildland species and <10% cover by tree or shrub species is defined this way. Barren habitat may be found in combination with many different habitats, depending on the region of the state. Where there is little or no vegetation, structure of the non-vegetated substrate becomes a critical component of the habitat. Certain bird species including cormorants, hawks, and falcons nest on rock ledges and other species including plovers, stilts, avocets, gulls, terns, nighthawks, and poorwills rely on open ground covered with sand or gravel to construct scrape nests and bank swallows will use vertical cliffs along river corridors to nest and seek cover. Rocky canyon walls above open water are preferred foraging habitat for many species of bats. Some lizard species rely on open sandy soils in the desert for burrowing and laying eggs and some mammals rely on alpine talus slopes for cover. Barren habitat typically consists of an inhospitable environment for plants including extreme temperatures, near-vertical slopes, impermeable substrate, either natural or anthropogenic constant disturbances, or soil lacking or containing excessive organic matter or minerals. Barren habitat can occur throughout California at any elevation.

Barren habitat exists in the 250-foot buffer to the west of the Project site, consisting of recently tilled fallow agricultural fields. The area consists of disturbed soil with little to no vegetation.

4.2.4 - Annual Grassland

Annual Grassland is described by Mayer & Laudenslayer (1988) as open grasslands composed primarily of annual plant species, which also will occur as understory plants in woodland habitats. Structure is dependent largely on weather patterns and livestock grazing, and large quantities of dead material can be found in summer months. Plant species found include introduced annual grasses such as brome (*Bromus* sp.) and wild oats (*Avena* sp.), and forbs such as red-stemmed filaree (*Erodium cicutarium*) and turkey mullein (*Croton setigerus*). Many wildlife species use annual grassland habitat for foraging, but some require special habitat features such as cliffs, ponds, and woodlands for breeding and refuge. Characteristic species for annual grasslands includes; western fence lizard, western rattlesnake, California ground squirrel (CAGS), coyote, turkey vulture, burrowing owl, and horned lark.

Annual grassland habitat exists within the sparsely vegetated 10-acre rectangular section on the northeast side of the project site. Additionally, non-native grassland habitat exists within the 250-foot buffer to the south of the Project site, existing on abandoned agricultural land.

4.3 - General Wildlife Observations

Wildlife occurring within the BSA was typical for the habitats that were present. A complete list of wildlife observations is included in Appendix C.

SECTION 5 - SENSITIVE BIOLOGICAL RESOURCES

Local, State, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed on the project site and evaluates the potential for the Project site to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB and CNPS, species occurrence records from other sites in the vicinity of the survey area, previous reports for the project site, and the results of surveys of the Project site.

5.1 - Special-Status Species

There were no special-status plant species identified within the Project site or survey buffer and based on historical disturbance and current conditions none are expected to occur. However, three special-status animal species were determined to have potential to occur on-site and potentially be affected by the Project (Table 5-1). The complete list of species identified by the database search (CNDDB, IPaC CNPS, available literature, etc.) and evaluated for this Project is included in Appendix D. Each species with potential to occur on the site is further discussed in the subsections below.

Table 5-1
Special-Status Species with Potential to Occur On-Site

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
Athene cunicularia burrowing owl	-/- -/SSC	Yes	No
Buteo swainsoni *Swainson's hawk*	-/ST -/-	Yes	No
Vulpes macrotis mutica *San Joaquin kit fox*	FE/ST -/-	Yes	No

FE Federally Endangered
FT Federally Threatened
FC Federal Candidate Species
FS Federally Sensitive
SE State Endangered
ST State Threatened
SC State Candidate
SS State Sensitive
SSC State Species of Special Concern
SFP State Fully Protected
SR State Rare

5.1.1 - SPECIAL-STATUS PLANT SPECIES

The literature and database review identified twenty-one (21) special-status plant species known to occur or with potential to occur within the vicinity of the Project (See evaluation table in Appendix D). None of those species were determined to have potential to occur within the BSA because all areas have been previously disturbed and/or are developed and no longer support suitable habitat for those species, outside of the know range of the species, habitat that does not support the species, or other environmental conditions.

5.1.2 - Special-Status Animal Species

The literature review identified 32 special-status animal species known or with potential to occur in the vicinity of the project (see the evaluation table in Appendix D). Of those, three (3) were determined to have the potential to occur on-site.

Swainson's Hawk

BUTEO SWAINSONI
Status: State Threatened

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley and Antelope Valley (Bechard et al. 2010, Zeiner et al. 1990). Some hawks may be resident, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dry-land grain fields nearby for foraging and have been known to nest in large eucalyptus trees along heavily traveled freeway corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks exhibit a moderate to high nest site fidelity for successful nest sites.

The nearest occurrence was recorded in 2017, 1.2 miles west of the Project, where a stick nest was observed in an oak tree adjacent to agricultural fields and a commercial area (EONDX 109959; CDFW 2021b).

Based on information from the reconnaissance site visit, there are large walnut trees in the orchard on the western portion of the site that could potentially support nesting Swainson's hawks, in addition to large planted trees in urban areas in the vicinity of the Project. The annual grassland on the Project site and within the BSA could potentially provide foraging opportunities for the Swainson's hawk. However, the high density of residential neighborhoods, traffic, and lack of other potential foraging habitat in the area would decrease the likelihood of Swainson's hawk nesting activity on the Project site.

Western Burrowing Owl

ATHENE CUNICULARIA
Status: CDFW Species of Special Concern

The western burrowing owl is a small ground-dwelling owl that can be found throughout western North America (Klute et al. 2003). This species can be found in a variety of habitat types including grasslands, deserts, or other open habitats where food resources are available and contain treeless areas with low vegetation cover and gently sloping terrain (Rodewald 2015). Burrowing owls use earthen burrows, typically relying on other fossorial mammals to construct their burrows such as CAGS or American badger (USFWS 1998). In

California, they are most often associated with CAGS Winchell 1994. They use a burrow throughout the year for temperature regulation, offspring rearing, shelter, and escape from predators. While burrows are most often earthen, they also use atypical burrows such as pipes, culverts, and other man-made structures, most often as shelter (Shuford and Gardali 2008). Burrowing owls can have several burrows close to one other that they may frequently move among to avoid predators.

The nearest CNDDB occurrence is from 1998 and was located approximately 5.6 miles northwest of the Project site (EONDX 35403). No western burrowing owl or diagnostic sign (e.g., burrows, whitewash, pellets, prey remains) were observed during the survey. Burrowing owls are present year-round in the Central Valley and typically use multiple burrows within their ranges. Burrowing owls have also been known to occur in urban and agriculturally developed areas. The prey base (i.e., insects and lizards) within the Project site is marginal, however it is still possible that burrowing owls may become established in the existing CAGS burrows or pass through the Project site as transients.

San Joaquin kit fox

VULPES MACROTIS MUTICA

Status: Federally Endangered, State Threatened

The San Joaquin kit fox (SJKF) is a subspecies of kit fox that is endemic to the San Joaquin Valley, Carrizo Plain, and Cuyama Valley, as well as other small valleys in the western foothills of the Central Valley of California (USFWS 1998). They are only found west of the Sierra Nevada crest. They occupy arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils. SJKF are well-established in some urban areas and are highly adaptable to human-altered landscapes. They generally avoid intensively maintained agricultural land but forage well into croplands from surrounding habitat. SJKF uses subterranean dens year-round for shelter and pup-rearing. They are nocturnally active but may be above ground near their dens during the day, particularly in the spring. They feed primarily on small mammals, but will consume a variety of prey, and will scavenge for human food.

The nearest CNDDB occurrence (EONDX 55307) is from 2003 and approximately 3.4 miles northwest of the Project and is presumed extant (CDFW 2021a). No SJKF were observed during the survey. No kit fox or diagnostic sign (e.g., tracks, scat, prey remains, or dens) were observed during the reconnaissance survey. This species is a highly mobile transient forager which preys on small burrowing mammals and has adapted well to urbanized settings, even feeding on anthropogenic food sources. Suitable foraging and denning habitat are present within the BSA and the species may pass through as a transient.

5.2 - Sensitive Natural Communities

Sensitive natural communities are designated by various resource agencies including the CDFW, USFWS, Bureau of Land Management, U.S. Forest Service, or are designated by local agencies through policies, ordinances, and regulations. Sensitive natural communities generally have important functions or values for plants and wildlife or are recognized as declining in extent or distribution and warrant some level of protection

5.2.1 - Sensitive Plant Communities

The CNDDB search resulted in four sensitive natural communities occurring in the region of the Project: Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool, Valley Sacaton Grassland, and Great Valley Oak Riparian Forest. None of these communities were determined to have potential to occur within the BSA because all areas have been previously disturbed and/or are developed and no longer support suitable habitat for those communities.

5.2.2 - Critical Habitats

Habitat may be designated as Critical Habitat by the USFWS, which are blocks of habitat that may or may not be currently occupied by species, but which are of the highest priority for the survival, conservation, and recovery of threatened or endangered species.

There are no mapped Critical Habitats on or near the Project. The nearest Critical Habitat is located approximately 10-miles north-northwest of the Project for the vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. Further to the northeast is critical habitat for San Joaquin Orcutt grass and Hoover's Spurge. None of these species are present on the Project site nor does the site provide suitable habitat for these species (Figure 5-2).

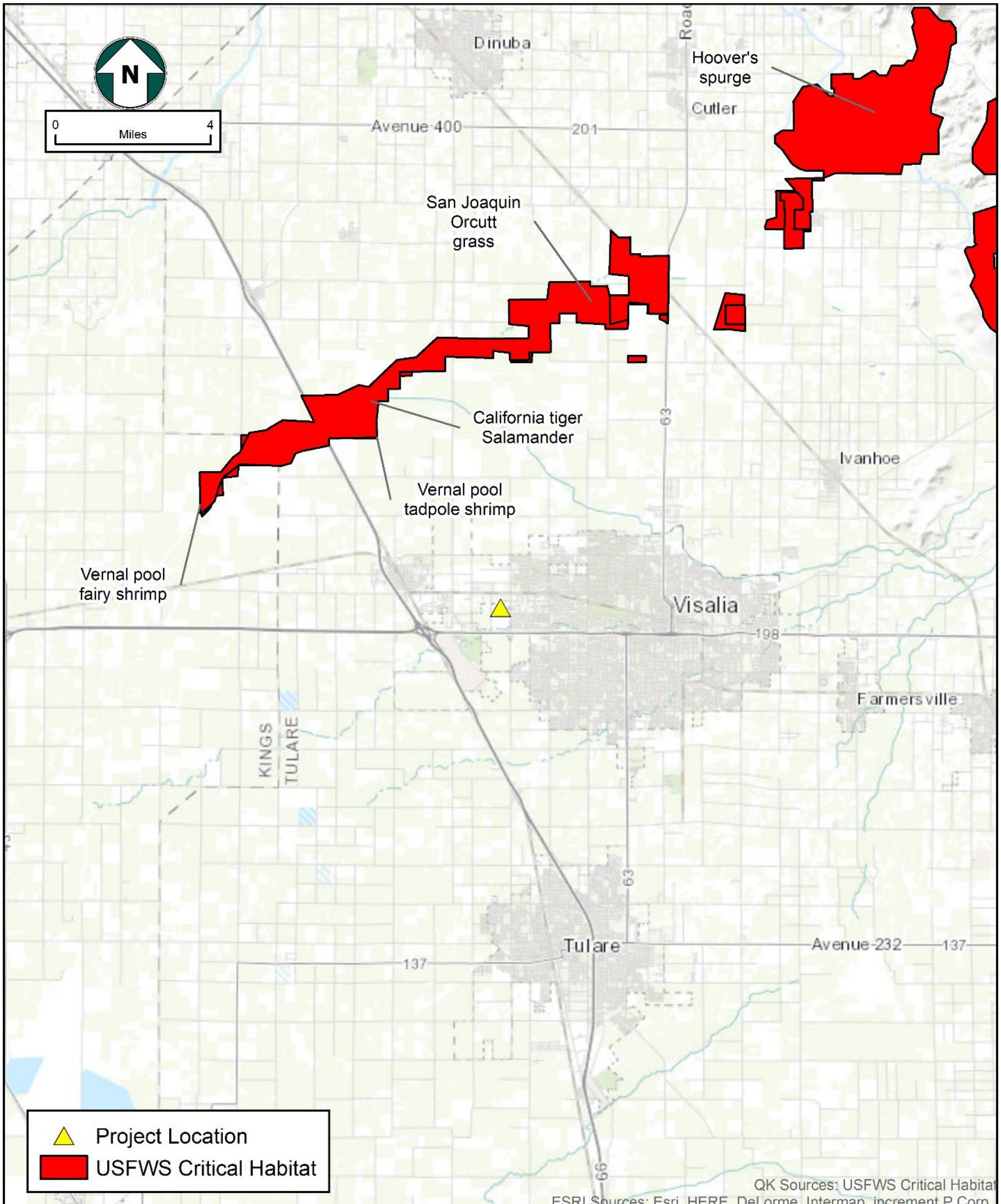

Figure 5-1
Critical Habitat in the Project Vicinity
Iron Ridge, Visalia, California

5.3 - Jurisdictional Aquatic Resources

No water or wetland features are present on the Project site. The literature review, NHD, and NWI identified three Waters of the U.S. or wetland features in the vicinity of the Project site, however none were observed within the Project site during the reconnaissance survey. One aquatic resource to the south, Mill Creek Ditch, was dry at the time of the survey. Two freshwater ponds to the north of the Project site are no longer be present.

5.4 - Wildlife Movement

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes [*Canis latrans*], mule deer [*Odocoileus hemionus californicus*]). They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

The literature review and database search did not identify any wildlife movement corridors on or near the Project site.

5.5 - Resources Protected by Local Policies and Ordinances

The City of Visalia General Plan contains policies aimed at the preservation of biological resources and promotes coordination with federal and State resource agencies. These policies are listed in Appendix A. The General Plan outlines a work plan with implementation measure by which to uphold these policies, including biological resource review for proposed projects and development of mitigation measures for these projects. The City of Visalia Valley Oak Ordinance establishes policies for care, trimming, and removal of Valley Oaks.

5.6 - Habitat Conservation Plans

The Project is located within an area covered by the PG&E San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP). This HCP applies to maintenance and operations of PG&E facilities only and does not apply to the Project.

SECTION 6 - IMPACT ANALYSIS AND RECOMMENDED MITIGATION MEASURES

This section provides an analysis of the potential for special-status biological resources to be impacted by the proposed Project. The analysis was developed using the CEQA Appendix G questions, but also provides sufficient information to support NEPA) documentation. In addition to the standard CEQA analysis topics, we have added another topic that could result in impacts to wildlife, which is an analysis of the quality of irrigation reuse water and the potential effect on wildlife of its reuse within the Land Application Area.

6.1 - Special-Status Species

The proposed project would have a significant effect on biological resources if it would:

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

Avoidance and minimization measures are designed to reduce or eliminate impacts to special-status species during Project construction activities. Detailed specific measures are outlined below for each special-status species that may occur on the Project footprint.

6.1.1 - PROJECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES

There is no suitable habitat for any of the twenty-one (21) special-status plant species with potential to occur in the vicinity of the Project. Mitigation and minimization measures are not warranted for these species.

6.1.2 - PROJECT IMPACTS TO SPECIAL-STATUS ANIMAL SPECIES

Thirty-two (32) special-status wildlife species have potential to occur within the BSA or in its vicinity. Of these, three were determined to potentially occur on the BSA based on current habitat conditions and literature review: western burrowing owl, Swainson's hawk, and San Joaquin kit fox. Potential impacts to these species are described below.

Western Burrowing Owl

No burrowing owls or sign of the species was observed during the reconnaissance survey. However, there is suitable habitat for the species within the BSA in the Annual Grassland within the BSA where there are also California ground squirrel burrows suitable for the species. The species is known to inhabit the region and may become an established resident in suitable habitat within the BSA or pass through as a transient at any time.

Direct and/or indirect impacts to burrowing owl could occur if there is an active burrow within the BSA during the period of construction activities. Construction activities could result in crushing or destroying a burrow, with or without a burrowing owl inside. Noise, vibration, and increased human activity resulting from Project construction activities could alter the daily behaviors of individual owls and affect foraging success, displace owls from their burrows, or lead to nest failure. Suitable nesting and foraging habitat would be lost as a result of the Project. Implementation of mitigation measures BIO-1 through BIO-3, and BIO-6 through BIO-8 as listed below, would reduce any potential impacts.

Swainson's Hawk

No SWHA were observed during the survey. While not ideal habitat, the walnut orchard on site could provide possible nesting habitat for the SWHA. Additionally, suitable nesting sites are located within 0.5-mile associated with ornamental trees on surrounding residential areas and commercial landscaping. The current condition of the Project site provides marginal foraging habitat due to a low-volume prey base (i.e., insects, lizards, and CAGS).

Impacts to individual nesting SWHA outside of the Project site could occur if construction activities occur near an active nest. Noise and vibration from construction of the Project, and the presence of construction workers, could alter the normal behaviors of nesting adults and affect reproductive success within 0.5-mile of the nest site.

Implementation of Measures BIO-4 through BIO-8 would reduce impacts to this species.

San Joaquin Kit Fox

There is no evidence that San Joaquin kit fox is present within the BSA, but the Annual Grassland habitat could provide potential denning and foraging habitat. The presence of CAGS within the orchard could provide foraging habitat as well. Because this species is highly mobile, there is a potential that San Joaquin kit fox could become established in these areas or be present from time to time throughout the BSA as transient foragers.

Potential impacts to this species could occur if there is an active San Joaquin kit fox den or transient individual within or near the area of development during construction activities. Potential direct impacts resulting in injury, death, or entrapment in dens, trenches, or pipes could occur if a San Joaquin kit fox occupies the construction area or travels through. Noise, vibration, and the presence of construction workers could alter normal behaviors if kit foxes are present, which could affect reproductive success and overall fitness. Implementation of mitigation measures BIO-1 through BIO-3, BIO-7, and BIO-8 as listed below, would reduce any potential impacts to San Joaquin kit fox.

Nesting Birds

No bird nests were identified during the reconnaissance survey. However, the BSA supports several habitats for nesting birds, which may nest on trees and shrubs, man-made structures, and directly on the ground. Migratory birds could nest throughout the entire BSA.

Construction activities and vegetation removal could lead to the destruction of nests. Construction-related vibration, noise, and dust production, and human presence could alter the normal behaviors of nesting birds in the vicinity of the Project and lead to nest failure.

To avoid and minimize impacts to migratory birds including special-status bird species, mitigation measures BIO-4 through BIO-8, listed below, should be implemented during construction to reduce impacts to nesting birds.

Avoidance and Minimization Measures

Implementation of the avoidance and minimization measures listed below would reduce impacts of the Project to special-status wildlife species to level that would be less than significant.

BIO-1 **Avoidance of Burrows for Burrowing Owl and San Joaquin Kit Fox.** Within 14 days prior to the start of Project ground-disturbing activities, a pre-activity survey with a 500-foot buffer, where land access is permitted, should be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the CDFW. If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (active burrows)

- Non-breeding season: September 1 – January 31 – 160 feet
- Breeding season: February 1 – August 31 – 250 feet

American Badger/SJKF

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal Den –Contact CDFW for consultation

BIO-2 **Burrowing Owl and San Joaquin Kit Fox Avoidance.** A qualified biologist should remain on-call throughout the construction phase if a burrowing owl, American badger, or SJKF occurs on the site during construction. If one of these species occurs on-site, the biologist should be contacted immediately to determine whether biological monitoring or the implementation of avoidance buffers may be warranted.

BIO-3 **Standard Avoidance and Minimization Measures for the protection of San Joaquin Kit Fox and Western Burrowing Owl.**
The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered SJKF Prior to or During Ground Disturbance* (USFWS 2011, Appendix E).

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project Site.
b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the Project Site.
c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored on the Project Site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.
d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
e. No pets, such as dogs or cats, shall be permitted on the Project Sites to prevent harassment, mortality of kit foxes, or destruction of dens.
f. Use of anti-coagulant rodenticides and herbicides in Project Sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.
g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The

representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a SJKF during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.

i. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.

j. Any Project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

BIO-4 **Pre-activity Surveys for Swainson's Hawk Nests.** If Project construction activities must occur during the Swainson's hawk nesting season (February 15 to August 31), pre-construction activity surveys should be conducted over the Project area and within 0.5-mile for Swainson's hawk nests in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*, Swainson's Hawk Technical Advisory Committee (CDFG 2000).

BIO-5 **Swainson's Hawk Nest Avoidance.** If an active Swainson's hawk nest is discovered at any time within 0.5-mile of active construction, a qualified biologist should complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed, and the level of nest monitoring required. Construction activities should not occur within 500 feet of an active nest but depending upon conditions at the site this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist should have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

BIO-6 **Pre-activity Surveys for Nesting Birds.** If Project construction activities will be initiated during the nesting season (February 1 to September 15), a pre-activity nesting bird survey should be conducted within 14 days prior to the start of construction. The surveys should encompass the Project footprint and accessible areas or land visible from accessible areas within a 250-foot buffer for songbirds and a 500-foot buffer for raptors. If no active nests are found, no further action is required. However, existing nests may become active and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress.

If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the adults or the nest, or if breeding attempts have otherwise been unsuccessful. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist shall have the ability to stop construction if nesting adults show any sign of distress.

BIO-7 **Preconstruction Clearance Survey.** Within 14 days prior to the start of ground disturbance activities, a pre-activity survey should be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species with potential to occur in the vicinity of the Project. All suitable burrows that could support blunt-nosed leopard lizard, Tipton kangaroo rat, short-nosed kangaroo rat, Tulare grasshopper mouse, or other special-status wildlife species will be avoided during construction in accordance with BIO-5 and BIO-6, unless verification surveys have indicated that the species are not present. Consultation with the USFWS and CDFW may be required if listed or fully protected species are detected during the survey.

BIO-8 **Worker Environmental Awareness Training.** Prior to the initiation of construction activities, all construction personnel should attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training program prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The program should include information on the life histories of special-status species with potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. It shall include the components described below:

a. Information on the life history and identification of special-status species that may occur or that may be affected by Project activities. The program shall also discuss the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements.

b. An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site.
c. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program and signed acknowledgement forms shall be submitted to the City of Tulare Planning Department.
d. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with, as necessary.
e. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and coordination with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

6.2 - Sensitive Natural Communities and Critical Habitat

There are no sensitive natural communities present on the Project and there would be ***no impacts*** to sensitive natural communities.

6.3 - Jurisdictional Aquatic Resources

There are no identified water features or federal waters, or wetlands located on or near the Project. Therefore, the Project will result in ***no impacts*** to any waters or wetlands.

6.4 - Wildlife Movement

There are no identified movement corridors on or near the Project site. The Project site may be used by transient foragers such as SJKF. The open landscape creates a foraging habitat, which may be used from time to time by these species. The Project will result in ***no impacts*** to fish or wildlife movement corridors, linkages or nursey sites.

6.5 - Local Policies and Ordinances

The Project does not conflict with the City of Visalia General Plan, the Valley Oak Tree Ordinance, or any other local ordinances. Therefore, there are no impacts with respect to local policies and ordinance and no measures are warranted Adopted or Approved Plans.

6.6 - Adopted or Approved Plans

The proposed project would have a significant effect on biological resources if it would:

b) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The Project is located within an area covered by the PG&E San Joaquin Valley Operation and Maintenance HCP. This HCP applies only to PG&E's activities and does not apply to this Project. No Project impacts related to adopted or approved plans would occur, and no measures are warranted.

SECTION 7 - LIMITATIONS, ASSUMPTIONS, AND USE RELIANCE

This Biological Analysis Report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are based upon on-site field examinations, jurisdictional areas, and specified historical and literature sources. The biological investigation is limited by the scope of work performed. Biological surveys conducted as part of this assessment may not have been performed during a particular blooming period, nesting period, or particular portion of the season when positive identification of certain taxa would be expected if present, and therefore cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

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APPENDIX A

REGULATORY SETTING

Regulatory Setting

Federal Laws and Regulations

Federal Endangered Species Act of 1973 (USC, Title 16, Sections 1531 -1543)

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction of adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued with an incidental take statement that exempts the activity from FESA's take prohibitions.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA: 1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and 2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (USC, Title 16, Sections 703 - 711)

The MBTA, first enacted in 1918, is a series of treaties that the United State has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

Bald and Golden Eagle Protection Act of 1940 (USC, Title 16, Section 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially inferring with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

Federal Clean Water Act (USC, Title 33, Sections 1521 - 1376)

The Federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires that a Project applicant that is pursuing a federal license or permit allowing a discharge to waters of the U.S. to obtain State Certification of Water Quality, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) that regulates the discharge of the dredged or fill material into waters of the U.S., including wetlands. The USACA implementing regulations are found in CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Applicable State Laws and Regulations

California Environmental Quality Act (California Public Resources Code, Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections *15000 - 15387)*

The California Environmental Quality Act (CEQA) is California's broadest environmental law. CEQA helps guide the issuance of permits and approval of projects. Courts have interpreted CEQA to afford the fullest protection of the environment within the reasonable scope of the statutes. CEQA applies to all discretionary projects proposed to be conducted or approved by a State, County, or City agency, including private projects requiring discretionary government approval.

The purpose of CEQA is to disclose to the public the significant environmental effects of a proposed discretionary project; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision making process to approve discretionary projects; enhance public participation in the environmental review process; and improve interagency coordination.

State CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State list of protected species nonetheless may be considered rare or endangered for purposed of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals.

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For Projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the CDFW has the option of issuing a Consistency Determination (Section 2080.1) for Projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the “fully mitigate” standard of CESA, and other applicable conditions.

Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB regulates waters of the State under the authority of the Porter-Cologne Water Quality Control Act (Porter Cologne Act). The RWQCB requires Projects to avoid impacts to wetlands whenever feasible and requires that Projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the State. The RWQCB has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste into waters of the State, and such discharges are authorized through an Order of Waste Discharge (or waiver of discharge) from the RWQCB.

Various Sections of the California State and Fish and Game Code

Section 460 and Sections 4000-4003

Chapter 5 of the California Fish and Game Code (FGC) describes regulations concerning the take of furbearing mammals, including defining methods of take, seasons of take, bag and possession limits, and areas of the State where take is allowed. Section 4000-4003 defines furbearing mammals, and the issuance of permits by the Department. Sections 460 and 4000 identifies fisher, marten, river otter, desert kit fox and red fox as furbearing mammals, and Section 460 prohibits take of these species at any time. This section of the California Fish and Game Code (FGC) has historically been interpreted to apply to restriction on furbearer trapping permit but has recently been expanded by CDFW to apply to any forms of take and treated as if these species were listed under CESA.

Sections 1600 through 1616

Under these sections of the FGC, a Project operator is required to notify CDFW prior to any Project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the California Code of Regulations, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports of has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable Project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

Sections 3511, 4700, 5050, and 5515

The protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statues prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species, except as allowed for in an approved Natural Communities Conservation Plan (NCCP), or through direct legislative action.

Sections 1900 through 1913 - Native Plant Protection Act

California's Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provision of the NPPA prohibit that taking of listed plants from the wild and require notification of CDFW at least ten days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. A Project proponent is required to conduct botanical inventories and consult with CDFW during Project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

Local and Regional Laws, Regulations, and Policies

CITY OF VISALIA GENERAL PLAN

The Visalia General Plan is a document required under State law to address issues related to physical development and conservation of resources. The plan also includes local, regional, State, and federal programs and regulation as well as a comprehensive set of guiding and implementation policies. The City of Visalia Valley Oak Ordinance establishes policies for the care, trimming and removal of Valley Oaks. The City of Visalia General Plan sets forth the following goals and policies relevant to biological resources;

OSC-P-27 Establish a "no net loss" standard for sensitive habitat acreage, including wetlands and vernal pools potentially affected by development.

OSC-P-30 Require assessments of biological resources prior to approval of any discretionary development projects involving riparian habitat, wetlands, or special status species habitat. Early in the development review process, consult with California Department of Fish and Game, U.S. Fish and Wildlife Service, and other agencies.

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

Photograph 1: View of the northeast section of the Project site.
36.338193, -119.367892 facing west
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 2: View of 10-acre parcel in the northeast section of the Project site.
36.336930, -119.367973 facing north
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 3: View of 10-acre parcel in the northeast section of the Project site.
36.336930, -119.367973 facing west
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 4: View of 10-acre parcel in the northeast section of the Project site.
36.337492, -119.369125 facing west
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 5: Walnut orchard habitat in the 40-acre parcel in the western side of the Project site.
36.337330, -119.371253 facing south
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 6: Walnut orchard habitat in the 40-acre parcel in the western side of the Project site.
36.337329, -119.374045 facing east
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 7: Project boundary. Project site with orchard to the right, buffer area to the left.
36.335458, -119.372422 facing west
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 8: View of the fallow agricultural field west of the Project site.
36.335583, -119.376573 facing west
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 9: Representative small mammal burrows observed within the orchard.
36.336751, -119.372436
Photograph taken by Courtney Chaney on August 30, 2021.

Photograph 10: California ground squirrel burrows located along the dirt road south of the orchards.
36.335466, -119.375790
Photograph taken by Courtney Chaney on August 30, 2021.

APPENDIX C

PLANT AND ANIMAL SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA

Table C-1
Plant Species Observed within the Biological Study Area on 08/30/2021
Iron Ridge, Visalia, California

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Juglans nigra	Black walnut	None	Introduced
Washingtonia robusta	Mexican fan palm	None	Introduced-Cal-IPC Moderate
Juglans regia	English walnut	None	Introduced
Nerium oleander	oleander	None	Introduced
Shrubs			
Helianthus gracilentus	Slender sunflower	None	Native
Datura wrightii	Jimson weed	None	Native
Herbs			
Salsola tragus	Russian thistle	None	Introduced- Cal-IPC Limited
Chenopodium album	Lambs quarters	None	Introduced
Amsinckia sp.	fiddleneck	None	Native
Lactuca serriola	Prickly lettuce	None	Introduced
Tribulus terrestris	puncturevine	None	Introduced- Cal-IPC Limited
Erodium cicutarium	red-stemmed filaree	None	Introduced- Cal-IPC Limited
Convolvulus arvensis	Field bindweed	None	Introduced
Sisymbrium irio	London rocket	None	Introduced- Cal-IPC Limited
Melilotus indicus	Annual yellow clover	None	Introduced
Portulaca oleracea	Common purslane	None	Introduced
Erigeron canadensis	horseweed	None	Native
Malva parviflora	cheeseweed	None	Introduced
Grasses			
Bromus diandrus	Ripgut brome	None	Introduced- Cal-IPC Moderate
Avena fatua	Wild oat	None	Introduced
Digitaria sanguinalis	crabgrass	None	Introduced
Bromus madritensis ssp. Rubens	Red brome	None	Introduced- Cal-IPC High
Polypogon sp.	Beard grass	None	Introduced- Cal-IPC Limited
Sorghum halepense	Johnson grass	None	Introduced

*Cal-IPC = California Invasive Plant Council.
Rating system: **High** = several ecological impacts; **Moderate** = substantial but not severe ecological impacts; **Limited** = minor ecological impacts or not enough information to justify higher score; **Alert** = species ranked as High or Moderate with limited distribution, but potential to spread; **Watch** = could pose a high risk of becoming invasive in the future.

Table C-2
Animal Species Observed within the Biological Study Area on 08/30/2021
Iron Ridge, Visalia, California

Scientific Name	Common Name	Status	Native or Introduced
Reptiles			
Uta	Side-blotched lizard	None	Native
Sceloporus occidentalis	Western fence lizard	None	Native
Birds			
Tyto alba	Barn owl	None	Native
Sayornis nigricans	Black phoebe	None	Native
Melanerpes formicivorus	Acorn woodpecker	None	Native
Picoides villosus	Hairy woodpecker	None	Native
Aphelocoma californica	California scrub jay	None	Native
Zenaida macroura	Mourning dove	None	Native
Buteo jamaicensis	Red tailed hawk	None	Native
Mammals			
Procyon lotor	Racoon*	None	Native
Canis lupus familiaris	Domestic dog*	None	Introduced
Felis catus	Domestic cat*	None	Introduced
Otospermophilus beecheyi	California ground squirrel	None	Native

APPENDIX D

SPECIAL-STATUS SPECIES DATABASE SEARCH RESULTS

Table D-1
Special-Status Plant Species in the Regional Vicinity of the Project Site
Iron Ridge, Visalia, California

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Sensitive Natural Communities				
Northern Claypan Vernal Pool	-/- -/-	This community consists of a low, herbaceous community dominated by annual herbs and grasses. Germination and growth begin with winter rains, often continuing even when inundated. Rising spring temperatures evaporate the pools, leaving concentric bands of vegetation. Claypan vernal pools are typically small and contain less cover than northern hardpan vernal pools.	No	Habitat to support this community is absent from the Project site.
Northern Hardpan Vernal Pool	-/- -/-	This community occurs on old, very acidic, Fe-Si cemented hardpan soils (Redding, San Joaquin, and similar series). The microrelief on these soils typically is hummocky, with mounds intervening between localized depressions. Winter rainfall perches on the hardpan, forming pools in the depressions. Evaporation (not runoff) empties pools in the spring.	No	Habitat to support this community is absent from the Project site.
Valley Sacaton Grassland	-/- -/-	This community is dominated by alkali sacaton, a tuft formed grass. It is found in areas with fine textured, poorly drained, and usually alkaline soils with high water tables, or that are flooded during winter months.	No	Habitat to support this community is absent from the Project site.

Great Valley Valley Oak Riparian Forest	-/- -/-	This community occurs in relatively fine-textured alluvium, somewhat back from active river channels. These sites experience overbank flooding (with abundant alluvial deposition and groundwater recharge) without severe physical battering or erosion.	No	Habitat to support this community is absent from the Project site.
Plants				
Amaranthus watsonii Watson's amaranth				
Atriplex cordulata var. *cordulata* heartscale	-/- 1B.2	This endemic annual herb blooms from April to October. It occurs on saline and alkaline soils in chenopod scrub, meadows and seeps, and valley foothill grassland habitats at elevations from approximately sea level to 1,835 feet. It is threatened by competition from non-native plants and grazing.	No	Habitat to support this species is absent from the BSA
Atriplex cordulata var. *erecticaulis* Earlimart orache	-/- 1B.2	This annual herb blooms from August to September, sometimes into November. It occurs in low-lying, sparsely vegetated valley and foothill grasslands and on mounds between vernal pools at elevations between approximately 130 and 330 feet. It is known primarily from the valley floor in Kings, Kern, and Tulare counties and is threatened by vehicles and possibly development and competition from non-native plants.	No	Habitat to support this species is absent from the BSA
Atriplex depressa brittlescale	-/- 1B.2	This is an annual herb that is endemic to California and blooms April to October. It occurs on alkaline and clay soils in chenopod scrub, meadows and seeps, playas, vernal pools, and valley and foothill grassland. It occurs at elevations ranging from sea level to 1,050 feet and is known to occur in	No	Habitat to support this species is absent from the BSA

		Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo counties. It is threatened by development, grazing, and trampling; documented on Central Valley floor, foothills, and lower mountains.		
Atriplex minuscula lesser saltscale	-/- 1B.1	This annual herb blooms from May to October. It occurs on alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland at elevations between approximately 50 and 655 feet. It has been documented primarily on Central Valley floor, with some lower foothill occurrences. It is threatened by agriculture and solar energy development.	No	Habitat to support this species is absent from the BSA
Atriplex persistens Vernal pool smallscale	-/- 1B.2	This is an annual herb that blooms from June to August, sometimes as late as October. It is restricted to alkaline vernal pools on the floor of the San Joaquin Valley and is endemic to California. It occurs at elevations ranging from approximately 30 to 375 feet and is known to occur in Colusa, Glenn, Madera, Merced, Solano, Stanislaus, and Tulare counites. This species is threatened by agriculture and flood control activities. It is documented primarily on Central Valley floor.	No	Habitat to support this species is absent from the BSA
Atriplex subtilis Subtle orache	-/- 1B.2	This is an annual herb that is endemic to California and blooms June, August, September, and possibly October. It occurs on alkaline soils in valley and foothill grassland habitats. It occurs at elevations ranging from approximately 130 to 330 feet and is known to occur in Butte, Fresno, Kings, Kern, Madera,	No	Habitat to support this species is absent from the BSA

		Merced, Stanislaus, and Tulare counties. This species is threatened by agriculture and possibly solar energy development and is documented primarily on Central Valley floor.		
Caulanthus californicus California jewelflower	FE/SE 1B.1	This annual herb blooms from February to May. It occurs in slightly alkaline, sandy soils in chenopod scrub, valley and foothill grassland, and pinyon and juniper woodland at elevations from approximately 200 to 3,280 feet. It is found in the San Joaquin Valley, Carrizo Plain, and Cuyama Valley from Fresno County south to Santa Barbara County. Many documented occurrences are now presumed extirpated due to development, grazing, and competition from non-native plants.	No	Habitat to support this species is absent from the BSA
Delphinium recurvatum recurved larkspur	-/- 1B.2	This perennial herb blooms from March to June. It occurs in alkaline conditions in chenopod scrub, cismontane woodland, and valley and foothill grassland at elevations from approximately 10 to 2,590 feet. It occurs throughout the Central Valley and Coast Ranges from Butte County southwards. It is threatened by agriculture and competition from non-native plants.	No	Habitat to support this species is absent from the BSA
Delphinium hansenii ssp. Ewanianum Ewan's larkspur	-/- 4.2	This is a perennial herb that blooms from March to May. It occurs on rocky soils in cismontane woodland and valley and foothill grassland. It occurs at elevations ranging from approximately 196 to 1,970 feet. Populations are very local and is documented primarily in Sierra Nevada foothills. This species is threatened by development.	No	Habitat to support this species is absent from the BSA

Eryngium spinosepalum Spiny-sepaled button-celery		This annual or perennial herb is endemic to California and blooms from April to June. It occurs in vernal pools and moist areas in valley and foothill grasslands at elevations between 260 and 3,200 feet. It has been documented primarily in the foothills of the Sierra Nevada mountains with scattered occurrences on the Central Valley floor and western foothills and lower mountains. The species is threatened by development, grazing, road maintenance, hydrological alterations, and agriculture.	No	Habitat to support this species is absent from the BSA
Euphorbia hooveri Hoover's spurge	-/- 1B.2	This annual herb is endemic to California and blooms from July to September, occasionally into October. It is found in vernal pool habitats at elevations between 80 and 820 feet. There are scattered occurrences of the species throughout the Central Valley, mostly on the valley floor or surrounding foothills. The species is threatened by grazing, agriculture, and non-native plants.	No	Habitat to support this species is absent from the BSA
Helianthus winteri Winter's sunflower	-/- 1B.2	This is a perennial shrub that blooms from January to December. It occurs in openings on relatively steep south-facing slopes, granitic, often rocky, roadsides, cismontane woodland, valley and foothill grassland. It is endemic to California and occurs at elevations from approximately 410 to 8,415 feet. It is threatened by grazing, agriculture, road maintenance, and habitat loss.	No	Habitat to support this species is absent from the BSA
Hordeum intercedens Vernal barley	-/- 3.2	This is an annual herb that blooms from March to June. It occurs on costal dunes, costal scrub, Valley and foothill grassland (saline flats and	No	Habitat to support this species is absent from the BSA

		depressions), and vernal pools. It occurs at elevations from approximately 15 to 3,280 feet. It is threatened by development, habitat loss, road construction, and non-native plants.		
Imperata brevifolia California satintail		This perennial rhizomatous herb blooms between September and May. It occurs in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub on mesic or alkali soils. It is found at elevations from approximately sea level up to 3,985 feet. The species is threatened by development and agriculture.	No	Habitat to support this species is absent from the BSA
Lasthenia chrysantha Alkali-sink goldfields	-/- 1B.1	This annual herb blooms from February to June. It occurs in alkaline, vernal pool, and wet saline flats habitat at elevations of 330 feet and under.	No	Habitat to support this species is absent from the BSA
Lasthenia glabrata ssp. coulteri Coulter's goldfields	-/- 1B.1	This annual species flowers between February and June. It is found in coastal marshes and swamps, and playas and vernal pools in the interior of California at elevations between sea level and 4,000 feet.	No	Habitat to support this species is absent from the BSA
Orcuttia inaequalis San Joaquin Valley Orcutt grass	-/- 2B.2	This is an annual herb endemic to California that blooms from April to September. It occurs in vernal pools at elevations from approximately 32 to 2,500 feet. It is documented primarily on the eastern Central Valley floor and foothills from Visalia north and is seriously threatened by agricultural, development, overgrazing, channelization, and non-native plants.	No	Habitat to support this species is absent from the BSA
Pseudobahia peirsonii San Joaquin adobe sunburst	-/- 1B.1	This is an annual herb endemic to California that blooms from March to April. It occurs on adobe clay in cismontane woodland and valley and	No	Habitat to support this species is absent from the BSA

		foothill grasslands at elevations from approximately 295 to 2,625 feet. More than half of the known occurrences are in very small areas. It is seriously threatened by agriculture, grazing, development, non-native plants, road construction, and flood control activities and is possibly threatened by road maintenance.		
Puccinellia simplex California alkali grass	FE/SE 1B.1	This is an annual herb that blooms from March to May. It usually occurs on sinks, flats, and lake margins in vernally moist, alkaline conditions of chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. It occurs at elevations from approximately 5 to 3,050 feet. It is threatened by hydrological alterations, urbanization, agricultural conversion, development, and habitat fragmentation, disturbance alteration and loss. It is potentially threatened by solar energy development and is possibly threatened by grazing and proximity to roads.	No	Habitat to support this species is absent from the BSA
Sagittaria sanfordii Sanford's arrowhead	-/- 1B.2	This is an emergent perennial rhizomatous herb endemic to California that blooms from May to October, and sometimes into November. It occurs in sandy loam and clay soils of assorted shallow freshwater marshes and swamps and slow-moving waterways. It occurs at elevations from approximately sea level to 2,130 feet. It is thought to be extirpated from southern California and mostly extirpated from the Central Valley. It is threatened by grazing, development, recreational activities, non-native	No	Habitat to support this species is absent from the BSA

		plants, road widening, and channel alteration and maintenance.		
Invertebrates				
Andrena macswaini An andrenid bee		This bee species occurs in deep sandy soil. It is an oligolectic bee of morning-opening, yellow-flowered species of *Camissonia*. It is the only species in the subgenus *Diandrena* with aggregated nests associated with depressions. Distribution ranges from Kern to Madera counties and the Central Valley and adjacent foothills.	No	Habitat to support this species is absent from the BSA. The are no CNDDB occurrences within 10 miles of the Project.
Bombus crotchii Crotch bumble bee	-/SC -/-	This bee occurs in relatively warm and dry environments, including the inner Coast Range of California and the margins of the Mojave Desert. It inhabits grassland and scrub habitats, where it nests in abandoned rodent burrows, occasionally nesting above ground in tufts of grass, rock piles, or cavities in dead trees. This species is classified as a short-tongued species, whose food plants include *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia*. The species is threatened by habitat loss and degradation, including agricultural intensification and rapid urbanization.	No	Habitat to support this species is absent from the BSA. There are no recent CNDDB occurrences within 10 miles of the Project site. There is one CNDDB occurrence from 1961 Located 3 miles east of the Project site (EONDX 98758).
Branchinecta lynchi vernal pool fairy shrimp	FT/- -/-	Occur a variety of vernal pool habitats that range from small, clear pools to large, turbid and alkaline pools; more common in pools less than 0.05 acre, typically as part of larger vernal pool complexes; adults active from early December to early May; pools must hold water for at least 18 days, the minimum to complete the life cycle if temperatures are optimal; eggs laid in	No	There is no vernal pool habitat to support this species within the BSA.

		spring and persist through dry season as cysts; current California distribution includes the Central Valley and coast ranges; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.		
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/- -/-	This beetle species is closely associated with elderberry shrubs (Sambucus sp.) for food and reproduction. This species usually occur along rivers and streams and eggs are laid on the bark of elderberry shrubs and larvae hatch and burrow into the stems. Adults eat elderberry leaves and flowers. Stem diameter must be a minimum of one inch and exit holes in stems are the most common methods for identification. This species ranges from southern Shasta County to Fresno County.	No	Habitat to support this species is absent from the BSA. The are no CNDDB occurrences within 10 miles of the Project.
Talanites moodyae Moody's gnaphosid spider		This arachnid species occurs in leaf litter, in moist coastal habitats and grasslands, generally in serpentine soils, and a nocturnal hunter. This species in endemic to California and has been documented in Fresno and Tulare counties. There is little to no published information on the life history of this species.	No	Habitat to support this species is absent from the BSA. The are no CNDDB occurrences within 10 miles of the Project.
Lepidurus packardi Vernal pool tadpole shrimp	FE/- -/-	This species occurs in a wide variety of ephemeral wetland habitats ranging from 6.5 square feet to 88 acres in size. The majority of occurrences have been found on high terrace landforms on Redding and Corning soils. This species requires a minimum of 25 days to mature and the average age to reproduction is 54 days. Eggs are laid in	No	There is no vernal pool habitat to support this species within the BSA.

		spring and persist through the dry season as cysts. Its current distribution is in the Central Valley and San Francisco Bay area. This species is threatened by habitat loss, degradation, and fragmentation and interference with vernal pool hydrology.		
Linderiella occidentalis California linderiella		This species is the most widely distributed fairy shrimp in California and can be found in vernal pools from 10.8 square feet to 13 acres supported by most landforms, geologic formations, and soil types. This species requires a minimum of 31 days to maturity with average 43 days to reproduce. Eggs are laid in spring and persist through the dry season as cysts. The current distribution is from the Central Valley and coast ranges. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.	No	There is no vernal pool habitat to support this species within the BSA.
Lytta hoppingi Hopping's blister beetle	FC/- -/-	This beetle species occurs in the foothills of the southern end of the Central Valley. Adults have often been found on flowers and have been collected from late March through June. Like other members of the *Lytta* genus, females excavate shallow burrows to oviposit. *Lytta* larvae are nest parasites of solitary bees.	No	Habitat to support this species is absent from the BSA. There are no recent CNDDB occurrences within 10 miles of the Project site. There is one CNDDB occurrence from the 1900's Located 3 miles east of the Project site (EONDX 8142).
Fish				
Hypomesus transpacificus delta smelt	FT/SE -/-	Small fish endemic to the San Francisco Estuary and the larger Sacramento-San Joaquin Delta; moves between freshwater and low salinity water throughout year; most spawning	No	Habitat to support this species is absent from BSA. There are no CNDDB records within 10 miles of the Project.

		happens in tidally influenced backwater sloughs and channel edge waters; historical distribution did not extend beyond Mossdale on the San Joaquin River and Sacramento on the Sacramento River.		
Amphibians				
Ambystoma californiense California tiger salamander	FE/ST /-/-	This stocky salamander spends the majority of its life aestivating in upland habitat in abandoned small mammal burrows, such as those of ground squirrels. After a sufficient winter rain event, adults emerge to breed in ephemeral pools or artificial ponds, which must remain inundated for at least 12 weeks for reproductive success. Young hatch as larvae with external gills and feed on benthic invertebrates and smaller tadpoles; adults feed on a variety of terrestrial invertebrates, small fish, and small mammals. Upland habitat typically consists of valley and foothill grasslands but can also include oak woodlands and uncommonly riparian habitats. The species is found in the Central Valley and Central Coast at elevations up to 3,200 feet. Threatened by habitat loss, predation by larger amphibians and fish, and hybridization with other tiger salamander species.	No	Habitat to support this species is absent from BSA. The nearest CNDDB occurrence is 7 miles northeast of the Project (EONDX 7033).
Rana draytonii California red-legged frog	FT/- SSC	Occurs primarily in and near ponds in forests, woodlands, grasslands, coastal scrub, and stream sides with plant cover. Breeding habitat may be permanent or ephemeral. Adults estivate in animal burrows or other moist refuges when aquatic habitat is	No	There is no suitable breeding habitat within or near the BSA. There are no CNDDB records within 10 miles of the Project.

		dry, up to several miles from an aquatic resource. It is found throughout coastal California from Mendocino County south. Its inland distribution includes the northern Sacramento Valley and the foothills of the Sierra Nevada south to Tulare County (possibly Kern County) at elevations up to 5,000 feet.		
Lithobates pipiens Northern leopard frog	-/- SSC	This is a highly aquatic frog that occurs in quiet aquatic habitats with permanent or semi-permanent water in a variety of upland habitats. Shoreline cover and/or presence of submerged and emergent vegetation is an important factor in habitat suitability. Individuals may travel a mile or more from a water body over upland habitat to disperse and to forage. The species is uncommon and localized in California, breeding in emergent wetlands in Modoc County and possibly eastern Lassen County and along the Colorado River and irrigated areas in Imperial, Tulare, and Kern Counties, at elevations up to 7,000 feet. There are suspected introduced populations within the Central Valley.	No	Habitat to support this species is absent from BSA. The nearest CNDDB occurrence is 8.6 miles northeast of the Project (EONDX 74694).
Spea hammondii western spadefoot	-/- SSC	This species is found primarily in grasslands, sometimes valley-foothill woodlands, chaparral, and alkali flats, throughout the Central Valley and its foothills and the Coast Ranges, at elevations from sea level up to 4,460 feet. Spadefoot toads spend the majority of their lives underground in self-constructed burrows or rodent burrows. They emerge in late winter or spring after rainfall to breed in	No	Breeding habitat to support this species is absent from BSA. The nearest CNDDB occurrence is approximately 2.5 miles south of the Project (EONDX 55262), found in 2004.

		ephemeral pools or other shallow bodies of water.		
Reptiles				
Actinemys [=Emys] marmorata western pond turtle	-/- SSC	Highly aquatic and diurnally active; found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with vegetation and rocky/muddy bottoms; wide variety of habitats; need basking areas near water (logs, rocks, vegetation mats, banks); may enter brackish water and even seawater; digs nest on land near water; range from north of San Francisco Bay area south, including Central Valley.	No	Suitable habitat is absent from the BSA.
Gambelia silus [=sila] blunt-nosed leopard lizard	FE/SE SFP	This species occurs in semiarid habitats within the southern Central Valley and Cuyama Valley. Occupied habitats are flat and have large open areas with scattered shrubs for refuge. Blunt-nosed leopard lizards use small mammal burrows for shelter and spend most of the year underground, surfacing in spring or early summer to breed and forage. Hatchlings emerge in late summer through the fall to forage and may interbreed with long-nosed leopard lizard in Cuyama Valley. The species is threatened by habitat loss and fragmentation, and drought. It is usually found at elevations between 100 and 2,400 feet.	No	Suitable habitat is absent from the BSA. There are no CNDDB occurrences within 10 miles of the project site.
Anniella pulchra Northern California legless lizard	-/- SSC	This secretive species burrows in moist, warm, loose soils with sparse vegetation in areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods,	No	Suitable habitat is absent from the BSA. The nearest CNDDB occurrence is from 1934 and is located 2 miles east of the Project site (EONDX 107010).

		or oaks. Individuals can be found under leaf litter from trees and shrubs or under objects such as rocks, boards, driftwood, and logs. Soil moisture is an important characteristic of suitable habitat. Breeding occurs between early spring and July, with live young born between September and November.		
Thamnophis gigas giant gartersnake	FT/ST -/-	Highly aquatic snake found in marshes and sloughs, drainage canals, and irrigation ditches; prefers vegetation close to water for basking; does not venture more than 200 feet from aquatic habitat; elevation from sea level to 400 feet; endemic to California; currently ranges from Glenn County to southern edge of San Francisco Bay Delta, and from Merced County to northern Fresno County.	No	Habitat to support this species is absent from the BSA. There are no CNDDB occurrences within 10 miles of the Project.
Birds				
Agelaius tricolor tricolored blackbird	-/ST -/-	Colonial breeder that prefers freshwater, emergent wetlands with tall, dense cattails or tules, but also thickets of willow, blackberry, wild rose, and tall herbs; breeding colonies composed of a minimum of 50 pairs; forages in pastures, grain fields, and similar habitats near breeding areas.	No	Habitat to support this species is absent from the BSA. There are no CNDDB occurrences within 10 miles of the Project.
Athene cunicularia burrowing owl	-/- SSC	Occupies variety of open, semi-arid to arid habitats throughout central and southern California, including desert regions; prefers open habitats with few shrubs or trees; most active around sunrise and sunset; utilizes burrows constructed by mammals year-round for shelter and nesting; well documented in urban areas where patches of undeveloped areas are	Yes	There is suitable foraging and nesting habitat for this species within the BSA, although no individuals or sign of the species were observed during the survey. The nearest CNDDB occurrence is from 1998, approximately 5.6 miles northwest of the Project (EONDX 35403).

		present (e.g., canals, airports, drainage basins), and in areas of dense agricultural development where, particularly where canals provide burrow habitat; forages primarily for rodents and insects within several miles of burrow, usually in open grassy habitats if available; has been observed hunting bats and insects around parking lot lights; threats include development resulting in habitat loss/fragmentation.		
Buteo swainsoni Swainson's hawk	-/ST -/-	Occurs in grassland, desert and agricultural landscapes in the Central Valley and Antelope Valley; hawks may be resident or migrant; breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; also observed breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture; may nest on ground if no suitable trees are available; nests are platform of sticks, bark, and fresh leaves at or near top of trees; breeds from late March to late August; forages in grassland, open scrub, and grain fields, primarily for rodents.	Yes	There is suitable foraging habitat throughout the BSA. There are suitable nesting trees within 0.5-mile of the Project. No individuals or sign of the species were observed during the survey. The most recent, nearest CNDDB occurrence was in 2017, approximately 1.2 mile west of the Project (EONDX 109959). A stick nest with chick was observed in an oak tree adjacent to agricultural fields.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FT/SE	This migratory species nests in open riparian woodlands along broad lower flood bottoms of larger river systems. It prefers willows, often mixed with cottonwood, with understory of blackberry, nettles or wild grape. Its nest is most often placed in willows with cottonwoods used extensively for foraging and also occasionally nests in orchards adjacent to river bottoms.	No	Habitat to support this species is not present within the BSA. No CNDDB occurrences are present within 10 miles of the Project site.

Lanius ludovicianus Loggerhead shrike	-/- SSC	Common resident in lowlands and foothills throughout California; prefers open grassland/pasture habitats with scattered trees, fence posts, utility lines, shrubs, and other perches; primarily consumes large insects but will predator other small animals; nests in densely foliaged shrub or tree less than 50 feet above ground.	No	Habitat to support this species is not present within the BSA. There is one CNDDB occurrence within 10 miles of the project site from 1992 located 6.7 miles north of the Project site (EONDX 87281).
Chlidonias niger Black tern	-/- SSC	This is a small dark tern of freshwater marshed and lakes. Frequents freshwater lakes, rivers, and other interior wetlands during spring and fall migration. In winter black terns are largely marine.	No	Habitat to support this species is not present within the BSA. No CNDDB occurrences are present within 10 miles of the Project site.
Aechmophorus clarkii Clark's grebe	-/- -/-	This is a large water bird that is rarely found away from aquatic habitats. Most of California, except for the coast, can be a breeding ground for the species if freshwater is nearby. It creates floating nests in large freshwater lakes and marshes with emergent vegetation (i.e. reeds and rushes). It forages for fish, salamanders, crustaceans, marine worms, and aquatic insects and larvae.	No	Habitat to support this species is not present within the BSA. No CNDDB occurrences are present within 10 miles of the Project site.
Picoides nuttallii Nuttall's woodpecker	-/- -/-	A California year-round resident in oak woodlands at elevation ranges between 984 to 5,577 feet. They forage on beetles, beetle larvae, ants, termites found on oaks, cottonwood, and willow. Occasionally, they eat fruit from poison oak, blackberry, and elderberry. Nests are created in holes of dead trucks or limbs of willows, cottonwoods, sycamores, oaks, and alder.	No	Project site is below known elevation range for this species. No CNDDB occurrences are present within 10 miles of the Project site.
Baeolophus inornatus Oak titmouse	-/- -/-	This species lives in a restricted range, from southwest Oregon to northwest Baja California. They occur in warm, open, dry oak or oak-pine woodlands	No	Project site is outside the known range for this species. No CNDDB occurrences are present within 10 miles of the Project site.

		using scrub oaks or other brush within distance of woodlands. They eat seeds, other plant materials, insects, and invertebrates. The nest is built in a tree cavity up to 40 feet off the ground, occasionally they will use a nest box.		
Mammals				
Antrozous pallidus Pallid bat	-/- SSC	Occurs throughout California in wide variety of habitats: grasslands, shrublands, woodlands, forests up through mixed conifer; most common in open, dry habitats with rocky areas for roosting; yearlong resident; feeds mainly on insects and arachnids on the ground or by gleaning; day roosts in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges; night roosts in more open sites; maternity colonies form early April with young flying by July or August; needs water; very sensitive to disturbance of roosting sites.	No	This species may forage within the BSA but there is no suitable roosting habitat. This species was not observed during the survey. There are no CNDDB occurrences within 10 miles of the Project.
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE -/-	This is a subspecies of the San Joaquin kangaroo rat (*Dipodomys nitratoides*) that occurs on bare alkaline clay-based soils typically within alkali desert scrub and open grassland. Historically, this species occurred on the valley floor in Kings, Fresno, Madera, and Merced counties, but may be extirpated within most of the historical range. This species is nocturnal that excavates burrows for temperature regulation, litter-rearing, shelter, and escape from predators typically with tunnels approximately 12 to 15 inches below ground. It eats seeds of annual forbs	No	Habitat to support this species is not present within the BSA. No CNDDB occurrences are present within 10 miles of the Project site.

		and grasses. It is threatened by predation and disease.		
Dipodomys nitratoides nitratoides Tipton kangaroo rat	FE/SE -/-	Inhabits valley saltbush scrub, valley sink scrub, and grasslands; historical known to occur in the southern San Joaquin Valley from southern margins on Tulare lake bed near Lemoore and Hanford, and on the valley floor in Tulare and Kern counties; found only east of the California Aqueduct; population distribution is not continuous and occurs only in small isolated patches; nocturnal foraging species; burrows used for temperature regulation, litter-rearing, shelter, and escape from predators; threatened by habitat loss, fragmentation, degradation; also threatened by land conversions to agricultural, industrial, and urban developments; can quickly inhabit fallow ag fields if a source population is nearby.	No	Habitat to support this species is not present within the BSA. No CNDDB occurrences are present within 10 miles of the Project site.
Eumops perotis californicus Western mastiff bat	-/- SSC	This species occurs in open, semi-arid to arid habitats throughout southeastern San Joaquin Valley and Coast Ranges from Monterey County southward. It can also occur in urban areas. It feeds on insects captured in flight and roosts in cliff faces, high buildings, trees, and tunnels. The maternity season begins in March with young typically volant by September. Nursery roosts most often occur in tight rock crevices or crevices in buildings.	No	This species may forage within the BSA but there is no suitable roosting habitat. This species was not observed during the survey. The nearest CNDDB occurrence is 4 miles southeast of the Project site (EONDX 61278).
Taxidea taxus American badger	-/- SSC	This species occurs mostly in open, drier stages of shrub, forest, and herbaceous habitats, with friable soils. It feeds mostly on fossorial rodents. It	No	Habitat to support this species is not present within the BSA. There is one CNDDB occurrence within 10 miles of the Project site from 1994 located 9.9

		digs burrows for cover and reproduction and can dig a new den each night. Litters are typically born in March and April. This species can be somewhat tolerant of human activities but generally avoids cultivated agricultural habitats.		miles from the Project site (EONDX 56600).
Vulpes macrotis mutica San Joaquin kit fox	FE/ST	This fox species is endemic to the Central Valley and primarily occurs in arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils within the San Joaquin Valley, Carrizo Plain, Salinas Valley, Cuyama Valley, and other small valleys in western foothills. Intensively maintained agricultural areas are typically avoided. It is highly adaptable and documented in urban developed areas. It uses burrows year-round for shelter, escape from predators, and rearing young and it will use man-made structures, such as pipes, for denning. Kit fox feed primarily on small mammals, but will also consume birds, reptiles, insects, and scavenge for human food. It is threatened by habitat loss and fragmentation, vehicle strikes, and disease such as the current mange outbreak in urban population in Bakersfield and in nearby natural areas.	Yes	Species may be a transient forager in the vicinity and may potentially become established in the annual grassland habitat. No potential dens and very few burrows that would provide a prey base were identified on site during the survey. There are multiple CNDDB occurrences within 10 miles of the Project site. The most recent from 2003 is 3.4 miles northwest of the Project site (EONDX 55307).

CRPR (California Rare Plant Rank):

- 1A Presumed Extinct in California
- 1B Rare, Threatened, or Endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but more common elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:

- FE Federally Endangered
- FT Federally Threatened
- FC Federal Candidate Species
- FS Federally Sensitive
- SE State Endangered
- ST State Threatened
- SC State Candidate
- SS State Sensitive

.1	Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)	SSC	State Species of Special Concern
.2	Fairly endangered in California (20-80% occurrences threatened)	SFP	State Fully Protected
.3	Not very endangered in California (<20% of occurrences threatened)	SR	State Rare
		WL	Watch List

APPENDIX E

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SJKF PRIOR TO OR DURING GROUND DISTURBANCE

U.S. FISH AND WILDLIFE SERVICE
STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office
January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process. All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to an6y survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied <u>and</u> unoccupied)	Service must be contacted

<u>*Known den</u>: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

**Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service**.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is

discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be

re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.

12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.

13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.

14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT “A” - DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms ”active” and “inactive” when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species’ range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

TECHNICAL MEMORANDUM

Date: September 20, 2021

Project: Cultural resources records search- Iron Ridge II Ranch Project, Tulare County, CA

To: Jaymie Brauer, Principal Planner

From: Robert Parr, MS, RPA, Senior Archaeologist

Subject: Cultural Resources Records Search Results (RS#21-331)

Background

A cultural resources records search (RS #21-331) was conducted at the Southern San Joaquin Valley Information Center, CSU Bakersfield for the above referenced in Visalia, Tulare County, to determine whether the proposed project would impact cultural resources.

Project Location

The Project is located in Tulare County, California (Attachment A: Figures 1-4). The Project site (APNs 081-030-046 and 081-030-080.) is within the southeast ¼ of the northwest ¼ of Section 28, T.18S, R.24E (MDB&M) (Figures 1-4).

Project Description

The proposed project includes developing the 50 acres into a cohesive residential subdivision. In order to achieve this, the following entitlements would be required:

- Tentative Subdivision Map: will allow for the properties to be subdivided.
- General Plan Amendment: to change the Residential Very Low Density to Residential Low Density.
- A change of the existing R-1-20 zone district to R-1-5
- Annexation of parcel APN 081-030-036 to be developed within the City limits.

Results

The records search covered an area within one-half mile of the Project and included a review of the *National Register of Historic Places*, *California Points of Historical Interest*, *California Registry of Historic Resources*, *California Historical Landmarks*, *California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search indicated that the subject property had never been surveyed for cultural resources and it is not known if any exist on it.

Three cultural resource studies have been conducted within a half mile of the project (Williams 1974; Cantwell 1978; Love and Tang 2002a, 2002b, 2002c).

Only one cultural resource property has been recorded within a half mile of the proposed project, the historic route of the Southern Pacific/San Joaquin Valley Railroad (P-54-004626). The Project will not impact this cultural resource.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated August 30, 2021 indicates negative results (see Attachment C).

Conclusions

Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a half mile radius of the proposed Project, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would be conducted within the partially developed and previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

However, there is still a possibility that historical or archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. To reduce the potential impacts of the Project on cultural resources, the following measures are recommended to be included as Conditions of Approval. With implementation of CUL-1 and CUL-2, the Project would have a less than significant impact related to cultural resources.

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the county coroner.

Robert E. Parr, MS, RPA
Senior Archaeologist

Attachment A- Figures
Attachment B- Sacred Lands File Response by the Native American Heritage Commission

References

(all reports on file at the Southern San Joaquin Valley Information Center, California State University, Bakersfield)

Cantwell, R. J.

1978 Archaeological and Historical Survey report for Avenue 288 from Road 84 to Road 100. (TU-00221)

Love, Bruce and Bai "Tom" Tang

2002a Historic Property Survey Report: Cross Valley Rail Corridor Project Between the Cities of Visalia and Huron, Tulare, Kings, and Fresno Counties, California. (TU-01081)

2002b Archaeological Survey Report: Cross Valley Rail Corridor Project Between the Cities of Visalia and Huron, Tulare, Kings, and Fresno Counties, California. (TU-01082)

2002c Historic Study Report/Historical Resources Evaluation Report: Cross Valley Rail Corridor Project Between the Cities of Visalia and Huron, Tulare, Kings, and Fresno Counties, California. (TU-01083)

Attachment A-
Figures

Iron Ridge II Ranch

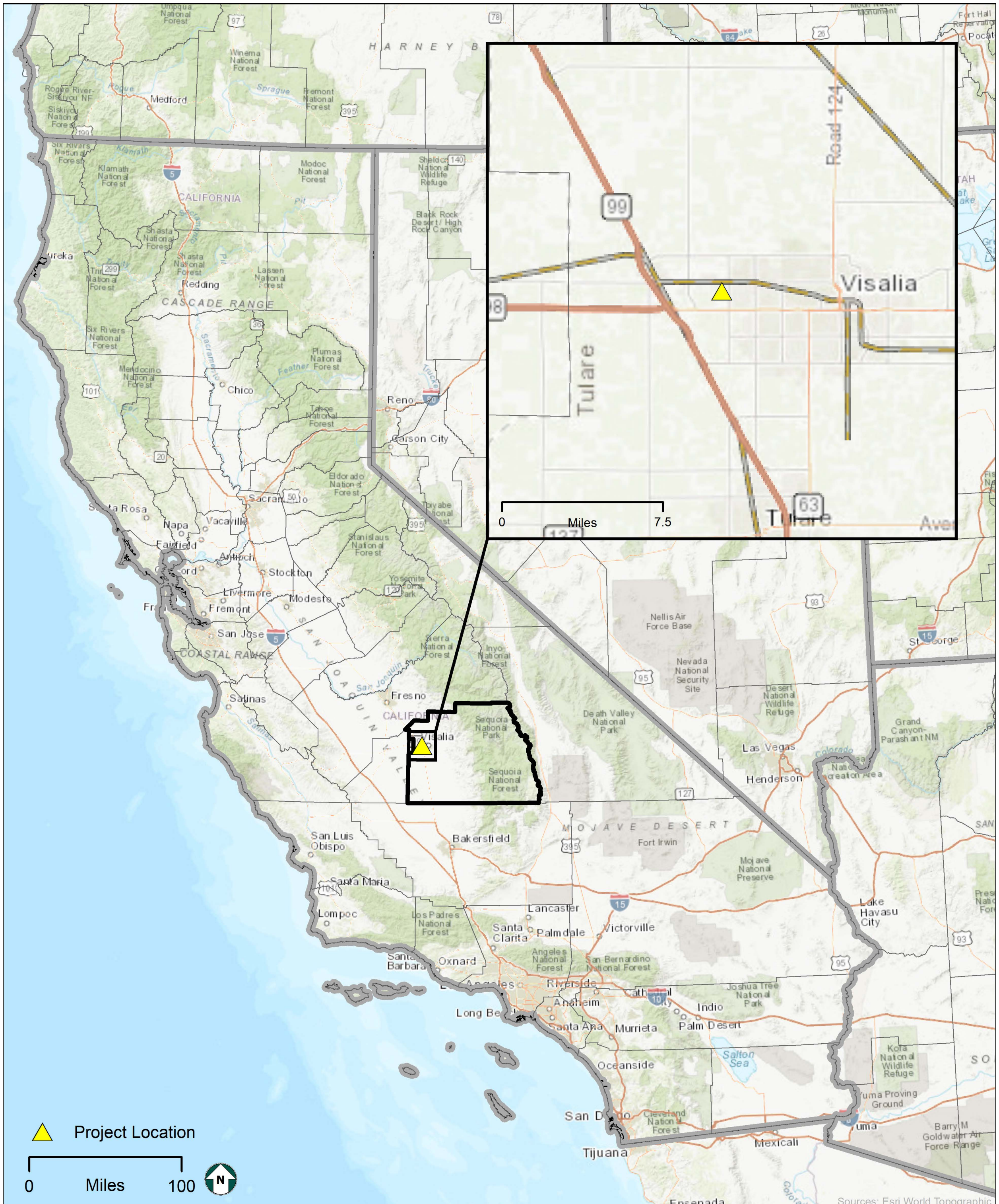


Figure - 1
Regional Location

Figure - 2
Project Area

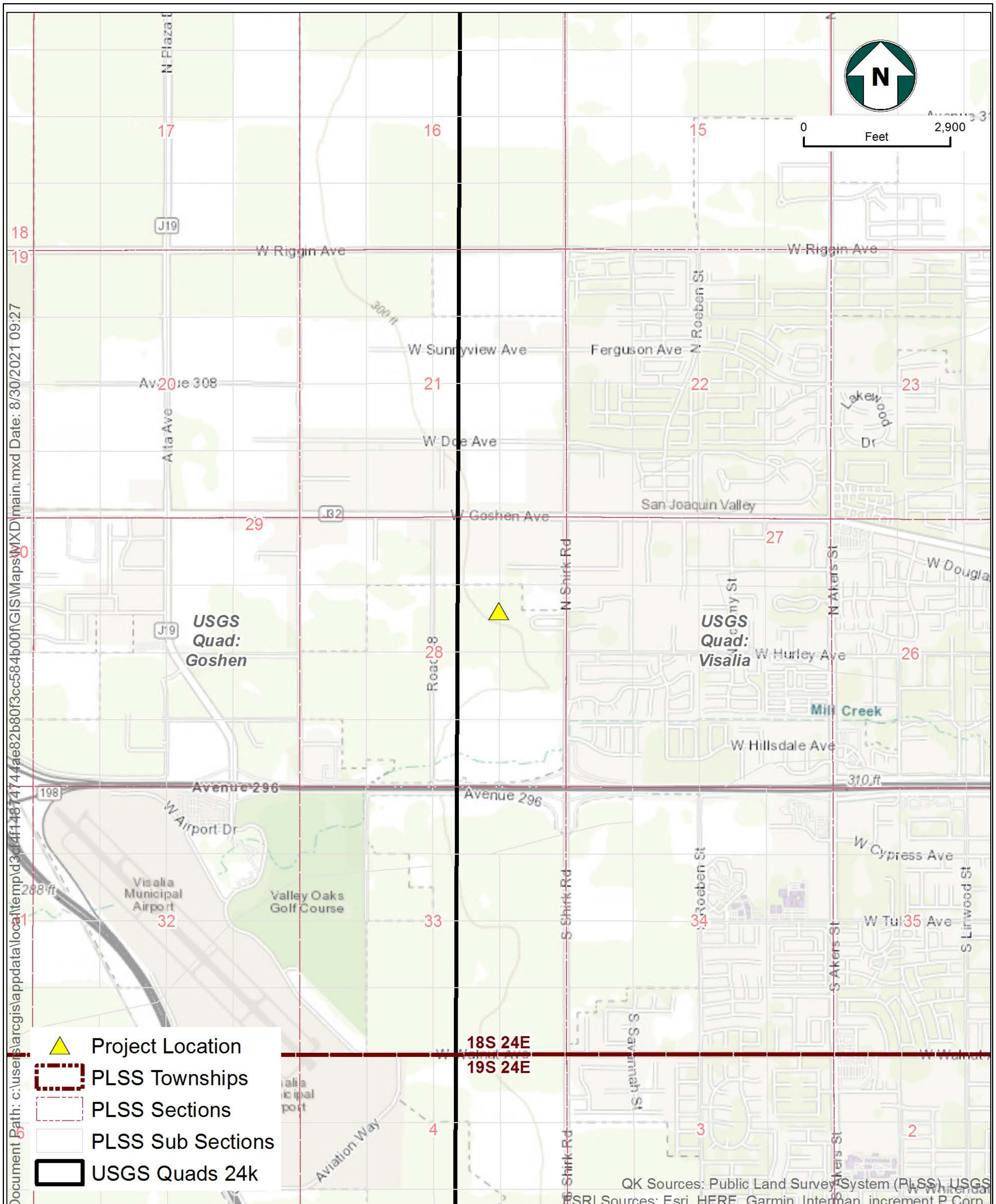


Figure - 3
PLSS/USGS Quad

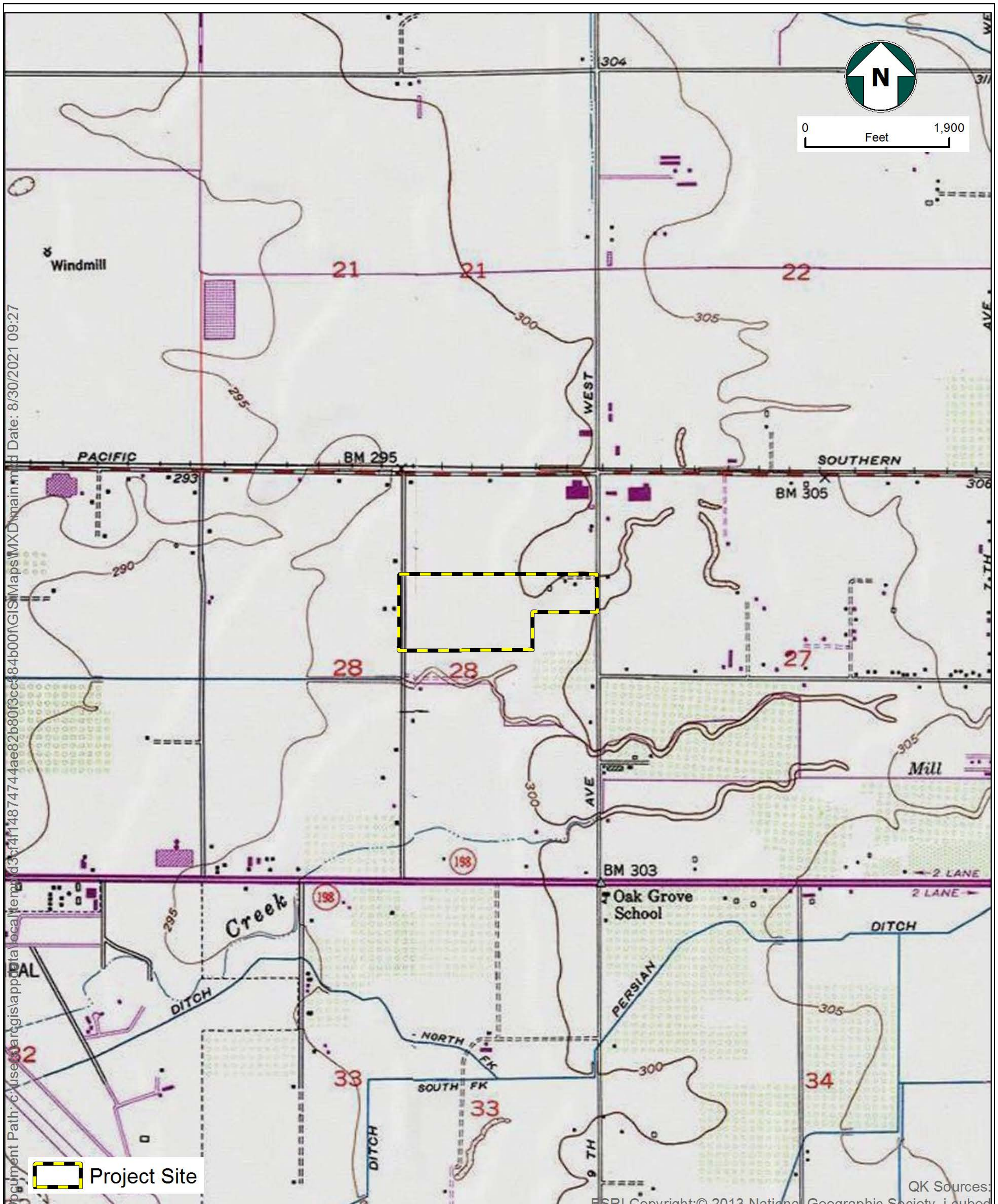


Figure - 4
Topo

Attachment B-
Sacred Lands File Response by the Native American Heritage Commission

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

NATIVE AMERICAN HERITAGE COMMISSION

October 5, 2021

Jaymie Brauer
Quad Knopf, Inc.

Via Email to: jaymie.brauer@qkinc.com

Re: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, Iron Ridge II Ranch Project, Kings County

Dear Ms. Brauer:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties or projects.

Government Codes §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

Public Resources Codes §21080.3.1 and §21080.3.2 requires public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to tribal cultural resources as defined, for California Environmental Quality Act (CEQA) projects.

The law does not preclude local governments and agencies from initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

Best practice for the AB52 process and in accordance with Public Resources Code §21080.3.1(d), is to do the following:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The NAHC also recommends, but does not require that lead agencies include in their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential affect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

    - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE, such as known archaeological sites;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

    All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Kings County
10/5/2021

Kings River Choinumni Farm Tribe Stan Alec, 3515 East Fedora Avenue Fresno, CA, 93726 Phone: (559) 647 - 3227	Foothill Yokut
Santa Rosa Rancheria Tachi Yokut Tribe Leo Sisco, Chairperson P.O. Box 8 Lemoore, CA, 93245 Phone: (559) 924 - 1278 Fax: (559) 924-3583	Southern Valley Yokut
Table Mountain Rancheria Brenda Lavell, Chairperson P.O. Box 410 Friant, CA, 93626 Phone: (559) 822 - 2587 Fax: (559) 822-2693 rpennell@tmr.org	Yokut
Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, CA, 93258 Phone: (559) 781 - 4271 Fax: (559) 781-4610 neil.peyron@tulerivertribe-nsn.gov	Yokut
Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas, CA, 93906 Phone: (831) 443 - 9702 kwood8934@aol.com	Foothill Yokut Mono

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3, 65352.4 et seq. and Public Resources Code Sections 21080.3.1 for the proposed Iron Ridge II Ranch Project, Kings County.

Environmental Noise & Vibration Assessment

Iron Ridge Development I & II

Visalia, California

BAC Job # 2021-133

Prepared For:

Quad Knopf, Inc.

Attn: Ernie Escobedo
601 Pollasky Avenue, Suite 301
Clovis, CA 93612

Prepared By:

Bollard Acoustical Consultants, Inc.

Dario Gotchet

Dario Gotchet, Principal Consultant

March 29, 2022

BOLLARD
Acoustical Consultants

CEQA Checklist

NOISE AND VIBRATION – **Would the Project Result in:**	**NA – Not Applicable**	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				**X**	
b) Generation of excessive groundborne vibration or groundborne noise levels?				**X**	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				**X**	

Introduction

The Iron Ridge Development I & II (project) is located south of W. Goshen Avenue, between Road 88 (Clancy Road) and Road 92 (Shirk Road) in Visalia, California. The project proposes the development of residential uses on two parcels totaling 50-acres. Existing land uses in the project vicinity include light industrial to the north, and a combination of agricultural and residential in all other directions. The project site location with aerial imagery is provided as Figure 1. The project concept lotting plan is shown in Figure 2.

The purposes of this assessment are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts resulting from the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project. Specifically, impacts are identified if project-related activities would cause a substantial increase in ambient noise levels at existing sensitive uses in the project vicinity, or if traffic, industrial, or project-generated noise or vibration levels would exceed applicable federal, state, or local (City of Visalia) standards at existing or proposed sensitive uses.

Noise and Vibration Fundamentals

Noise

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are designated as sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or Hertz (Hz). Definitions of acoustical terminology are provided in Appendix A.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness. Noise levels associated with common noise sources are provided in Figure 3.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}). The L_{eq} is the foundation of the day-night average noise descriptor, DNL (or L_{dn}), and shows very good correlation with community response to noise. DNL is based upon the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment. DNL-based noise standards are commonly used to assess noise impacts associated with traffic, railroad, and aircraft noise sources.

Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second peak particle velocity (IPS, PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities. As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate, or velocity of particle movement, is the commonly accepted descriptor of the vibration "strength".

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

According to the Caltrans Transportation and Construction-Induced Vibration Guidance Manual (April 2020), operation of construction equipment and construction techniques generate ground vibration. Traffic traveling on roadways can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. However, traffic, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.

Legend

Project Boundary (Approximate)

Long-term Noise Measurement Locations

N

Scale (Feet)

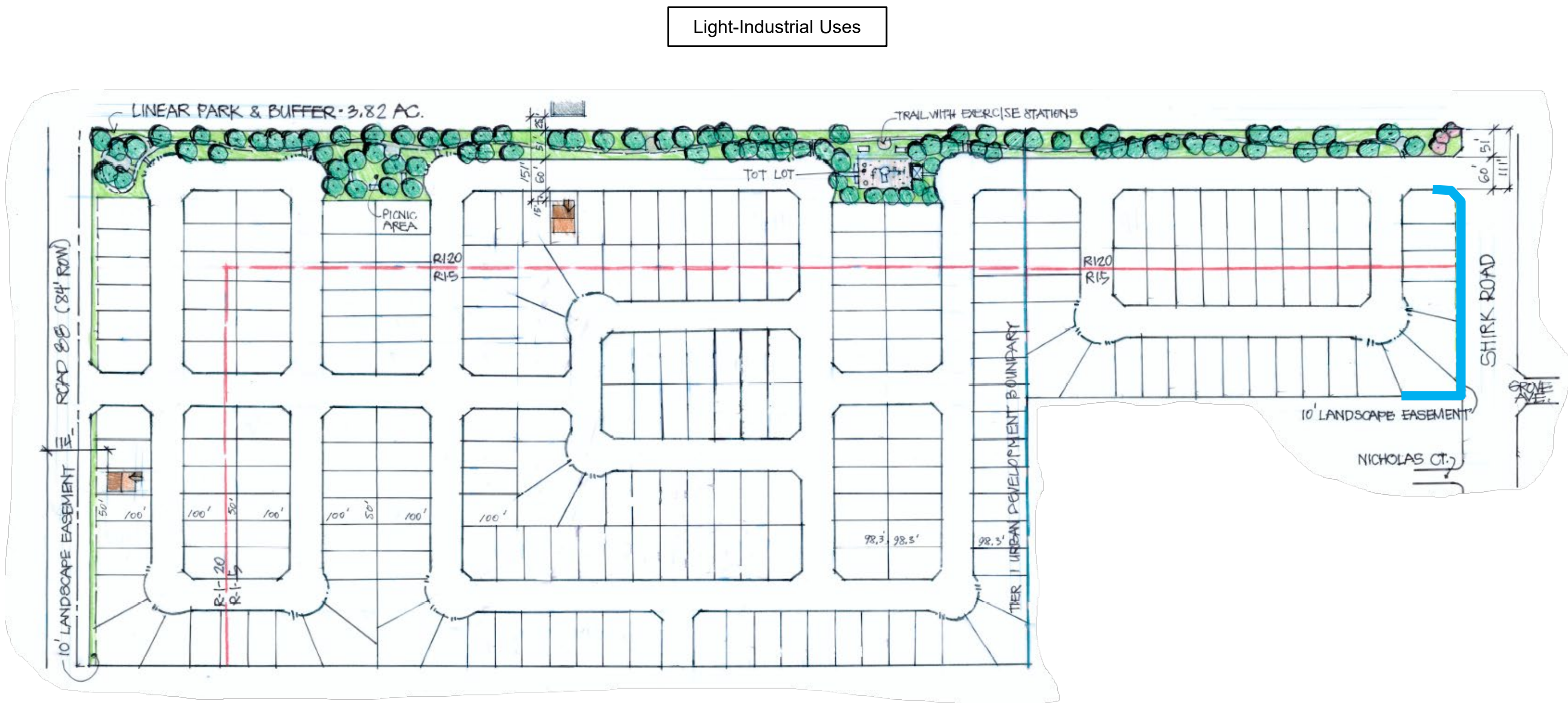
0 250 500

Iron Ridge Development I & II
Visalia, California

Project Area

Figure 1

BOLLARD
Acoustical Consultants



Legend

Proposed 6' Traffic Noise Barrier

N

Scale (Feet)

0 100 200

Iron Ridge Development I & II

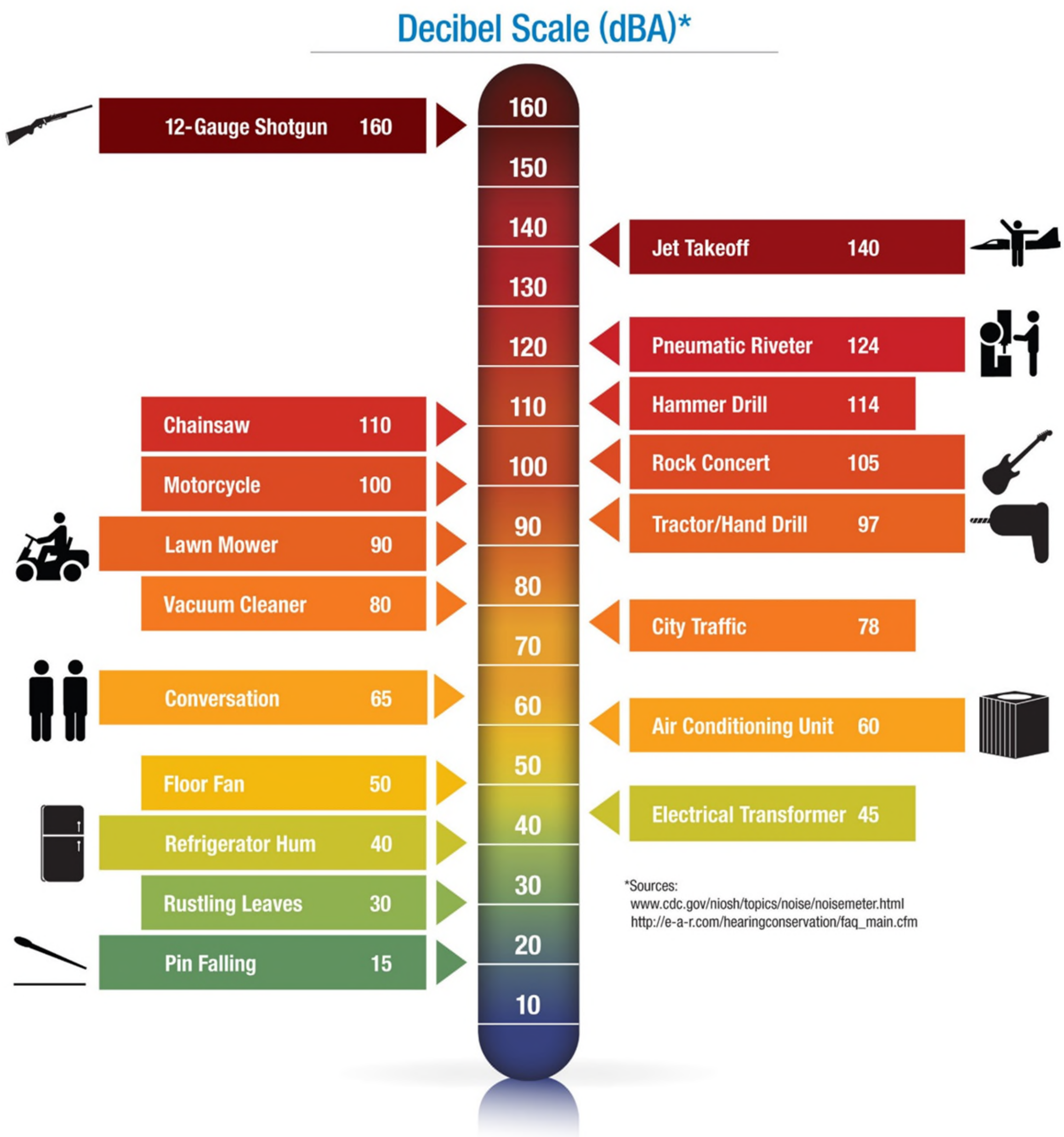
Visalia, California

Project Concept Lotting Plan

Figure 2

BOLLARD Acoustical Consultants

Figure 3
Noise Levels Associated with Common Noise Sources



Regulatory Setting: Criteria for Acceptable Noise and Vibration Exposure

Federal

There are no federal noise or vibration criteria which would be directly applicable to this project. However, the City of Visalia does not currently have established criteria for assessing noise impacts associated with increases in ambient noise levels from project-generated noise sources. As a result, the following federal noise criteria was applied to the project.

Federal Interagency Commission on Noise

The Federal Interagency Commission on Noise (FICON) has developed a graduated scale for use in the assessment of project-related noise level increases. The criteria shown in Table 1 was developed by FICON as a means of developing thresholds for impact identification for project-related noise level increases. The FICON standards have been used extensively in recent years in the preparation of the noise sections of Environmental Impact Reports that have been certified in many California cities and counties.

The use of the FICON standards is considered conservative relative to thresholds used by other agencies in the State of California. For example, the California Department of Transportation (Caltrans) requires a project-related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise level increases between 5 to 10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a very conservative approach to impact assessment for this project.

Table 1
Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project (DNL or CNEL)	Change in Ambient Noise Level Due to Project
<60 dB	+5.0 dB or more
60 to 65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more
Source: Federal Interagency Committee on Noise (FICON)	

Based on the FICON research, as shown in Table 1, a 5 dB increase in noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB DNL. Where pre-project ambient conditions are between 60 and 65 dB DNL, a 3 dB increase is applied as the standard of significance. Finally, in areas already exposed to higher noise levels, specifically pre-project noise levels in excess of 65 dB DNL, a 1.5 dB increase is considered by FICON as the threshold of significance.

State of California

California Environmental Quality Act

The State of California has established regulatory criteria that are applicable to this assessment. Specifically, Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies, Municipal Code standards, or the applicable standards of other agencies. According to Appendix G of the CEQA guidelines, the project would result in a significant noise or vibration impact if the following occur:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies; or

B. Generation of excessive groundborne vibration or groundborne noise levels; or

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

California Department of Transportation (Caltrans)

The City of Visalia does not currently have adopted standards for groundborne vibration. As a result, the vibration impact criteria developed by the California Department of Transportation (Caltrans) was applied to the project. The Caltrans criteria applicable to damage and annoyance from transient and continuous vibration typically associated with construction activities are presented in Tables 2 and 3. Equipment or activities typical of continuous vibration include: excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack-and-seat equipment (California Department of Transportation 2020).

Table 2
Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = Peak Particle Velocity

Source: Caltrans Transportation and Construction Vibration Guidance Manual (2020)

Table 3
Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.40	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = Peak Particle Velocity

Source: Caltrans Transportation and Construction Vibration Guidance Manual (2020)

Local

Visalia General Plan

The Safety and Noise Element of the Visalia General Plan contains objectives and policies to ensure that city residents are not subjected to noise beyond acceptable levels. The General Plan objectives and policies which would be most applicable to this project are reproduced below.

Objectives

N-O-1 Strive to achieve an acceptable noise environment for present and future residents of Visalia.

N-O-2 Protect the City's economic base by preventing the encroachment of incompatible land uses near known noise producing industries, railroads, airports, and other sources.

N-O-3 Protect noise-sensitive land uses such as schools, hospitals, and senior care facilities from encroachment of and exposure to excessive levels of noise.

Policies

N-P-1 Update the City's Noise Ordinance as needed to be in conformance with the General Plan.

N-P-2 Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located in a noise-impacted environment such as along an arterial street or adjacent to a noise-producing use.

N-P-4 Where new development of industrial, commercial or other noise-generating land uses (including roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by Tables 8-3 and 8-4 (Tables 4 and 5 of this report), require a noise study to determine impacts, and require developers to mitigate these impacts in conformance with Tables 8-3 and 8-4 (Tables 4 and 5 of this report) as a condition of permit approval through appropriate means.

Noise mitigation measures may include but are not limited to:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;
- Increase setbacks for noise sources from adjacent dwellings;
- Retain fences, walls, and landscaping that serve as noise buffers;
- Use soundproofing materials and double-glazed windows;
- Use open space, building orientation and design, landscaping and running water to mask sounds; and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified acoustical consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces. As a last resort, developers may propose to construct noise walls along state highways and arterials when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility, with no City funding.

N-P-5 Continue to enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.

Table 4
Transportation Noise Sources

	Outdoor Activity Areas (dBA)	Interior Spaces (dBA)	
Noise-Sensitive Land Use	**DNL/CNEL[2]**	**DNL/CNEL[2]**	**L_{eq}[3]**
Residential	65	45	--
Transient Lodging	65	45	--
Hospitals, Nursing Homes	65	45	--
Theatres, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65	--	45
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45

[1] Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation areas for multi-family developments.
[2] The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.
[3] As determined for a typical worst-case hour during periods of use.
Source: Visalia General Plan, Safety and Noise Element, Table 8-3

Table 5
Stationary Noise Sources[1]

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly Equivalent Sound Level, L_{eq} (dBA)	50	45
Maximum Sound Level, L_{max} (dBA)	70	65

[1] As determined as the property line of the receiving noise-sensitive use.
Source: Visalia General Plan, Safety and Noise Element, Table 8-4

Visalia Municipal Code

The provisions of the Visalia Municipal Code which would be most applicable to this project are reproduced below.

Chapter 8.36 Noise

8.36.040 Exterior noise standards – fixed noise sources.

A. It is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level, when measured at the property line of any affected noise-sensitive land use, to exceed any of the categorical noise level standards as set forth in the following table:

Exterior Noise Level Standards (dBA)

Category	Cumulative Number of Minutes in Any 1-Hour Time Period	Evening and Daytime (6:00 a.m. to 7:00 p.m.)	Nighttime (7:00 p.m. to 6:00 a.m.)
1	30 (L_{50})	50	45
2	15 (L_{25})	55	50
3	5 (L_8)	60	55
4	1 (L_2)	65	60
5	0 (L_{max})	70	65
Source: Visalia Municipal Code, Section 8.36.040(A)			

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

8.36.050 Exterior noise standards – mobile noise sources prohibition against use.

It is unlawful to operate any of the below-listed devices, appliances, equipment or vehicles on public or private property abutting noise-sensitive land uses between the weekday hours of 7:00 p.m. and 6:00 a.m., and between the weekend hours of 7:00 p.m. and 9:00 a.m.

C. Construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment, except for emergency repair purposes as provided in Section 8.36.070.

8.36.060 Residential interior noise standards.

A. It is unlawful for any person, at any location within the city, to operate or cause to be operated, any source of sound or to allow the creation of any noise which causes the noise level when measured inside a dwelling unit to exceed any of the categorized noise level standards as set forth in the following table:

Interior Noise Level Standards (dBA)

Category	Cumulative Number of Minutes in Any 1-Hour Time Period	Evening and Daytime (6:00 a.m. to 7:00 p.m.)	Nighttime (7:00 p.m. to 6:00 a.m.)
1	5 (L_8)	45	35
2	1 (L_2)	50	40
3	0 (L_{max})	55	45
Source: Visalia Municipal Code, Section 8.36.040(A)			

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Environmental Setting – Existing Ambient Noise Environment

Existing Land Uses in the Project Vicinity

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities.

The existing noise-sensitive land uses which would potentially be affected by the project consist of residential uses. Specifically, single-family residential land uses are located to the south and east of the project area. Existing industrial uses are located to the north of the project, however these uses are not considered to be noise-sensitive, but rather noise-generating.

Existing Traffic Noise Levels along Project Area Roadway Network

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to develop existing noise contours expressed in terms of DNL for major roadways within the project study area. The FHWA Model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from L_{eq} values.

Traffic data in the form of AM and PM peak hour movements for existing (2021) conditions were obtained from the project traffic impact study prepared by VRPA Technologies, Inc. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 5 to the sum of AM and PM peak hour conditions. Using these data and the FHWA Model, traffic noise levels were calculated. The traffic noise level at 100 feet from the roadway centerline and distances from the centerlines of selected roadways to the 60 dB, 65 dB, and 70 dB DNL contours are summarized in Table 6. A complete listing of the FWHA Model inputs for existing conditions are provided as Appendix B.

In many cases, the actual distances to noise level contours may vary from the distances predicted by the FHWA Model. Factors such as roadway curvature, roadway grade, shielding from local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation. It is also recognized that existing sensitive land uses within the project vicinity are located at varying distances from the centerlines of the local roadway network. The 100-foot reference distance is utilized in this assessment to provide a reference position at which changes in existing and future traffic noise levels resulting from the project can be evaluated.

Table 6
Existing Traffic Noise Modeling Results

Seg.	Intersection	Direction	DNL 100 ft from Roadway	Distance to Contour (ft) 70 dB DNL	65 dB DNL	60 dB DNL
1	(1) SR-198 EB Ramps / Road 92	North	63	35	75	162
2		South	62	28	60	130
3		East	62	31	68	146
4		West	62	29	63	136
5	(2) SR-198 WB Ramps / Road 92	North	64	41	89	192
6		South	63	35	75	162
7		East	62	30	64	137
8		West	62	29	63	136
9	(3) Hillsdale Ave / Road 92	North	64	41	88	189
10		South	64	41	89	192
11		East	48	3	7	15
12		West	--	--	--	--
13	(4) School Ave / Road 92	North	64	40	86	185
14		South	64	41	87	188
15		East	44	2	4	9
16		West	--	--	--	--
17	(5) Hurley Ave / Road 92	North	63	33	70	151
18		South	64	40	86	185
19		East	57	13	28	61
20		West	--	--	--	--
21	(6) Allen Ave / Road 92	North	62	31	67	144
22		South	62	31	67	144
23		East	--	--	--	--
24		West	--	--	--	--
25	(7) Goshen Ave / Road 92	North	61	25	53	114
26		South	62	29	63	136
27		East	63	34	74	160
28		West	64	38	82	176
29	(8) Project Drvwy / Road 88	North	48	3	7	16
30		South	48	3	7	16
31		East	--	--	--	--
32		West	--	--	--	--
33	(9) Goshen Ave / Road 88	North	--	--	--	--
34		South	48	3	7	16
35		East	64	38	81	174
36		West	64	37	80	173

Blank cell = no traffic data was provided

Source: FHWA-RD-77-108 with inputs from VRPA. Appendix B contains FHWA model inputs.

Existing Overall Ambient Noise Environment within the Project Area

The existing ambient noise environment within the project area is defined primarily by traffic on Road 92 to the east, and by industrial operations from adjacent uses to the north. However, during evening hours, it was noted that noise generated by insects significantly contributed to the project area noise environment. To quantify the existing ambient noise environment at the project site, BAC conducted long-term (72-hour) noise level measurements at four (4) locations on the project site from August 28th to 31st, 2021. The noise survey locations are shown on Figure 1. Photographs of the noise level survey locations are provided in Appendix C.

Larson-Davis Laboratories (LDL) Model 820 and LxT precision integrating sound level meters were used to complete the noise level measurement survey. The meters were calibrated immediately before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy off the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The results of the long-term ambient noise survey are shown numerically and graphically in Appendices D and E (respectively) and are summarized in Table 7.

Table 7
Summary of Long-Term Noise Survey Measurement Results – August 28-31, 2021[1]

			Average Measured Hourly Noise Levels, dBA					
			Daytime[3]			Nighttime[4]		
Description[2]	Date	DNL	L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
Site 1: Northwest end of project adjacent to industrial uses	8/28-8/29	55	49	47	60	48	48	57
	8/29-8/30	56	48	46	60	50	50	57
	8/30-8/31	57	49	46	62	51	50	58
Site 2: Centrally located along the northern project boundary	8/28-8/29	63	60	59	64	56	53	62
	8/29-8/30	66	60	59	66	60	58	64
	8/30-8/31	66	61	60	67	59	58	64
Site 3: Northeast end of project adjacent to industrial uses	8/28-8/29	64	56	48	62	58	48	67
	8/29-8/30	65	56	48	66	59	52	68
	8/30-8/31	67	56	51	67	61	55	73
Site 4: Approximately 100' from centerline of Road 92	8/28-8/29	62	59	52	76	54	47	73
	8/29-8/30	66	60	53	77	59	52	74
	8/30-8/31	66	62	59	77	59	53	75

1 Detailed summaries of the noise monitoring results are provided in Appendices D and E.
2 Long-term noise survey locations are identified on Figure 1.
3 Daytime hours: 7:00 a.m. to 10:00 p.m.
4 Nighttime hours: 10:00 p.m. to 7:00 a.m.
Source: Bollard Acoustical Consultants, Inc. (2021)

Noise measurement sites 1 through 3 were specifically selected to capture operations noise levels from adjacent light industrial operations north of the project site. Noise measurement site 4 was specifically selected to be representative of the ambient traffic noise level environment at the project site from Road 92.

After close inspection of the collected ambient noise level data (Appendices D and E), it appears that the measured noise levels at the monitoring sites were significantly influenced by noise sources present during nighttime hours. Based on the proximity to Road 92, it is believed that the elevated measured levels at site 4 are likely attributed to nighttime traffic on the nearby roadway. In addition, the elevated nighttime noise levels at site 3 are believed to be attributable to insect activity within close proximity to the monitoring location. However, based on BAC field observations during setup of monitoring site 2, and subsequently confirmed in analysis of the measurement data, it is believed that the measured elevated daytime and nighttime noise levels at site 2 are attributed to stationary equipment operations on an adjacent industrial parcel to the immediate north of the site. Photographs of the stationary equipment area adjacent to site 2 are provided in Appendix C.

Impacts and Mitigation Measures

Thresholds of Significance

For the purposes of this report, a noise and vibration impact is considered significant if the project would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies.

- Generation of excessive groundborne vibration or groundborne noise levels.

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposing people residing or working in the project area to excessive noise levels.

The following criteria based on standards established by the Federal Interagency Commission on Noise (FICON), Caltrans, Visalia General Plan and Municipal Code were used to evaluate the significance of environmental noise and vibration resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the Visalia General Plan or Municipal Code.

- A significant impact would be identified if off-site traffic or on-site construction activities would substantially increase noise levels at existing sensitive receptors in the vicinity. A substantial increase would be identified relative to the FICON noise level increase significance criteria provided in Table 1.

- A significant impact would be identified if project construction activities would expose sensitive receptors to excessive groundborne vibration levels. Specifically, an impact would be identified if groundborne vibration levels due to these sources would exceed the Caltrans vibration impact criteria.

Noise Impacts Associated with Project-Generated Increases in Off-Site Traffic

With development of the project, traffic volumes on the local roadway network will increase. Those increases in daily traffic volumes will result in a corresponding increase in traffic noise levels at existing uses located along those roadways. The FHWA Model was used with traffic input data from the project traffic impact analysis prepared by VRPA to predict project-generated traffic noise level increases relative to Opening Year, 5-Year Horizon, 10-Year Horizon, and 20-Year Horizon project and no project conditions.

Impact 1: Increases in Opening Year Traffic Noise Levels due to the Project

Traffic data in the form of AM and PM peak hour movements for Opening Year and Opening Year Plus Project conditions in the project area roadway network were obtained from the project traffic impact study prepared by VRPA. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 5 to the sum of weekday AM and PM peak hour conditions.

Predicted Opening Year versus Opening Year Plus Project traffic noise levels on the local roadway network are shown in Table 8. The following section includes an assessment of predicted traffic noise levels relative to the FICON increase significance noise criteria identified in Table 1. The data in Table 8 are provided in terms of DNL at a standard distance of 100 feet from the centerlines of the project-area roadways. Appendix B contains the FWHA Model inputs.

It should be noted that the FHWA Model predictions presented in Table 8 are based on inputs that include peak hour traffic volumes, day/night and truck type percentages (e.g., medium and heavy trucks), vehicle speed, and distance from roadway centerlines. The FHWA Model does not account for non-traffic ambient noise sources such as nearby wildlife (e.g., birds chipping) or other anthropogenic noise sources within an area (e.g., distant traffic from other roadways, recreational activities, commercial or industrial operations, etc.).

Table 8
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
Opening Year vs. Opening Year Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			OY	OY+P	Increase	
1	(1) SR-198 EB Ramps / Road 92	North	63.8	64.1	0.3	No
2		South	62.1	62.1	0.0	No
3		East	63.2	63.7	0.5	No
4		West	62.7	62.9	0.2	No
5	(2) SR-198 WB Ramps / Road 92	North	65.1	65.5	0.4	No
6		South	63.8	64.1	0.3	No
7		East	62.9	63.4	0.5	No
8		West	62.6	62.9	0.3	No
9	(3) Hillsdale Ave / Road 92	North	64.9	65.3	0.4	No
10		South	65.1	65.5	0.4	No
11		East	49.7	49.7	0.0	No
12		West	--	--	--	--
13	(4) School Ave / Road 92	North	64.8	65.2	0.4	No

Table 8
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
Opening Year vs. Opening Year Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			OY	OY+P	Increase	
14		South	64.9	65.3	0.4	No
15		East	44.1	44.1	0.0	No
16		West	--	--	--	--
17	(5) Hurley Ave / Road 92	North	63.5	63.9	0.4	No
18		South	64.8	65.2	0.4	No
19		East	57.7	57.9	0.2	No
20		West	--	--	--	--
21	(6) Allen Ave / Road 92	North	63.2	63.3	0.1	No
22		South	63.2	63.7	0.5	No
23		East	--	--	--	--
24		West	--	50.2	50.2	Yes
25	(7) Goshen Ave / Road 92	North	61.8	61.8	0.0	No
26		South	62.9	63.0	0.1	No
27		East	63.4	63.5	0.1	No
28		West	64.5	64.5	0.0	No
29	(8) Project Drvwy / Road 88	North	47.9	49.7	1.8	No
30		South	47.9	47.9	0.0	No
31		East	--	40.5	40.5	Yes
32		West	--	--	--	--
33	(9) Goshen Ave / Road 88	North	--	--	--	--
34		South	53.8	54.3	0.5	No
35		East	64.1	64.2	0.1	No
36		West	64.2	64.2	0.0	No

Blank cell = no data was provided in traffic study

Source: FHWA-RD-77-108 with inputs from VRPA. Appendix B contains the FHWA Model inputs.

As stated previously, the FHWA Model does not account for non-traffic ambient noise sources such as nearby wildlife or other anthropogenic noise sources within an area. Consideration of such sources typically results in higher ambient noise levels (i.e., existing no project) than those predicted by the FHWA Model alone.

As indicated in Table 8, the proposed project's contribution to traffic noise level increases is predicted to exceed applicable FICON increase significance criteria along two (2) of the roadway segments evaluated in the Opening Year conditions analysis – segments 24 and 31, which are access points to the development located on the project site. Specifically, the traffic noise level increases along roadway segments 24 and 31 are calculated to be approximately 50 dB DNL and to 41 dB DNL, respectively.

As discussed above, baseline (no project) ambient conditions are considerably higher than baseline traffic noise levels alone. When project traffic noise generation is conservatively compared to the lowest measured ambient day-night average (DNL) levels within the vicinity of roadway segment 24 on the project site (62 dB DNL at site 4), the project-generated traffic noise level increase along the roadway segment is calculated be less than 1 dB DNL (0.3 dB DNL).

Similarly, when project traffic noise generation is conservatively compared to the lowest measured ambient day-night average (DNL) levels within the vicinity of roadway segment 31 on the project site (55 dB DNL at site 1), the project-generated traffic noise level increase along the roadway segment is also calculated be less than 1 dB DNL (0.2 dB DNL). This is a more accurate representation of actual project-related noise level increases than the "traffic-only" noise increases shown in Table 8. Thus, project-related increases in traffic noise levels would not substantially exceed measured ambient noise conditions in the project area relative to the applicable FICON increase significance criteria.

Finally, although existing residential uses were not identified within 100 feet from the centerline of roadway segments 24 and 31, it should be noted that the predicted Opening Year Plus Project traffic noise levels of approximately 50 dB DNL and 41 dB DNL at 100 feet along the segments is well below the Visalia General Plan exterior noise level standard of 65 dB DNL applicable to transportation noise sources affecting residential uses.

Based on the analysis presented above, including consideration of measured existing ambient noise conditions within the project area, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (Opening Year vs. Opening Year Plus Project conditions) are identified as being ***less than significant***.

Impact 2: Increases in 5-Year Horizon Traffic Noise Levels due to the Project

Traffic data in the form of AM and PM peak hour movements for 5-Year Horizon and 5-Year Horizon Plus Project conditions in the project area roadway network were obtained from the project traffic impact study prepared by VRPA. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 5 to the sum of weekday AM and PM peak hour conditions.

Predicted 5-Year Horizon and 5-Year Horizon Plus Project traffic noise levels on the local roadway network are shown in Table 9. The following section includes an assessment of predicted traffic noise levels relative to the FICON increase significance noise criteria identified in Table 1. The data in Table 9 are provided in terms of DNL at a standard distance of 100 feet from the centerlines of the project-area roadways. Appendix B contains the FWHA Model inputs.

Table 9
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
5-Year Horizon vs. 5-Year Horizon Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			5YH	5YH+P	Increase	
1	(1) SR-198 EB Ramps / Road 92	North	64.2	64.4	0.2	No
2		South	62.5	62.5	0.0	No
3		East	63.5	64.0	0.5	No
4		West	63.1	63.3	0.2	No
5	(2) SR-198 WB Ramps / Road 92	North	65.5	65.8	0.3	No
6		South	64.2	64.5	0.3	No
7		East	63.3	63.7	0.4	No
8		West	63.0	63.3	0.3	No

Table 9
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
5-Year Horizon vs. 5-Year Horizon Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			5YH	5YH+P	Increase	
9	(3) Hillsdale Ave / Road 92	North	65.3	65.6	0.3	No
10		South	65.5	65.8	0.3	No
11		East	50.0	50.0	0.0	No
12		West	--	--	--	--
13	(4) School Ave / Road 92	North	65.2	65.5	0.3	No
14		South	65.3	65.6	0.3	No
15		East	44.6	44.6	0.0	No
16		West	--	--	--	--
17	(5) Hurley Ave / Road 92	North	63.9	64.3	0.4	No
18		South	65.2	65.5	0.3	No
19		East	58.0	58.2	0.2	No
20		West	--	--	--	--
21	(6) Allen Ave / Road 92	North	63.7	63.7	0.0	No
22		South	63.7	64.1	0.4	No
23		East	--	--	--	--
24		West	--	50.2	50.2	Yes
25	(7) Goshen Ave / Road 92	North	62.2	62.2	0.0	No
26		South	63.3	63.3	0.0	No
27		East	63.8	63.9	0.1	No
28		West	64.8	64.9	0.1	No
29	(8) Project Drvwy / Road 88	North	48.4	50.0	1.6	No
30		South	48.4	48.4	0.0	No
31		East	--	40.5	40.5	Yes
32		West	--	--	--	--
33	(9) Goshen Ave / Road 88	North	--	--	--	--
34		South	53.9	54.4	0.5	No
35		East	64.5	64.6	0.1	No
36		West	64.6	64.7	0.1	No

Blank cell = no data was provided in traffic study
Source: FHWA-RD-77-108 with inputs from VRPA. Appendix B contains the FHWA Model inputs.

As indicated in Table 9, the proposed project's contribution to traffic noise level increases is predicted to exceed applicable FICON increase significance criteria along two (2) of the roadway segments evaluated in the 5-Year Horizon conditions analysis – segments 24 and 31, which are access points to the development located on the project site. Specifically, the traffic noise level increases along roadway segments 24 and 31 are calculated to be approximately 50 dB DNL and to 41 dB DNL, respectively.

As discussed previously, baseline (no project) ambient conditions are considerably higher than baseline traffic noise levels alone. When project traffic noise generation is conservatively compared to the lowest measured ambient day-night average (DNL) levels within the vicinity of roadway segment 24 on the project site (62 dB DNL at site 4), the project-generated traffic noise level increase along the roadway segment is calculated be less than 1 dB DNL (0.3 dB DNL).

Similarly, when project traffic noise generation is conservatively compared to the lowest measured ambient day-night average (DNL) levels within the vicinity of roadway segment 31 on the project site (55 dB DNL at site 1), the project-generated traffic noise level increase along the roadway segment is also calculated be less than 1 dB DNL (0.2 dB DNL). This is a more accurate representation of actual project-related noise level increases than the "traffic-only" noise increases shown in Table 9. Thus, project-related increases in traffic noise levels would not substantially exceed measured ambient noise conditions in the project area relative to the applicable FICON increase significance criteria.

Finally, although existing residential uses were not identified within 100 feet from the centerline of roadway segments 24 and 31, it should be noted that the predicted 5-Year Horizon Plus Project traffic noise levels of approximately 50 dB DNL and 41 dB DNL at 100 feet along the segments is well below the Visalia General Plan exterior noise level standard of 65 dB DNL applicable to transportation noise sources affecting residential uses.

Based on the analysis presented above, including consideration of measured existing ambient noise conditions within the project area, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (5-Year Horizon vs. 5-Year Horizon Plus Project conditions) are identified as being ***less than significant***.

Impact 3: Increases in 10-Year Horizon Traffic Noise Levels due to the Project

Traffic data in the form of AM and PM peak hour movements for 10-Year Horizon and 10-Year Horizon Plus Project conditions in the project area roadway network were obtained from the project traffic impact study prepared by VRPA. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 5 to the sum of weekday AM and PM peak hour conditions.

Predicted 10-Year Horizon and 10-Year Horizon Plus Project traffic noise levels are shown in Table 10. It should be noted that 10-Year Horizon conditions were only evaluated for Road 92 and SR-198 intersections in the project traffic impact study. The following section includes an assessment of predicted traffic noise levels relative to the FICON increase significance noise criteria identified in Table 1. The data in Table 10 are provided in terms of DNL at a standard distance of 100 feet from the centerlines of the project-area roadways. Appendix B contains the FWHA Model inputs.

Table 10
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
10-Year Horizon vs. 10-Year Horizon Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			10YH	10YH+P	Increase	
1	(1) SR-198 EB Ramps / Road 92	North	64.7	64.9	0.2	No
2		South	63.0	63.1	0.1	No
3		East	64.0	64.4	0.4	No
4		West	63.6	63.7	0.1	No
5	(2) SR-198 WB Ramps / Road 92	North	66.0	66.3	0.3	No
6		South	64.7	64.9	0.2	No
7		East	63.8	64.1	0.3	No
8		West	63.6	63.8	0.2	No

Blank cell = no data was provided in traffic study
Source: FHWA-RD-77-108 with inputs from VRPA. Appendix B contains the FHWA Model inputs.

As indicated in Table 10, the proposed project's contribution to traffic noise level increases is predicted to satisfy the applicable FICON increase significance criteria along all the roadway segments evaluated in the 10-Year Horizon conditions analysis. As a result, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (10-Year Horizon vs. 10-Year Horizon Plus Project conditions) are identified as being ***less than significant***.

Impact 4: Increases in 20-Year Horizon Traffic Noise Levels due to the Project

Traffic data in the form of AM and PM peak hour movements for 20-Year Horizon and 20-Year Horizon Plus Project conditions in the project area roadway network were obtained from the project traffic impact study prepared by VRPA. Average daily traffic (ADT) volumes were conservatively estimated by applying a factor of 5 to the sum of weekday AM and PM peak hour conditions.

Predicted 20-Year Horizon and 20-Year Horizon Plus Project traffic noise levels are shown in Table 11. It should be noted that 20-Year Horizon conditions were only evaluated for Road 92 and SR-198 intersections in the project traffic impact study. The following section includes an assessment of predicted traffic noise levels relative to the FICON increase significance noise criteria identified in Table 1. The data in Table 11 are provided in terms of DNL at a standard distance of 100 feet from the centerlines of the project-area roadways. Appendix B contains the FWHA Model inputs.

Table 11
Traffic Noise Modeling Results and Project-Related Traffic Noise Increases
20-Year Horizon vs. 20-Year Horizon Plus Project Conditions

Segment	Intersection	Direction	Traffic Noise Level at 100 feet, DNL (dB)			Substantial Increase?
			20YH	20YH+P	Increase	
1	(1) SR-198 EB Ramps / Road 92	North	65.6	65.8	0.2	No
2		South	64.0	64.0	0.0	No
3		East	64.9	65.3	0.4	No
4		West	64.5	64.6	0.1	No
5	(2) SR-198 WB Ramps / Road 92	North	66.8	67.1	0.3	No
6		South	65.6	65.8	0.2	No
7		East	64.6	64.9	0.3	No
8		West	64.4	64.6	0.2	No

Blank cell = no data was provided in traffic study
Source: FHWA-RD-77-108 with inputs from VRPA. Appendix B contains the FHWA Model inputs.

As indicated in Table 11, the proposed project's contribution to traffic noise level increases is predicted to satisfy the applicable FICON increase significance criteria along all the roadway segments evaluated in the 20-Year Horizon conditions analysis. As a result, off-site traffic noise impacts related to increases in traffic resulting from the implementation of the project (20-Year Horizon vs. 20-Year Horizon Plus Project conditions) are identified as being ***less than significant***.

Noise Impacts Associated with Project On-Site Construction Activities

Impact 5: Project Construction Noise Levels at Existing Residential Uses

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project work area would also vary depending upon the proximity of equipment activities to that point. The nearest existing sensitive uses (residential) are located approximately 30 feet away from where construction activities could occur within the project area.

Table 12 includes the range of maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet. Not all of these construction activities would be required of this project. The Table 12 data also include predicted maximum equipment noise levels at the nearest existing residential uses located 30 feet away, which assumes a standard spherical spreading loss of 6 dB per doubling of distance.

Table 12
Construction Equipment Reference and Projected Noise Levels Noise Levels

Equipment Description	Maximum Noise Level at 50 Feet (dB)	Predicted Maximum Noise Level at 30 Feet (dB)
Air compressor	80	84
Backhoe	80	84
Ballast equalizer	82	86
Ballast tamper	83	87
Compactor	82	86
Concrete mixer	85	89
Concrete pump	82	86
Concrete vibrator	76	80
Crane, mobile	83	87
Dozer	85	89
Excavator	85	89
Generator	82	86
Grader	85	89
Impact wrench	85	89
Loader	80	84
Paver	85	89
Pneumatic tool	85	89
Pump	77	81
Saw	76	80
Scarifier	83	87
Scraper	85	89
Shovel	82	86
Spike driver	77	81
Tie cutter	84	88
Tie inserter	85	89
Truck	84	88

Source: Federal Transit Administration Noise and Vibration Impact Assessment Manual, Table 7-1 (2020)

Based on the equipment noise levels in Table 12, worst-case on-site project construction equipment noise levels at the nearest residential uses located 30 feet away are expected to range from approximately 80 to 89 dB. Thus, it is possible that a portion of the project construction equipment could result in substantial short-term increases over ambient maximum noise levels at nearby existing residential uses. Further, it is possible that those noise levels could exceed the applicable Visalia General Plan and Municipal Code noise level limits.

As mentioned previously, not all of the construction equipment/activities presented in Table 12 would be required of this project. Nonetheless, because project construction activities would result in short-term periods of elevated ambient noise levels in the immediate project vicinity, and because engineering techniques may not be practical in addressing noise attenuation for some equipment types, the following noise abatement measures should be incorporated into project construction operations to reduce the potential for adverse reaction at nearby existing residences:

- Pursuant to Visalia Municipal Code Section 8.36.050(C), the operation of construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment shall not be operated on the project site between the weekday hours of 7:00 p.m. and 6:00 a.m., and between the weekend hours of 7:00 p.m. and 9:00 a.m.

- All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition.
- All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, state, or local agency shall comply with such regulations while in the course of project activity.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- Project area and site access road speed limits shall be established and enforced during the construction period.
- Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

Provided that the project implements the above recommended construction noise measures, adverse construction noise impacts are not expected for this project, and this impact is identified as being ***less than significant***.

Vibration Impacts Associated with Project Activities

Impact 6: Project Construction and Operations Vibration at Existing Sensitive Uses

During project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. The nearest existing sensitive receptors have been identified as residential structures located approximately 30 feet from construction activities which would occur within the project area. Table 13 includes the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. The Table 13 data also include projected equipment vibration levels at the nearest existing residences to the project area located approximately 30 feet away.

Table 13
Vibration Source Levels for Construction Equipment and Projected Levels at 30 Feet

Equipment	Maximum Vibration Level at 25 Feet (PPV)[1]	Predicted Maximum Vibration Level at 30 Feet (PPV)
Vibratory roller	0.210	0.160
Hoe ram	0.089	0.068
Large bulldozer	0.089	0.068
Caisson drilling	0.089	0.068
Loaded trucks	0.076	0.058
Jackhammer	0.035	0.027
Small bulldozer	0.003	0.002

[1] PPV = Peak Particle Velocity
Source: 2020 FTA Transit Noise and Vibration Impact Assessment Manual and BAC calculations

As shown in Table 13, vibration levels generated from on-site construction activities at the nearest existing sensitive structures located approximately 30 feet away (residences) are predicted to be below the strictest Caltrans thresholds for damage to residential structures of 0.30 in/sec PPV shown in Table 2. Further, construction activities are not expected to result in adverse human response relative to the vibration annoyance criteria as defined by Caltrans in Table 3. Therefore, on-site construction within the project area is not expected to result in excessive groundborne vibration levels at nearby existing sensitive uses.

During a site visit on August 27th, 2021, vibration levels were below the threshold of perception at the project site. Based on those observations, it is believed that existing vibration levels at the project site are well below the strictest Caltrans thresholds for damage to structures and thresholds for annoyance. Therefore, it is expected that the project would not result in the exposure of persons to excessive groundborne vibration levels at proposed uses of the project.

Finally, the project proposes the development of residential uses. It is the experience of BAC that residential uses do not typically have equipment that generates appreciable vibration. Further, it is our understanding that the project does not propose equipment that will produce appreciable vibration.

Because vibration levels due to and upon the proposed project are expected to satisfy the applicable Caltrans groundborne impact vibration criteria, this impact is identified as being ***less than significant***.

Noise Impacts Upon the Development

The California Supreme Court issued an opinion in *California Building Industry Association v. Bay Area Air Quality Management District (2015)* holding that CEQA is primarily concerned with the impacts of a project on the environment and generally does not require agencies to analyze the impact of existing conditions on a project's future users or residents. Nevertheless, the City of Visalia has policies that address existing/future conditions affecting the proposed project, which are discussed in the following section. The following section includes assessments of future traffic, industrial, and construction-related noise exposure at proposed noise-sensitive receptors (residential) within the project area and recommended improvement measures to ensure consistency with City noise requirements.

Impact 7: Future Exterior Traffic Noise at Proposed Residential Uses

The FHWA Model was used with future traffic data to predict future Road 88 and Road 92 traffic noise levels at the proposed residential uses of the development. Future traffic volume data for the roadways were obtained from the project traffic impact study prepared by VRPA Technologies, Inc. (*Iron Ridge Residential Development Traffic Impact Study, December 13, 2021*). The day/night distribution, truck percentages, and traffic speeds for the roadways were derived from BAC file data for similar roadways and field observations. The FHWA Model inputs and predicted future traffic noise levels at the project site are provided in Appendix F and are summarized in Table 14.

It should be noted that the project traffic impact study contains future traffic conditions for Opening Year (2022), 5-Year Horizon, 10-Year Horizon, and 20-Year Horizon project and no project scenarios. However, future traffic data for segments of Road 88 and Road 92 adjacent to the project site are not included in the 10-Year Horizon or 20-Year Horizon forecasts. As a result, traffic data for the 5-Year Horizon Plus Project scenario was utilized in the prediction of future Road 88 and Road 92 traffic noise levels at the project site.

Table 14
Predicted Future Exterior Traffic Noise Levels at the Project Site

Roadway	Receiver Description	Predicted Noise Level, DNL (dB)[1,2]
Road 88	Nearest backyards	59
	Nearest first-floor building facades	58
	Nearest upper-floor building facades	60
Road 92	Nearest backyards	68
	Nearest first-floor building facades	67
	Nearest upper-floor building facades	69

[1] A complete listing of FHWA Model inputs for future traffic noise levels are provided as Appendix F.
[2] An offset of +2 dB was applied at upper-floor locations due to reduced ground absorption of sound at elevated positions.

As indicated in Table 14, future Road 88 traffic noise level exposure is predicted to satisfy the applicable Visalia General Plan 65 dB DNL exterior noise level standard at the nearest single-family residential outdoor activity areas (backyards) proposed within the development. However, future Road 92 traffic noise level exposure is predicted to exceed the General Plan 65 dB DNL exterior noise level standard at the nearest backyards.

However, the project site plans indicate that a 6-foot-tall block (masonry) wall is proposed to be constructed along residential lots adjacent to Road 92. The location of the proposed wall is illustrated on Figure 2. The results presented in Table 15 contain predicted future Road 92 traffic noise levels at proposed ground level locations with consideration of the noise attenuation that would be provided by the proposed 6-foot-tall wall. Barrier insertion loss calculation worksheets are provided as Appendix G. Because elevated upper-floor building facades of the residences constructed adjacent to Road 92 would not receive shielding from the proposed 6-foot-tall wall, attenuated noise levels for those locations were not included in Table 15.

Table 15
Predicted Future Exterior Road 92 Traffic Noise Levels with Proposed 6' Wall

Roadway	Receiver Description	Predicted Noise Level, DNL (dB)[1]
Road 92	Nearest backyards	62
	Nearest first-floor building facades	61

[1] Barrier insertion loss calculation worksheets are provided as Appendix G.

The Table 15 data indicate that future Road 92 traffic noise level exposure at the backyards proposed nearest to the roadway is predicted to comply with the Visalia General Plan 65 dB DNL exterior noise level standard, including consideration of the shielding that would be provided by the proposed 6-foot-tall wall at the location illustrated on Figure 2. Provided that proposed 6-foot-tall wall is constructed at the location shown in Figure 2, no further consideration of Road 92 traffic noise reduction measures would be warranted for the project relative to the General Plan 65 dB DNL exterior noise level limit.

It should be noted that the barrier analysis for the proposed 6-foot-tall wall provided in this report assumes that the difference in elevation between the roadway and proposed adjacent residential lots are within ± 2 feet. Should a difference greater than ± 2 feet be present, an additional analysis would be warranted. Nonetheless, the barrier height is relative to lot or roadway elevation, whichever is greater.

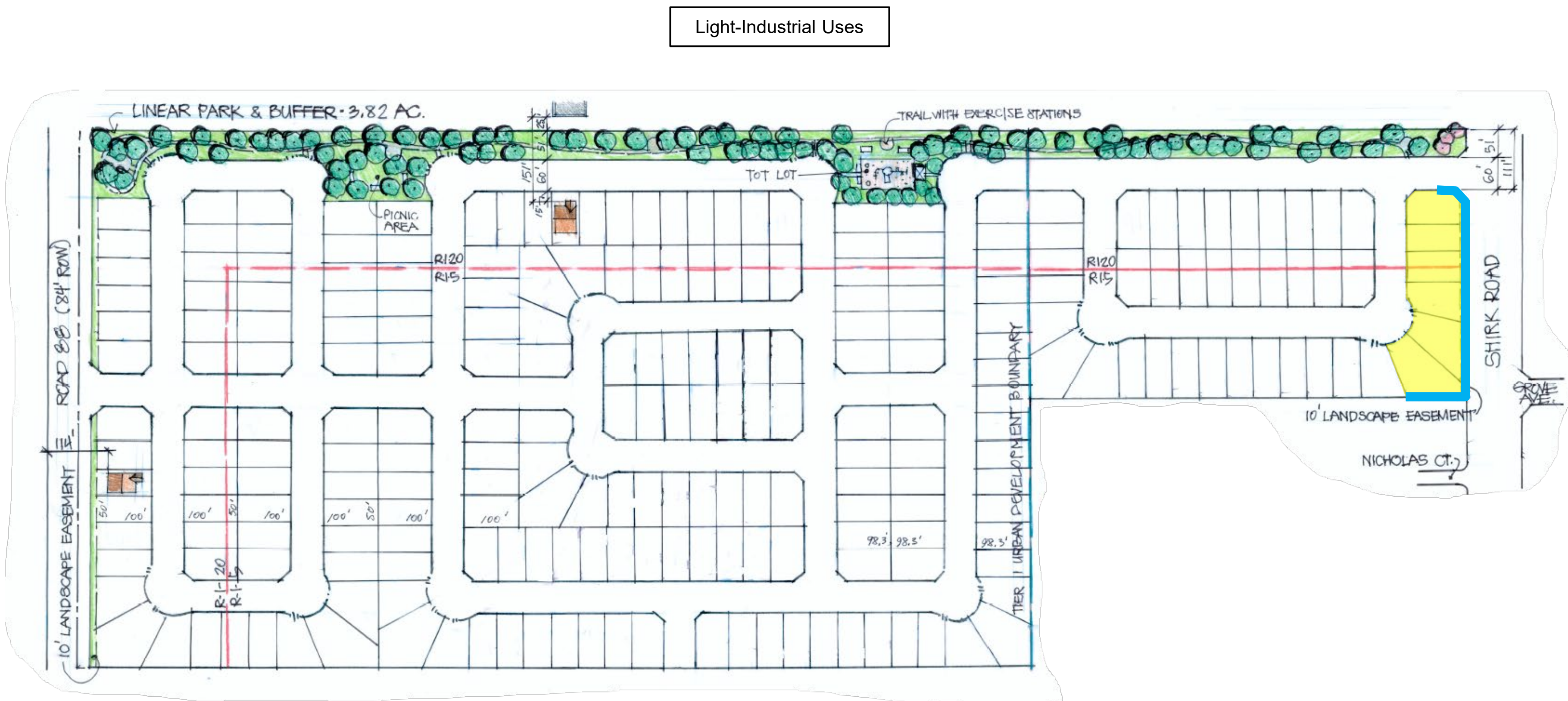
Impact 8: Future Interior Traffic Noise within Proposed Residential Uses

As indicated in Table 14 of Impact 7, future Road 88 traffic noise level exposure is predicted to be 58 dB DNL at the nearest first-floor building facades proposed within the development. Due to reduced ground absorption of sound at elevated positions, noise levels at the upper-floor facades of those residences are predicted to approach 60 dB DNL. Additionally, after consideration of shielding that would be provided by the proposed 6-foot-tall traffic noise barrier as indicated in Figure 2, future Road 92 traffic noise level exposure is calculated to be reduced to 61 dB DNL at the nearest first-floor building facades to the roadway (Table 15 of Impact 7). Due to reduced ground absorption of sound at elevated positions, and lack of shielding provided by the proposed traffic noise barrier, noise levels at the upper-floor facades of those residences are predicted to approach 69 dB DNL.

To satisfy the Visalia General Plan 45 dB DNL interior noise level standard, minimum noise reductions of 13 and 15 dB would be required of the first- and upper-floor building facades (respectively) of residences constructed nearest to Road 88. Further, minimum noise reductions of 17 and 24 dB would be needed for compliance within the first- and upper-floor interior areas (respectively) of residences constructed nearest to Road 92.

Standard residential construction (i.e., stucco siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), *typically* results in an exterior to interior noise reduction of approximately 25 dB with windows closed and approximately 15 dB with windows open. This level of noise reduction would be adequate to reduce future Road 88 traffic noise exposure to 45 dB DNL or less within the first- and upper-floors of all residences constructed within the development. Standard residential construction is also expected to be adequate to reduce future Road 92 traffic noise levels to 45 dB DNL or less within the first-floors of all residences within the development but would fail to provide for a factor of safety within the upper-floors of the closest residences to the roadway.

To satisfy the General Plan 45 dB DNL interior noise level standard *including* a factor of safety, it is recommended that the upper-floor window assemblies of residences from which a view of Road 92 would be present (i.e., north-, east- and south-facing windows) be upgraded to a minimum STC rating of 32. The locations of the window construction upgrades are illustrated on Figure 4. In addition, it is recommended that mechanical ventilation (air conditioning) be provided for all residences within the development to allow the occupants to close doors and windows as desired for additional acoustical isolation.



Legend

Proposed 6' Traffic Noise Barrier

Recommended Window Construction Upgrades: STC-32 (Upper-Floors Only)

Iron Ridge Development I & II
Visalia, California

Recommended Window Assembly Upgrades

Figure 4

BOLLARD Acoustical Consultants

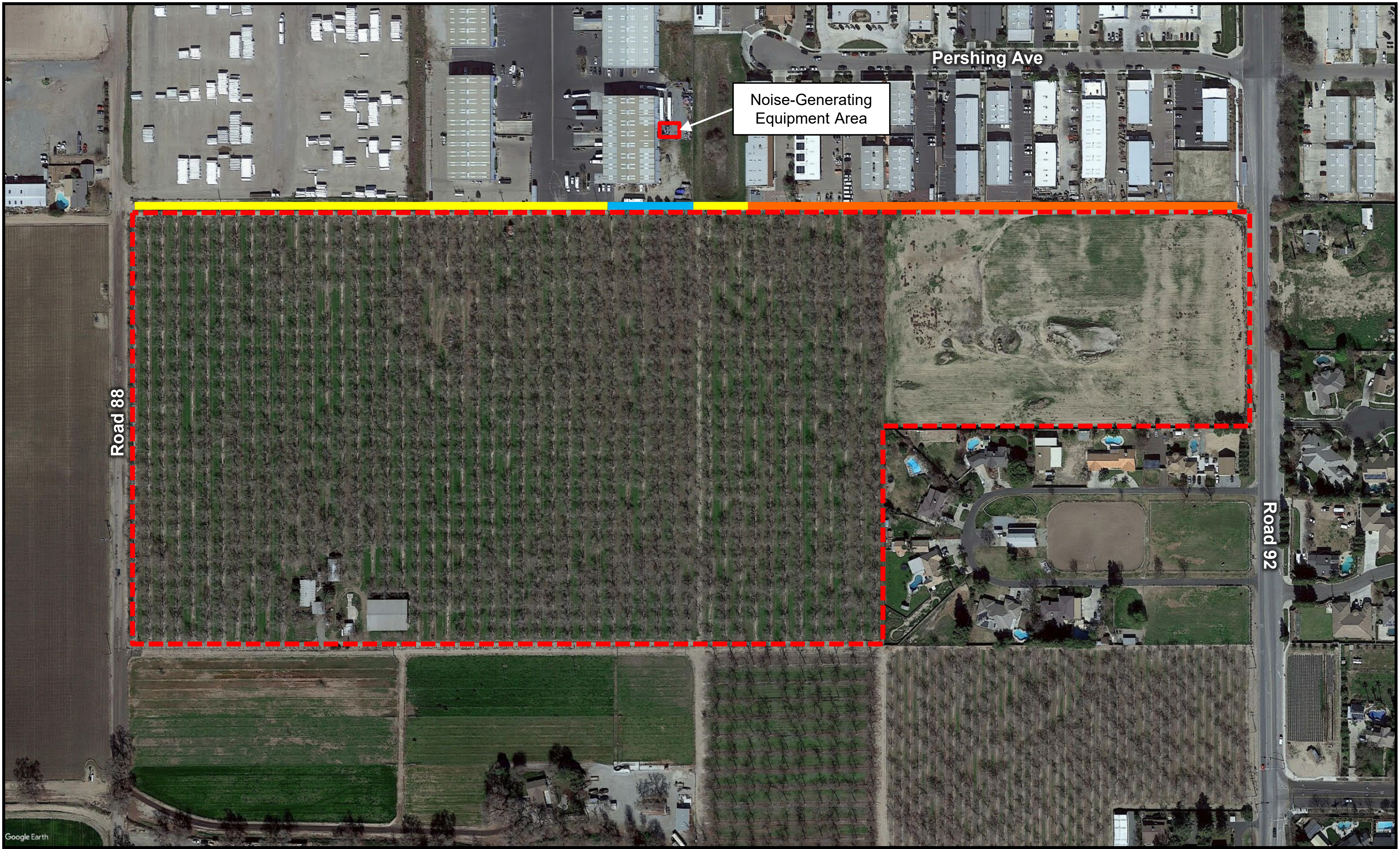
Impact 9: Industrial Operations Noise at Proposed Residential Uses

Existing light industrial uses are located to the north of the proposed development. According to BAC field observations, the industrial uses consist primarily of storage yards, warehouse and loading docks, stationary equipment, and parking areas. The locations of the industrial uses are shown on Figure 1. BAC field observations also noted that existing CMU walls ranging from 6 to 8-feet in height are constructed along portions of the northern project property boundary. Chain-link fencing is constructed along the remaining portions of the northern project property line. The approximate locations of the existing CMU walls and chain-link fencing are illustrated on Figures 5 and 6. Photographs of existing walls and fencing are provided in Appendix C.

Noise measurement sites 1 through 3 were selected to quantify the existing ambient noise level environment along the northern project property line, including noise levels associated with adjacent existing industrial operations. As discussed previously, average measured hourly noise levels at the monitoring locations exceeded the General Plan/Municipal Code daytime and nighttime exterior noise level standards for non-transportation (stationary) noise sources. After close inspection of the collected ambient noise level data (Appendices D and E), it appears that the measured noise levels at the monitoring sites were significantly influenced by noise sources present during nighttime hours. For example, the elevated nighttime noise levels at site 3 are believed to be attributable to insect activity within close proximity to the monitoring location. However, based on BAC field observations during setup of noise monitoring site 2, and subsequently confirmed in analysis of the measurement data, it is believed that the measured elevated daytime and nighttime noise levels at site 2 are attributed to stationary equipment operations on an adjacent industrial parcel to the immediate north of the site. The location of the noise-generating stationary equipment area is shown on Figure 5. Photographs of the equipment area adjacent to site 2 are provided in Appendix C.

BAC staff conducted noise level measurements of the identified stationary equipment while in operation during a site visit on August 28th, 2021. According to the data, noise from the equipment area was measured to be approximately 63 dB at 180 feet with an unshielded view of the equipment area. However, equipment noise was measured to be approximately 54 dB at 180 feet (or 9 dB lower) when measured from behind a nearby existing 8-foot-tall CMU wall. Photographs of the noise meter and associated readings during the equipment noise measurements are provided in Appendix C.

Based on the measured equipment area reference noise level of 63 dB at 180 feet, and assuming standard spherical spreading loss (-6 dB per doubling of distance from a stationary noise source), noise level exposure associated with the identified equipment area was projected to be approximately 58 dB at the property line of the nearest single-family residence proposed within the development. Because sound from the stationary equipment is identified as being steady state in nature, noise from the equipment area would be most appropriately assessed relative to Visalia General Plan hourly average (L_{eq}) and Municipal Code median (L_{50}) noise level standards. The projected equipment area noise level of 58 dB L_{eq}/L_{50} at the property line of the nearest proposed residence within the development would exceed the General Plan and Municipal Code daytime and nighttime noise level standards of 50 dB L_{eq}/L_{50} and 45 dB L_{eq}/L_{50}, respectively.



Legend

- Project Boundary (Approximate)
- Existing 6' CMU Wall (Approximate)
- Existing 8' CMU Wall (Approximate)
- Existing Chain-Link Fence (Approximate)

N

Scale (Feet)

0 150 300

Iron Ridge Development I & II
Visalia, California

Aerial with Existing CMU Walls & Fencing

Figure 5

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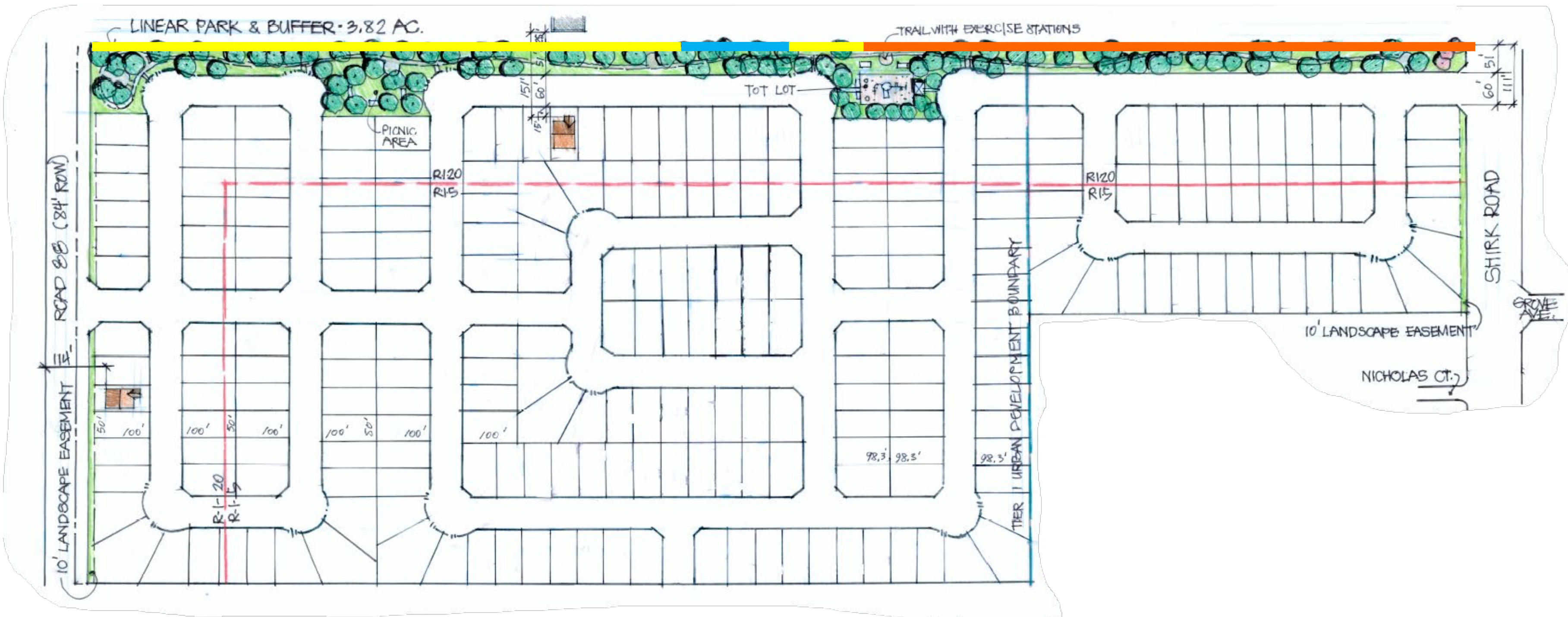

Legend

- Existing 6' CMU Wall (Approximate)
- Existing 8' CMU Wall (Approximate)
- Existing Chain-Link Fence (Approximate)

N

Scale (Feet)

0 100 200

Iron Ridge Development I & II
Visalia, California

Site Plan with Existing CMU Walls & Fencing

Figure 6

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Satisfaction of the City's 45 dB L_{eq}/L_{50} nighttime noise level standard at the project site would ensure satisfaction of the City's less restrictive daytime noise level limit of 50 dB L_{eq}/L_{50} at the development.

To reduce noise level exposure from the identified stationary equipment at the project site, the effectiveness of the screening provided by a solid noise barrier (CMU wall) along the northern project property boundary was evaluated. The evaluation concluded that a wall having a minimum height of 20 feet would be required along a 400+ foot section of the property line to satisfy the City's 45 dB L_{eq}/L_{50} nighttime noise level standard at the property line of the nearest proposed residential uses. However, the construction of such wall is believed to be an infeasible measure for the project. To comply with the City's 45 dB L_{eq}/L_{50} nighttime noise level standard at the nearest proposed residential uses, one of the following two options (improvement measures) is recommended:

Option 1

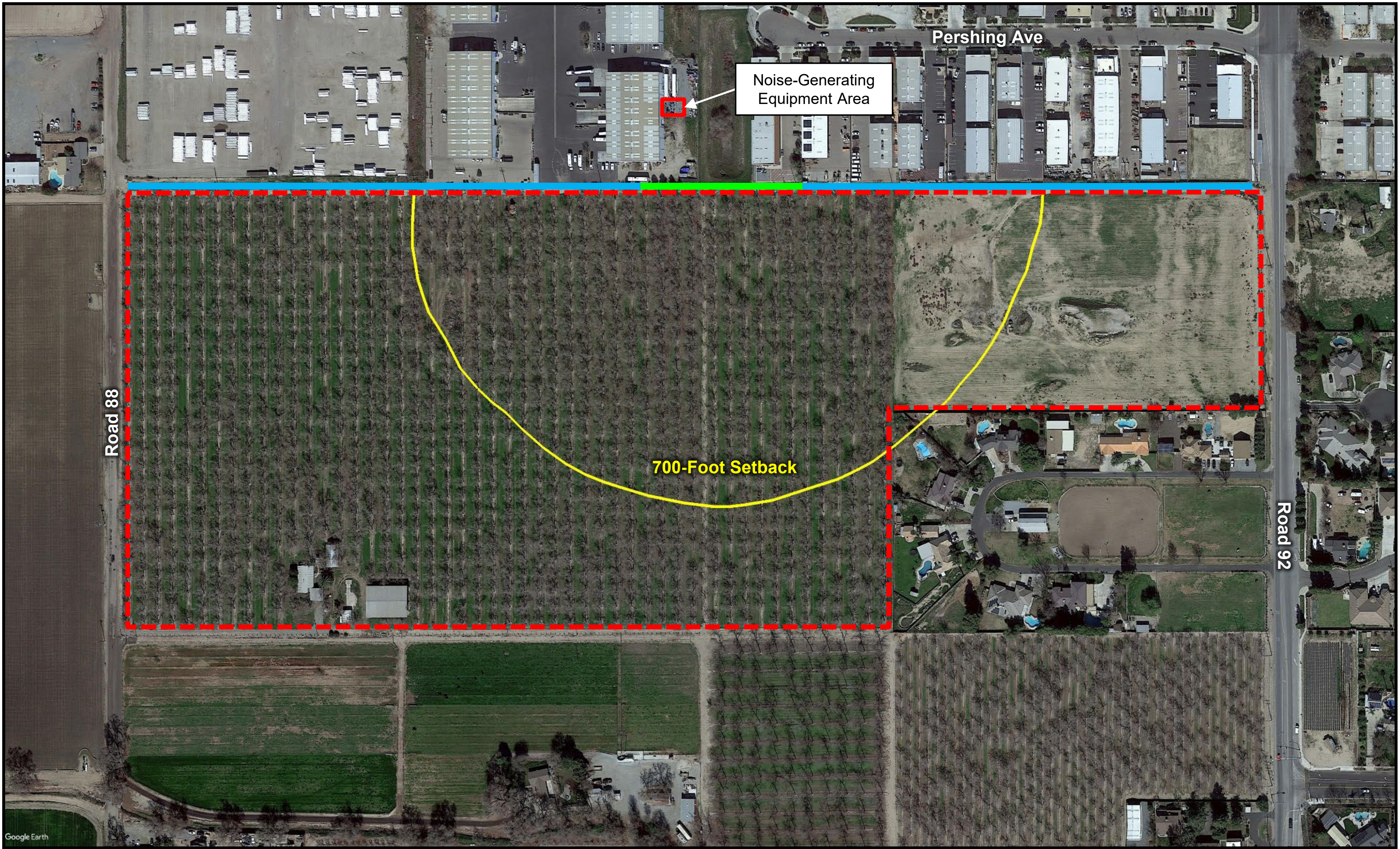
a. The project developer should construct a continuous CMU wall ranging from 8 to 12-feet in height at the locations illustrated on Figure 7. This improvement measure would include removal and replacement of existing chain-link fencing with CMU wall and increasing existing CMU wall heights to the indicated heights shown in Figures 7 and 8.

b. In addition to Option 1a above, the project developer should ensure that the residential lots proposed within the development have a minimum setback of 700 feet from the recommended 12-foot wall shown on Figures 7 and 8. The contoured lot setback distance of 700 feet is illustrated on Figure 7.

Option 2

a. The project developer should construct a continuous CMU wall having a minimum height of 8-feet along the northern project property boundary, as indicated on Figure 9. This improvement measure would include removal and replacement of existing chain-link fencing with CMU wall and increasing existing CMU wall heights to 8-feet (where applicable).

b. In addition to Option 2a above, a localized noise barrier should be constructed around the identified equipment area adjacent to BAC monitoring site 2. The location of the stationary equipment area is illustrated on Figure 10. Specifically, the project developer should coordinate with the owner of the adjacent industrial use in the installation a localized noise barrier around the identified stationary equipment on the property. It is estimated that a localized noise barrier would need to be a minimum of 10-feet in height, however a specific noise assessment would need to be completed by a qualified acoustical consultant to determine the ultimate height required for compliance. The benefits of a barrier located immediately adjacent to noise source in question would be that a barrier at that location would be more effective in reducing noise, less of a visual impact, and considerably more cost effective to implement. In addition, it would negate the requirement of a taller barrier along a portion of the property line (i.e., 12 feet), thereby affording a uniform 8-foot tall barrier along the northern property line.



Legend

- Project Boundary (Approximate)
- Recommended 8' CMU Wall (Approximate)
- Recommended 12' CMU Wall (Approximate)
- Recommended 700-Foot Lot Setback

N

Scale (Feet)

0 150 300

Iron Ridge Development I & II
Visalia, California

Industrial Noise Reduction – Option 1a & 1b

Figure 7

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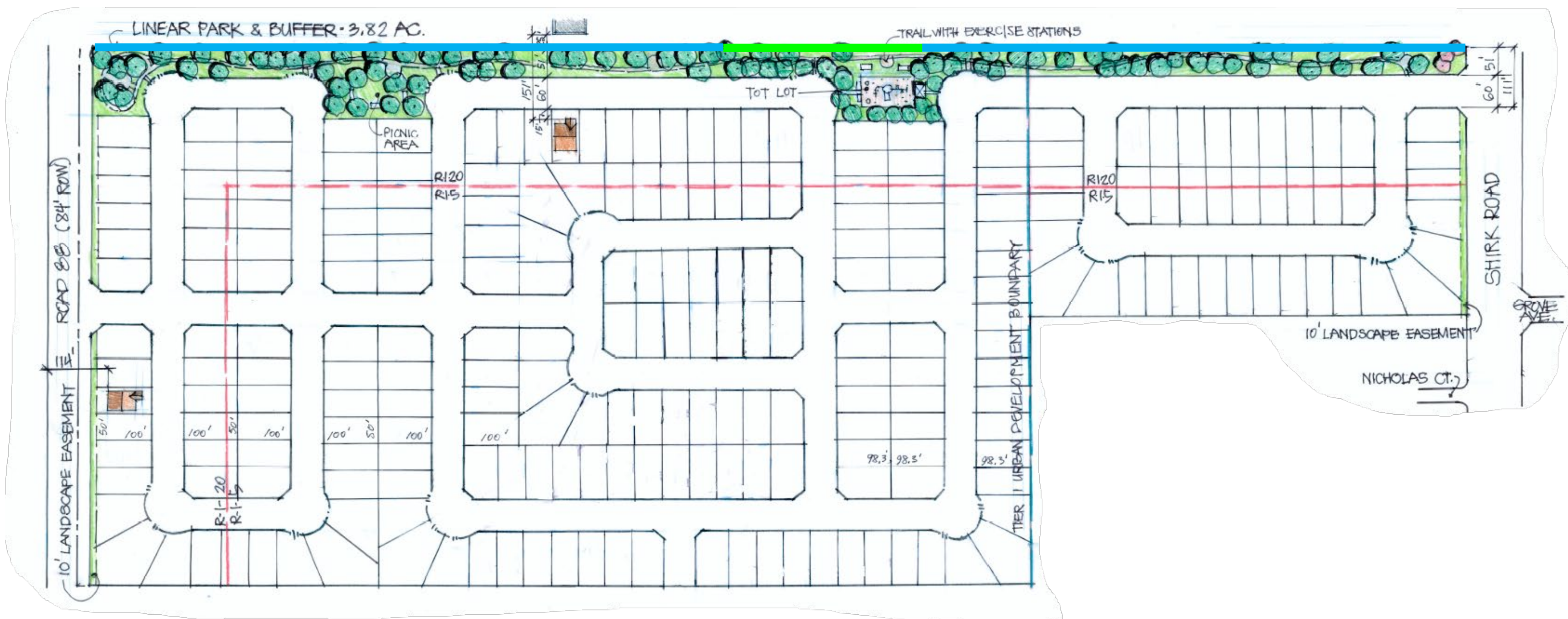

Legend

Recommended 8' CMU Wall (Approximate)

Recommended 12' CMU Wall (Approximate)

N

Scale (Feet)

0 100 200

Iron Ridge Development I & II
Visalia, California

Industrial Noise Reduction – Option 1a

Figure 8

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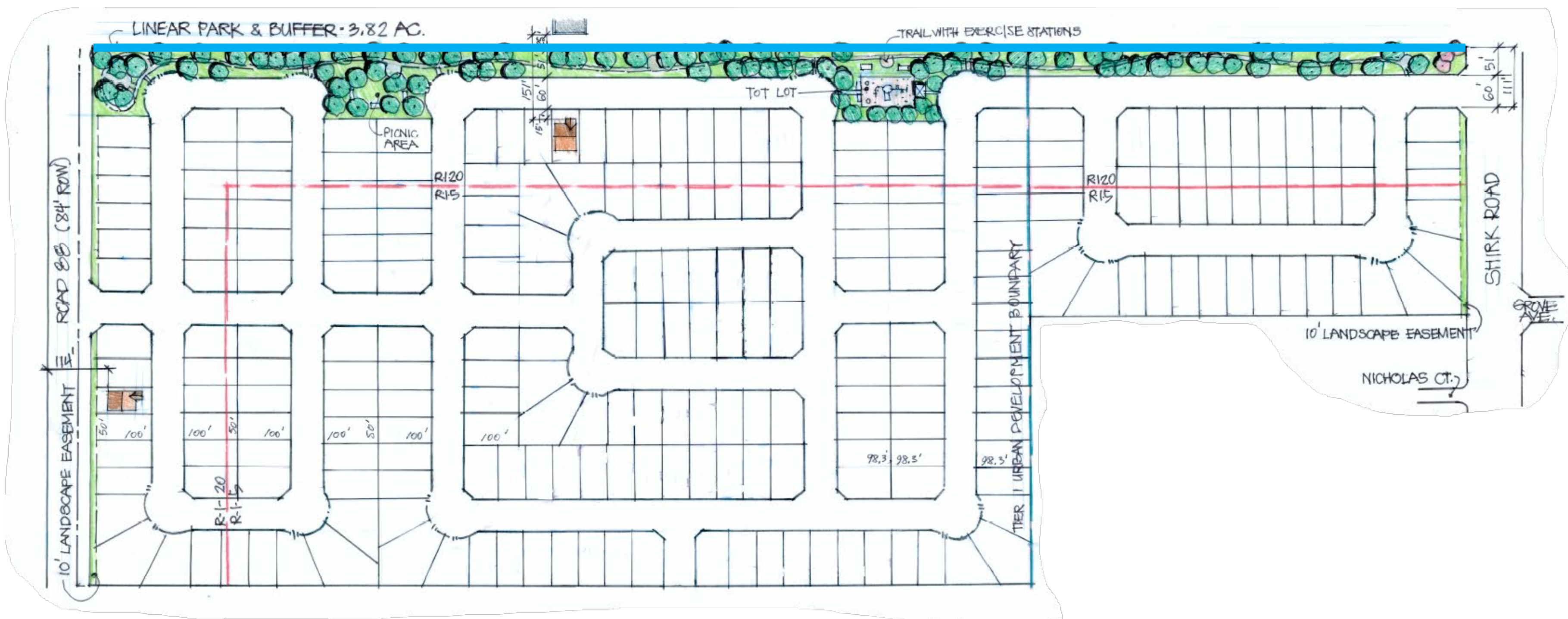


Legend

Recommended 8' CMU Wall (Approximate)

N

Scale (Feet)

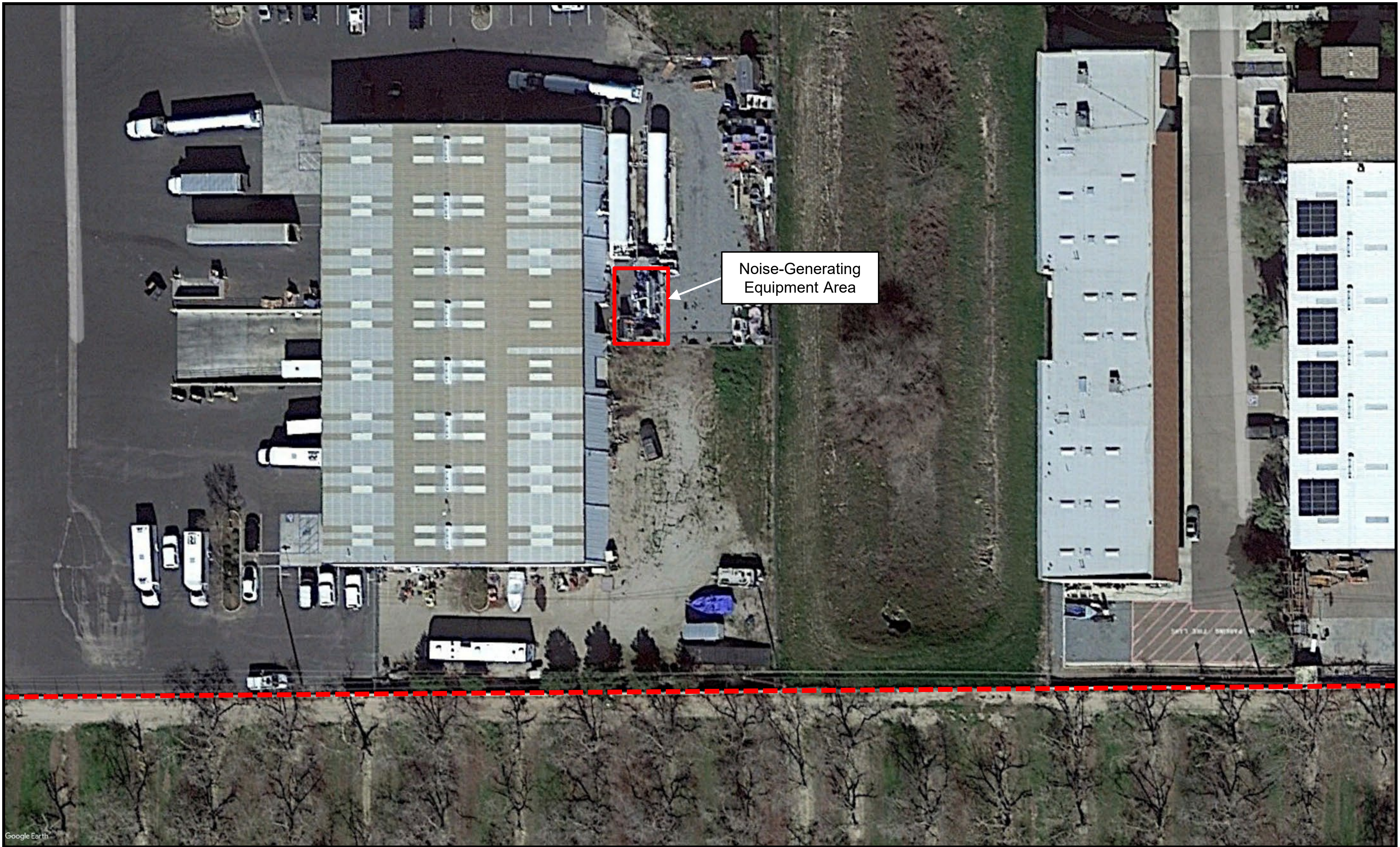
0 100 200

Iron Ridge Development I & II
Visalia, California

Industrial Noise Reduction – Option 2a

Figure 9

BOLLARD Acoustical Consultants



Legend

Project Boundary (Approximate)

N

Scale (Feet)

0 25 50

Iron Ridge Development I & II
Visalia, California

Industrial Noise Reduction – Option 2b

Figure 10

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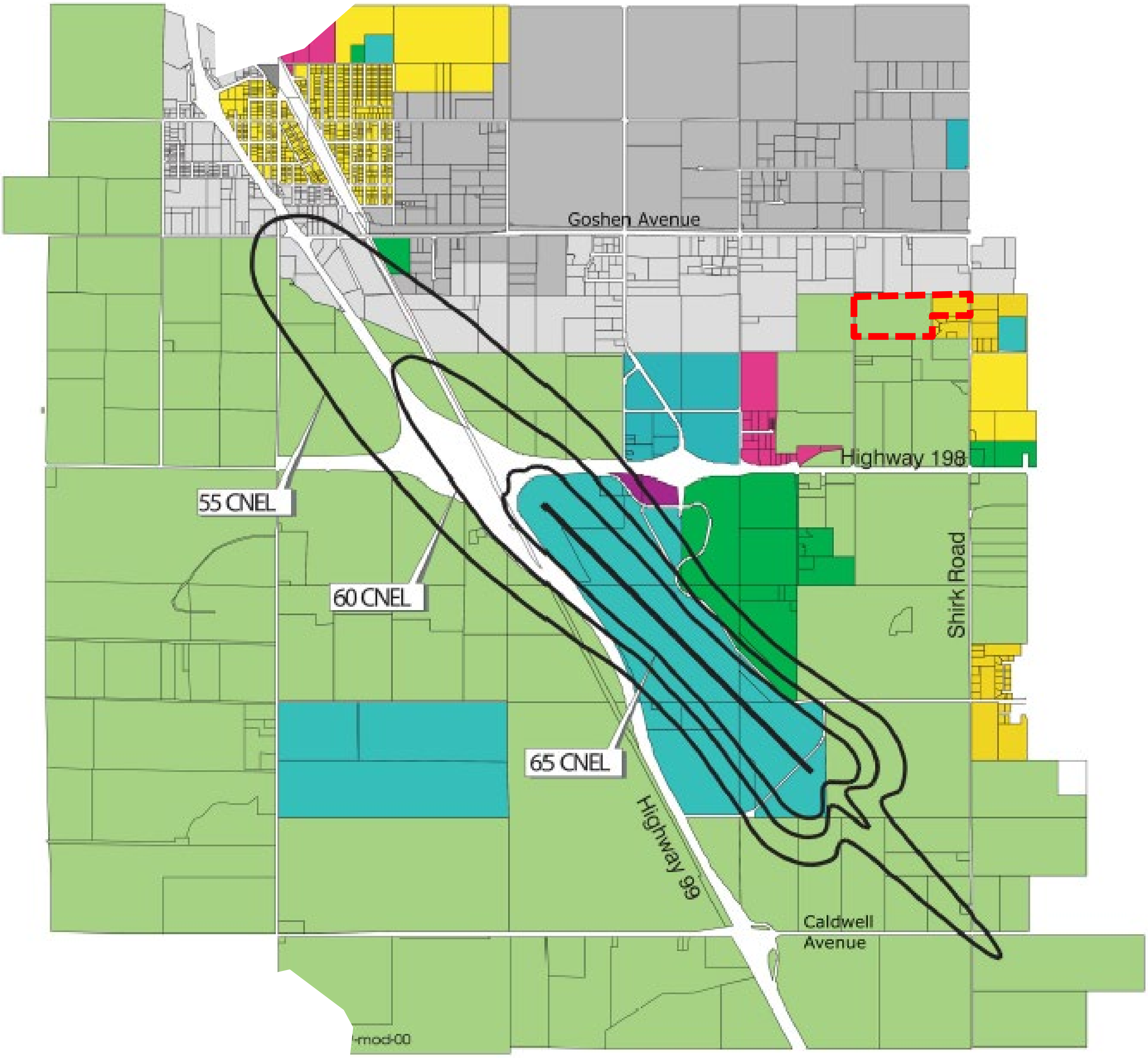
Impact 10: Airport Operations Noise at Proposed Residential Uses

The Iron Ridge Development is located approximately 1 ¼ miles to the northeast of Visalia Municipal Airport. According to Figure 3.10-2 (Airport Noise Contours 2019) of the Visalia General Plan Draft Environmental Impact Report, the proposed development is geographically located well outside of the established 55 dB CNEL airport noise contour. The airport noise contour map in provided as Figure 11.

Based on the information above, analysis of the BAC long-term noise level survey results within the project area, and after consideration of the exterior to interior noise level reduction achieved within standard residential building construction (at least 25 dB with windows closed and approximately 15 dB with windows open), noise generated from normal aircraft operations at the Visalia Municipal Airport is not expected to exceed the applicable Visalia General Plan exterior or interior noise level standards for residential uses. As a result, no further consideration of improvement measures would be warranted for aircraft noise at the project site.



Legend

Project Area Boundary (Approximate)

N

Scale (Feet)

0 2,000 4,000

Iron Ridge Development I & II
Visalia, California

Visalia Municipal Airport Noise Contours 2019

Figure 11

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This concludes BAC's noise and vibration assessment of the Iron Ridge Development I & II in Visalia, California. Please contact BAC at (530) 537-2328 or dariog@bacnoise.com if you have any comments or questions regarding this report.

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

IIC Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_{eq} Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

STC Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.

Appendix B-1
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 01 Existing
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	10,240	83	17	2	1	45	100
2		South	7,375	83	17	2	1	45	100
3		East	3,425	83	17	2	1	65	100
4		West	3,070	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	13,220	83	17	2	1	45	100
6		South	10,225	83	17	2	1	45	100
7		East	3,120	83	17	2	1	65	100
8		West	3,085	83	17	2	1	65	100
9	(3) Hillsdale Ave / Road 92	North	12,845	83	17	2	1	45	100
10		South	13,245	83	17	2	1	45	100
11		East	1,020	83	17	1	1	25	100
12		West							
13	(4) School Ave / Road 92	North	12,525	83	17	2	1	45	100
14		South	12,835	83	17	2	1	45	100
15		East	450	83	17	1	1	25	100
16		West							
17	(5) Hurley Ave / Road 92	North	12,280	83	17	2	1	40	100
18		South	12,505	83	17	2	1	45	100
19		East	3,315	83	17	1	1	40	100
20		West							
21	(6) Allen Ave / Road 92	North	11,400	83	17	2	1	40	100
22		South	11,400	83	17	2	1	40	100
23		East							
24		West							
25	(7) Goshen Ave / Road 92	North	8,070	83	17	2	1	40	100
26		South	10,510	83	17	2	1	40	100
27		East	6,065	83	17	2	1	55	100
28		West	6,975	83	17	2	1	55	100
29	(8) Project Drvwy / Road 88	North	405	83	17	2	1	40	100
30		South	405	83	17	2	1	40	100
31		East							
32		West							
33	(9) Goshen Ave / Road 88	North							
34		South	405	83	17	2	1	40	100
35		East	6,885	83	17	2	1	55	100
36		West	6,830	83	17	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-2
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 02 Opening Year
Model Run Date: 1/20/2022

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	11,915	83	17	2	1	45	100
2		South	8,005	83	17	2	1	45	100
3		East	4,015	83	17	2	1	65	100
4		West	3,605	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	16,045	83	17	2	1	45	100
6		South	11,955	83	17	2	1	45	100
7		East	3,795	83	17	2	1	65	100
8		West	3,575	83	17	2	1	65	100
9	(3) Hillsdale Ave / Road 92	North	15,340	83	17	2	1	45	100
10		South	16,075	83	17	2	1	45	100
11		East	1,645	83	17	1	1	25	100
12		West							
13	(4) School Ave / Road 92	North	15,020	83	17	2	1	45	100
14		South	15,340	83	17	2	1	45	100
15		East	460	83	17	1	1	25	100
16		West							
17	(5) Hurley Ave / Road 92	North	14,730	83	17	2	1	40	100
18		South	15,005	83	17	2	1	45	100
19		East	4,055	83	17	1	1	40	100
20		West							
21	(6) Allen Ave / Road 92	North	13,875	83	17	2	1	40	100
22		South	13,875	83	17	2	1	40	100
23		East							
24		West							
25	(7) Goshen Ave / Road 92	North	9,980	83	17	2	1	40	100
26		South	12,925	83	17	2	1	40	100
27		East	6,490	83	17	2	1	55	100
28		West	8,355	83	17	2	1	55	100
29	(8) Project Drvwy / Road 88	North	405	83	17	2	1	40	100
30		South	405	83	17	2	1	40	100
31		East							
32		West							
33	(9) Goshen Ave / Road 88	North							
34		South	1,575	83	17	2	1	40	100
35		East	7,785	83	17	2	1	55	100
36		West	7,850	83	17	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-3
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 03 Opening Year+Project
Model Run Date: 1/20/2022

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	12,710	83	17	2	1	45	100
2		South	8,105	83	17	2	1	45	100
3		East	4,520	83	17	2	1	65	100
4		West	3,795	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	17,480	83	17	2	1	45	100
6		South	12,745	83	17	2	1	45	100
7		East	4,220	83	17	2	1	65	100
8		West	3,795	83	17	2	1	65	100
9	(3) Hillsdale Ave / Road 92	North	16,770	83	17	2	1	45	100
10		South	17,505	83	17	2	1	45	100
11		East	1,645	83	17	1	1	25	100
12		West							
13	(4) School Ave / Road 92	North	16,470	83	17	2	1	45	100
14		South	16,790	83	17	2	1	45	100
15		East	460	83	17	1	1	25	100
16		West							
17	(5) Hurley Ave / Road 92	North	16,360	83	17	2	1	40	100
18		South	16,430	83	17	2	1	45	100
19		East	4,260	83	17	1	1	40	100
20		West							
21	(6) Allen Ave / Road 92	North	14,080	83	17	2	1	40	100
22		South	15,510	83	17	2	1	40	100
23		East							
24		West	1,840	83	17	1	1	25	100
25	(7) Goshen Ave / Road 92	North	10,085	83	17	2	1	40	100
26		South	13,130	83	17	2	1	40	100
27		East	6,690	83	17	2	1	55	100
28		West	8,455	83	17	2	1	55	100
29	(8) Project Drvwy / Road 88	North	615	83	17	2	1	40	100
30		South	410	83	17	2	1	40	100
31		East	205	84	16	1	1	25	100
32		West							
33	(9) Goshen Ave / Road 88	North							
34		South	1,785	83	17	2	1	40	100
35		East	7,890	83	17	2	1	55	100
36		West	7,955	83	17	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-4
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 04 5-Year Horizon
Model Run Date: 1/20/2022

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	13,000	83	17	2	1	45	100
2		South	8,785	83	17	2	1	45	100
3		East	4,380	83	17	2	1	65	100
4		West	3,925	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	17,450	83	17	2	1	45	100
6		South	13,040	83	17	2	1	45	100
7		East	4,115	83	17	2	1	65	100
8		West	3,895	83	17	2	1	65	100
9	(3) Hillsdale Ave / Road 92	North	16,710	83	17	2	1	45	100
10		South	17,485	83	17	2	1	45	100
11		East	1,755	83	17	1	1	25	100
12		West							
13	(4) School Ave / Road 92	North	16,350	83	17	2	1	45	100
14		South	16,695	83	17	2	1	45	100
15		East	505	83	17	1	1	25	100
16		West							
17	(5) Hurley Ave / Road 92	North	16,040	83	17	2	1	40	100
18		South	16,330	83	17	2	1	45	100
19		East	4,410	83	17	1	1	40	100
20		West							
21	(6) Allen Ave / Road 92	North	15,320	83	17	2	1	40	100
22		South	15,320	83	17	2	1	40	100
23		East							
24		West							
25	(7) Goshen Ave / Road 92	North	10,830	83	17	2	1	40	100
26		South	14,040	83	17	2	1	40	100
27		East	7,125	83	17	2	1	55	100
28		West	9,085	83	17	2	1	55	100
29	(8) Project Drvwy / Road 88	North	455	83	17	2	1	40	100
30		South	455	83	17	2	1	40	100
31		East							
32		West							
33	(9) Goshen Ave / Road 88	North							
34		South	1,620	83	17	2	1	40	100
35		East	8,520	83	17	2	1	55	100
36		West	8,570	83	17	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-5
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 05 5-Year Horizon+Project
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	13,780	83	17	2	1	45	100
2		South	8,885	83	17	2	1	45	100
3		East	4,870	83	17	2	1	65	100
4		West	4,115	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	18,890	83	17	2	1	45	100
6		South	13,825	83	17	2	1	45	100
7		East	4,550	83	17	2	1	65	100
8		West	4,115	83	17	2	1	65	100
9	(3) Hillsdale Ave / Road 92	North	18,140	83	17	2	1	45	100
10		South	18,915	83	17	2	1	45	100
11		East	1,755	83	17	1	1	25	100
12		West							
13	(4) School Ave / Road 92	North	17,780	83	17	2	1	45	100
14		South	18,125	83	17	2	1	45	100
15		East	505	83	17	1	1	25	100
16		West							
17	(5) Hurley Ave / Road 92	North	17,645	83	17	2	1	40	100
18		South	17,760	83	17	2	1	45	100
19		East	4,585	83	17	1	1	40	100
20		West							
21	(6) Allen Ave / Road 92	North	15,525	83	17	2	1	40	100
22		South	16,955	83	17	2	1	40	100
23		East							
24		West	1,840	83	17	1	1	25	100
25	(7) Goshen Ave / Road 92	North	10,935	83	17	2	1	40	100
26		South	14,235	83	17	2	1	40	100
27		East	7,335	83	17	2	1	55	100
28		West	9,175	83	17	2	1	55	100
29	(8) Project Drvwy / Road 88	North	660	83	17	2	1	40	100
30		South	455	83	17	2	1	40	100
31		East	205	84	16	1	1	25	100
32		West							
33	(9) Goshen Ave / Road 88	North							
34		South	1,830	83	17	2	1	40	100
35		East	8,620	83	17	2	1	55	100
36		West	8,745	83	17	2	1	55	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-6
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 06 10-Year Horizon
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	14,620	83	17	2	1	45	100
2		South	9,945	83	17	2	1	45	100
3		East	4,920	83	17	2	1	65	100
4		West	4,415	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	19,550	83	17	2	1	45	100
6		South	14,660	83	17	2	1	45	100
7		East	4,620	83	17	2	1	65	100
8		West	4,400	83	17	2	1	65	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-7
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 07 10-Year Horizon+Project
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	15,400	83	17	2	1	45	100
2		South	10,050	83	17	2	1	45	100
3		East	5,410	83	17	2	1	65	100
4		West	4,600	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	20,970	83	17	2	1	45	100
6		South	15,440	83	17	2	1	45	100
7		East	5,045	83	17	2	1	65	100
8		West	4,615	83	17	2	1	65	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-8
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 08 20-Year Horizon
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	17,955	83	17	2	1	45	100
2		South	12,350	83	17	2	1	45	100
3		East	6,040	83	17	2	1	65	100
4		West	5,415	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	23,885	83	17	2	1	45	100
6		South	18,010	83	17	2	1	45	100
7		East	5,640	83	17	2	1	65	100
8		West	5,405	83	17	2	1	65	100

Note: Blank cells represent roadways for which no traffic data was provided.

Appendix B-9
FHWA Highway Traffic Noise Prediction Model Data Inputs
Iron Ridge Development I II
File Name: 09 20-Year Horizon+Project
Model Run Date: 1/20/2022

BOLLARD Acoustical

Segment	Intersection	Direction	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
1	(1) SR-198 EB Ramps / Road 92	North	18,740	83	17	2	1	45	100
2		South	12,455	83	17	2	1	45	100
3		East	6,530	83	17	2	1	65	100
4		West	5,605	83	17	2	1	65	100
5	(2) SR-198 WB Ramps / Road 92	North	25,350	83	17	2	1	45	100
6		South	18,790	83	17	2	1	45	100
7		East	6,065	83	17	2	1	65	100
8		West	5,665	83	17	2	1	65	100

Note: Blank cells represent roadways for which no traffic data was provided.

Legend

A: Site 1: Facing north towards industrial uses
B: Site 2: Facing north towards industrial uses and noise-generating equipment area
C: Site 3: Facing north towards industrial uses and existing 7’ masonry wall
D: Site 4: Facing east towards Road 92

Iron Ridge Development I & II
Visalia, California

Noise Survey Photographs – All Sites

Appendix C-1

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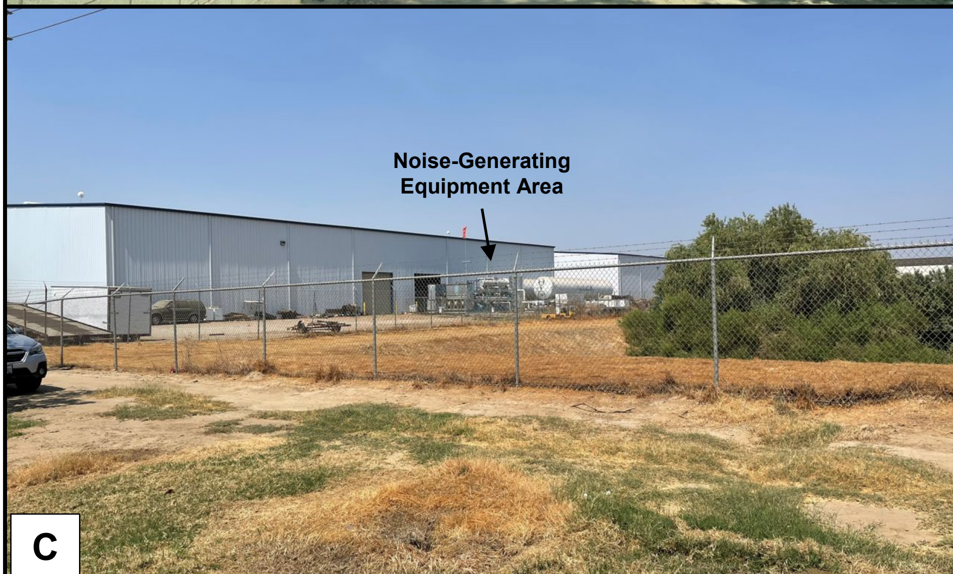

Legend

A: Site 2: Facing east along existing 8' CMU wall
B: Site 2: Facing east towards section of chain-link fence (no wall)
C: Site 2: Facing north towards noise-generating stationary equipment area at industrial use
D: Site 2: Noise meter reading with equipment in operation - no wall (63 dB at 180' from equipment area)
E: Site 2: Noise meter reading with equipment in operation - behind existing nearby 8' foot wall (54 dB at 180' from equipment area)

Iron Ridge Development I & II
Visalia, California

Noise Survey Photographs – Site 2

Appendix C-2

BOLLARD
Acoustical Consultants

Appendix D-1
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21

Hour	Leq	Lmax	L50	L90
1:00 PM	47	54	47	45
2:00 PM	47	58	46	44
3:00 PM	48	57	48	45
4:00 PM	48	59	47	45
5:00 PM	50	56	50	47
6:00 PM	50	64	49	47
7:00 PM	51	64	50	46
8:00 PM	52	57	52	50
9:00 PM	51	59	51	49
10:00 PM	50	63	49	48
11:00 PM	51	57	50	48
12:00 AM	47	55	47	45
1:00 AM	48	62	48	46
2:00 AM	48	56	48	46
3:00 AM	47	52	47	46
4:00 AM	47	56	47	46
5:00 AM	47	56	47	46
6:00 AM	48	56	48	47
7:00 AM	49	63	49	48
8:00 AM	48	64	47	44
9:00 AM	43	55	42	40
10:00 AM	48	74	43	39
11:00 AM	41	61	40	39
12:00 PM	42	54	41	39

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	52	41	49	51	47	48
Lmax (Maximum)	74	54	60	63	52	57
L50 (Median)	52	40	47	50	47	48
L90 (Background)	50	39	44	48	45	46

Computed DNL, dB	55
% Daytime Energy	65%
% Nighttime Energy	35%

GPS Coordinates	36°20'17.64" N
	119°22'28.28" W

BOLLARD
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Appendix D-2
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21

Hour	Leq	Lmax	L50	L90
1:00 PM	49	74	41	39
2:00 PM	43	58	42	40
3:00 PM	42	53	41	39
4:00 PM	44	52	43	40
5:00 PM	46	53	45	42
6:00 PM	47	58	47	44
7:00 PM	48	61	48	45
8:00 PM	50	62	50	48
9:00 PM	52	62	51	50
10:00 PM	50	57	50	48
11:00 PM	51	63	51	49
12:00 AM	52	58	51	50
1:00 AM	49	57	49	47
2:00 AM	49	54	49	48
3:00 AM	50	58	50	47
4:00 AM	48	54	48	47
5:00 AM	50	56	50	49
6:00 AM	51	60	51	49
7:00 AM	53	58	53	51
8:00 AM	49	61	48	46
9:00 AM	48	71	45	43
10:00 AM	45	61	44	43
11:00 AM	46	61	44	42
12:00 PM	45	58	44	43

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	53	42	48	52	48	50
Lmax (Maximum)	74	52	60	63	54	57
L50 (Median)	53	41	46	51	48	50
L90 (Background)	51	39	44	50	47	48

Computed DNL, dB	56
% Daytime Energy	51%
% Nighttime Energy	49%

GPS Coordinates	36°20'17.64" N 119°22'28.28" W

BOLLARD
Acoustical Consultants

Appendix D-3
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21

Hour	Leq	Lmax	L50	L90
1:00 PM	48	70	44	42
2:00 PM	45	63	43	42
3:00 PM	44	54	44	42
4:00 PM	45	60	45	42
5:00 PM	46	58	46	44
6:00 PM	45	57	45	43
7:00 PM	48	56	48	45
8:00 PM	51	61	50	48
9:00 PM	51	62	51	49
10:00 PM	53	58	51	49
11:00 PM	52	57	51	49
12:00 AM	51	56	50	49
1:00 AM	49	53	49	47
2:00 AM	50	57	49	47
3:00 AM	50	58	49	48
4:00 AM	50	59	50	48
5:00 AM	52	61	51	48
6:00 AM	53	62	53	50
7:00 AM	55	74	54	52
8:00 AM	50	68	48	46
9:00 AM	45	60	44	43
10:00 AM	46	61	44	42
11:00 AM	45	61	42	41
12:00 PM	46	69	43	41

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	55	44	49	53	49	51
Lmax (Maximum)	74	54	62	62	53	58
L50 (Median)	54	42	46	53	49	50
L90 (Background)	52	41	44	50	47	48

Computed DNL, dB	57
% Daytime Energy	48%
% Nighttime Energy	52%

GPS Coordinates	36°20'17.64" N 119°22'28.28" W

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Appendix D-4
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21

Hour	Leq	Lmax	L50	L90
1:00 PM	60	64	60	59
2:00 PM	60	63	60	58
3:00 PM	60	64	60	59
4:00 PM	60	66	60	59
5:00 PM	60	65	60	59
6:00 PM	61	68	61	59
7:00 PM	62	65	62	60
8:00 PM	61	65	61	60
9:00 PM	61	66	61	60
10:00 PM	60	62	59	58
11:00 PM	61	64	61	61
12:00 AM	58	69	59	49
1:00 AM	49	57	49	48
2:00 AM	50	54	50	49
3:00 AM	50	56	50	49
4:00 AM	50	56	50	48
5:00 AM	50	70	50	48
6:00 AM	52	69	52	50
7:00 AM	52	57	52	50
8:00 AM	58	71	57	53
9:00 AM	57	60	57	56
10:00 AM	57	59	57	55
11:00 AM	57	60	57	56
12:00 PM	59	62	59	57

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	62	52	60	61	49	56
Lmax (Maximum)	71	57	64	70	54	62
L50 (Median)	62	52	59	61	49	53
L90 (Background)	60	50	57	61	48	51

Computed DNL, dB	63
% Daytime Energy	79%
% Nighttime Energy	21%

GPS Coordinates	36°20'17.56" N
	119°22'19.23" W

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Appendix D-5
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21

Hour	Leq	Lmax	L50	L90
1:00 PM	59	79	59	57
2:00 PM	59	64	58	57
3:00 PM	60	62	60	59
4:00 PM	65	84	60	59
5:00 PM	60	63	60	58
6:00 PM	60	65	60	58
7:00 PM	62	65	62	59
8:00 PM	61	65	61	59
9:00 PM	61	64	61	60
10:00 PM	61	64	61	61
11:00 PM	62	68	62	60
12:00 AM	62	64	62	60
1:00 AM	62	65	62	61
2:00 AM	62	65	62	60
3:00 AM	60	64	60	59
4:00 AM	53	68	49	47
5:00 AM	51	61	51	49
6:00 AM	54	61	52	50
7:00 AM	55	60	55	52
8:00 AM	58	71	58	51
9:00 AM	58	61	58	57
10:00 AM	57	60	57	55
11:00 AM	57	62	57	55
12:00 PM	59	63	59	57

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	65	55	60	62	51	60
Lmax (Maximum)	84	60	66	68	61	64
L50 (Median)	62	55	59	62	49	58
L90 (Background)	60	51	57	61	47	56

Computed DNL, dB	66
% Daytime Energy	62%
% Nighttime Energy	38%

GPS Coordinates	36°20'17.56" N 119°22'19.23" W

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Appendix D-6
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21

Hour	Leq	Lmax	L50	L90
1:00 PM	64	82	59	56
2:00 PM	59	62	59	57
3:00 PM	60	64	60	58
4:00 PM	61	66	61	60
5:00 PM	61	66	61	60
6:00 PM	63	67	62	60
7:00 PM	62	64	62	60
8:00 PM	61	64	61	59
9:00 PM	61	63	61	59
10:00 PM	61	64	61	60
11:00 PM	61	65	61	59
12:00 AM	59	62	59	58
1:00 AM	61	63	61	59
2:00 AM	60	63	60	59
3:00 AM	57	62	59	49
4:00 AM	51	65	51	48
5:00 AM	54	67	52	49
6:00 AM	60	67	60	59
7:00 AM	59	72	59	58
8:00 AM	58	66	58	57
9:00 AM	57	60	57	56
10:00 AM	57	61	57	56
11:00 AM	58	61	58	57
12:00 PM	64	82	58	57

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	57	61	61	51	59
Lmax (Maximum)	82	60	67	67	62	64
L50 (Median)	62	57	60	61	51	58
L90 (Background)	60	56	58	60	48	55

Computed DNL, dB	66
% Daytime Energy	71%
% Nighttime Energy	29%

GPS Coordinates	36°20'17.56" N 119°22'19.23" W

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Appendix D-7
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21

Hour	Leq	Lmax	L50	L90
12:00 PM	45	67	40	38
1:00 PM	41	51	40	38
2:00 PM	41	50	40	38
3:00 PM	45	55	45	40
4:00 PM	50	60	50	45
5:00 PM	55	70	55	50
6:00 PM	60	75	60	54
7:00 PM	61	78	58	56
8:00 PM	61	76	60	59
9:00 PM	61	71	60	58
10:00 PM	61	76	59	58
11:00 PM	61	73	59	57
12:00 AM	65	96	48	41
1:00 AM	47	62	45	42
2:00 AM	47	60	45	42
3:00 AM	45	58	43	40
4:00 AM	45	58	42	40
5:00 AM	47	59	43	39
6:00 AM	49	62	46	43
7:00 AM	50	63	49	45
8:00 AM	48	60	48	45
9:00 AM	42	52	41	39
10:00 AM	41	50	41	39
11:00 AM	41	51	40	38

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	41	56	65	45	58
Lmax (Maximum)	78	50	62	96	58	67
L50 (Median)	60	40	48	59	42	48
L90 (Background)	59	38	45	58	39	45

Computed DNL, dB	64
% Daytime Energy	50%
% Nighttime Energy	50%

GPS Coordinates	36°20'17.41" N 119°22'10.53" W

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Appendix D-8
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21

Hour	Leq	Lmax	L50	L90
12:00 PM	40	54	39	37
1:00 PM	47	72	38	36
2:00 PM	50	65	39	36
3:00 PM	52	67	40	40
4:00 PM	55	70	45	45
5:00 PM	57	72	50	50
6:00 PM	60	75	55	55
7:00 PM	60	75	58	56
8:00 PM	60	73	59	57
9:00 PM	61	74	60	58
10:00 PM	61	72	60	58
11:00 PM	60	70	60	58
12:00 AM	66	98	49	46
1:00 AM	48	60	47	44
2:00 AM	46	61	45	43
3:00 AM	49	59	47	45
4:00 AM	52	62	50	45
5:00 AM	54	63	53	48
6:00 AM	55	67	54	50
7:00 AM	56	64	56	53
8:00 AM	51	65	50	47
9:00 AM	48	57	47	45
10:00 AM	47	57	47	45
11:00 AM	46	56	45	43

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	40	56	66	46	59
Lmax (Maximum)	75	54	66	98	59	68
L50 (Median)	60	38	48	60	45	52
L90 (Background)	58	36	47	58	43	49

Computed DNL, dB	65
% Daytime Energy	44%
% Nighttime Energy	56%

GPS Coordinates	36°20'17.41" N 119°22'10.53" W

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Appendix D-9
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21

Hour	Leq	Lmax	L50	L90
12:00 PM	44	59	43	41
1:00 PM	46	68	43	40
2:00 PM	48	63	42	39
3:00 PM	50	65	45	40
4:00 PM	52	67	50	45
5:00 PM	55	70	55	50
6:00 PM	57	72	60	55
7:00 PM	60	75	64	58
8:00 PM	61	77	59	57
9:00 PM	61	72	60	58
10:00 PM	60	75	59	58
11:00 PM	60	72	58	57
12:00 AM	60	73	59	58
1:00 AM	59	70	58	56
2:00 AM	68	102	51	46
3:00 AM	50	72	48	46
4:00 AM	52	62	51	47
5:00 AM	55	62	54	49
6:00 AM	55	70	55	52
7:00 AM	57	66	57	54
8:00 AM	51	70	50	47
9:00 AM	48	60	47	45
10:00 AM	47	60	46	43
11:00 AM	44	59	43	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	44	56	68	50	61
Lmax (Maximum)	77	59	67	102	62	73
L50 (Median)	64	42	51	59	48	55
L90 (Background)	58	39	48	58	46	52

Computed DNL, dB	67
% Daytime Energy	33%
% Nighttime Energy	67%

GPS Coordinates	36°20'17.41" N 119°22'10.53" W

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Appendix D-10
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21

Hour	Leq	Lmax	L50	L90
1:00 PM	59	75	53	43
2:00 PM	58	77	52	43
3:00 PM	64	95	52	42
4:00 PM	58	73	52	44
5:00 PM	58	74	53	46
6:00 PM	57	70	51	45
7:00 PM	60	82	55	47
8:00 PM	61	82	56	51
9:00 PM	57	72	53	49
10:00 PM	56	74	50	45
11:00 PM	55	70	51	47
12:00 AM	56	83	47	42
1:00 AM	53	74	47	44
2:00 AM	52	71	46	43
3:00 AM	52	68	44	41
4:00 AM	52	70	43	40
5:00 AM	54	69	44	40
6:00 AM	56	74	48	44
7:00 AM	57	73	50	45
8:00 AM	57	70	51	46
9:00 AM	57	73	49	41
10:00 AM	56	73	49	41
11:00 AM	58	76	51	40
12:00 PM	56	71	48	39

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	56	59	56	52	54
Lmax (Maximum)	95	70	76	83	68	73
L50 (Median)	56	48	52	51	43	47
L90 (Background)	51	39	44	47	40	43

Computed DNL, dB	62
% Daytime Energy	82%
% Nighttime Energy	18%

GPS Coordinates	36°20'17.60" N 119°22'04.87" W

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Appendix D-11
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21

Hour	Leq	Lmax	L50	L90
1:00 PM	56	71	48	39
2:00 PM	56	75	48	40
3:00 PM	56	74	47	39
4:00 PM	57	73	48	40
5:00 PM	57	71	50	42
6:00 PM	57	75	49	43
7:00 PM	60	74	55	46
8:00 PM	62	90	51	47
9:00 PM	58	74	51	47
10:00 PM	56	73	49	47
11:00 PM	55	71	51	49
12:00 AM	56	76	49	46
1:00 AM	53	72	48	46
2:00 AM	54	73	47	44
3:00 AM	57	71	51	47
4:00 AM	60	74	57	48
5:00 AM	63	74	60	51
6:00 AM	64	82	61	54
7:00 AM	64	76	63	57
8:00 AM	63	76	61	52
9:00 AM	62	80	59	51
10:00 AM	61	75	58	49
11:00 AM	61	86	57	48
12:00 PM	60	79	57	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	56	60	64	53	59
Lmax (Maximum)	90	71	77	82	71	74
L50 (Median)	63	47	53	61	47	52
L90 (Background)	57	39	46	54	44	48

Computed DNL, dB	66
% Daytime Energy	68%
% Nighttime Energy	32%

GPS Coordinates	36°20'17.60" N
	119°22'04.87" W

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Appendix D-12
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21

Hour	Leq	Lmax	L50	L90
1:00 PM	61	76	58	47
2:00 PM	61	76	59	47
3:00 PM	62	76	60	49
4:00 PM	62	84	60	50
5:00 PM	62	80	61	49
6:00 PM	60	75	57	47
7:00 PM	61	75	58	50
8:00 PM	59	72	56	50
9:00 PM	58	77	53	50
10:00 PM	56	71	51	49
11:00 PM	57	74	50	47
12:00 AM	54	70	48	46
1:00 AM	54	74	47	45
2:00 AM	55	75	49	45
3:00 AM	60	88	51	48
4:00 AM	60	73	57	50
5:00 AM	62	75	60	52
6:00 AM	63	76	61	56
7:00 AM	64	76	63	58
8:00 AM	63	76	62	53
9:00 AM	62	75	59	50
10:00 AM	61	78	58	48
11:00 AM	61	76	57	45
12:00 PM	63	90	58	46

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	58	62	63	54	59
Lmax (Maximum)	90	72	77	88	70	75
L50 (Median)	63	53	59	61	47	53
L90 (Background)	58	45	49	56	45	49

Computed DNL, dB	66
% Daytime Energy	74%
% Nighttime Energy	26%

GPS Coordinates	36°20'17.60" N
	119°22'04.87" W

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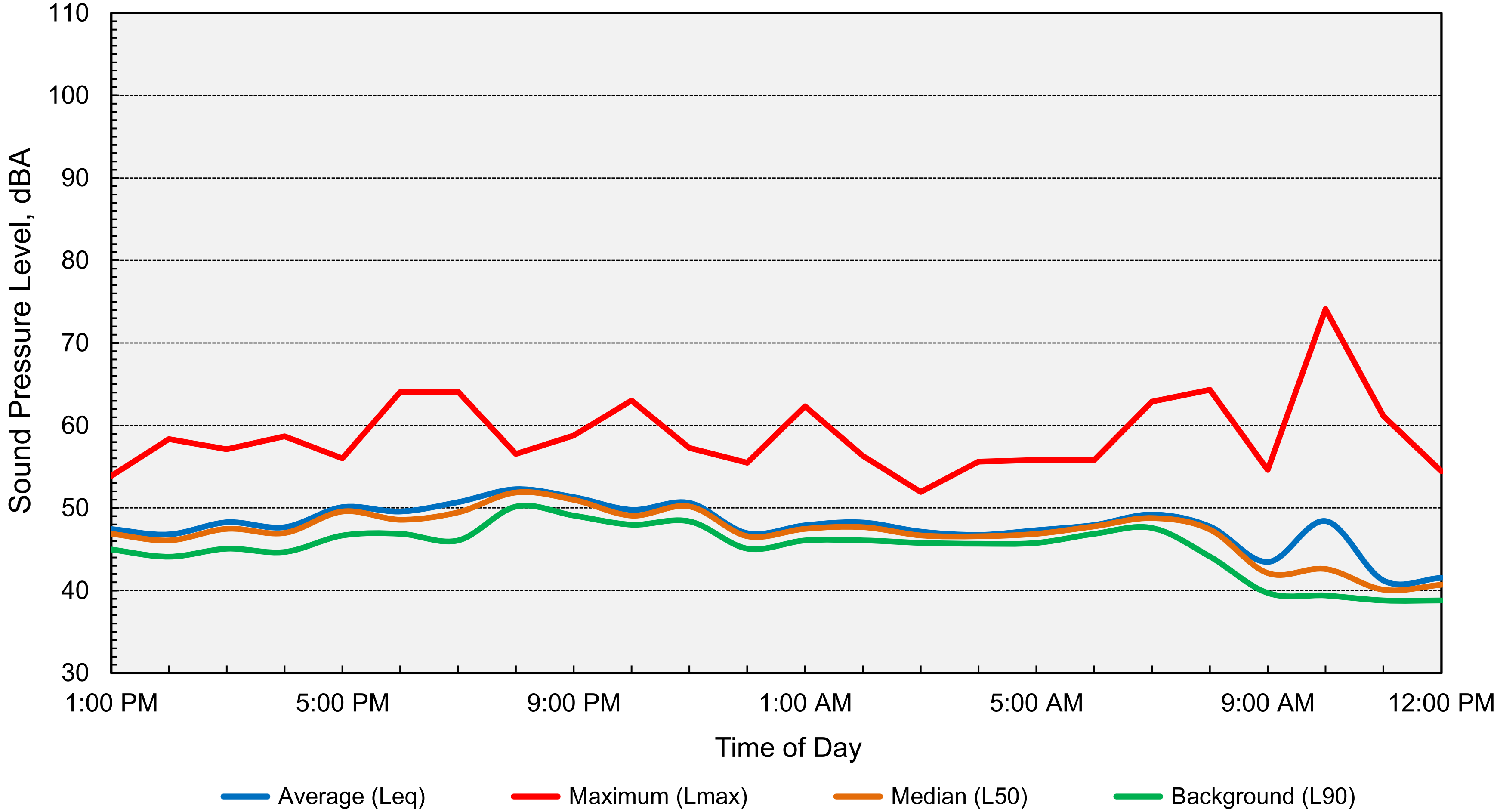
Appendix E-1
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21



Computed DNL = 55 dB

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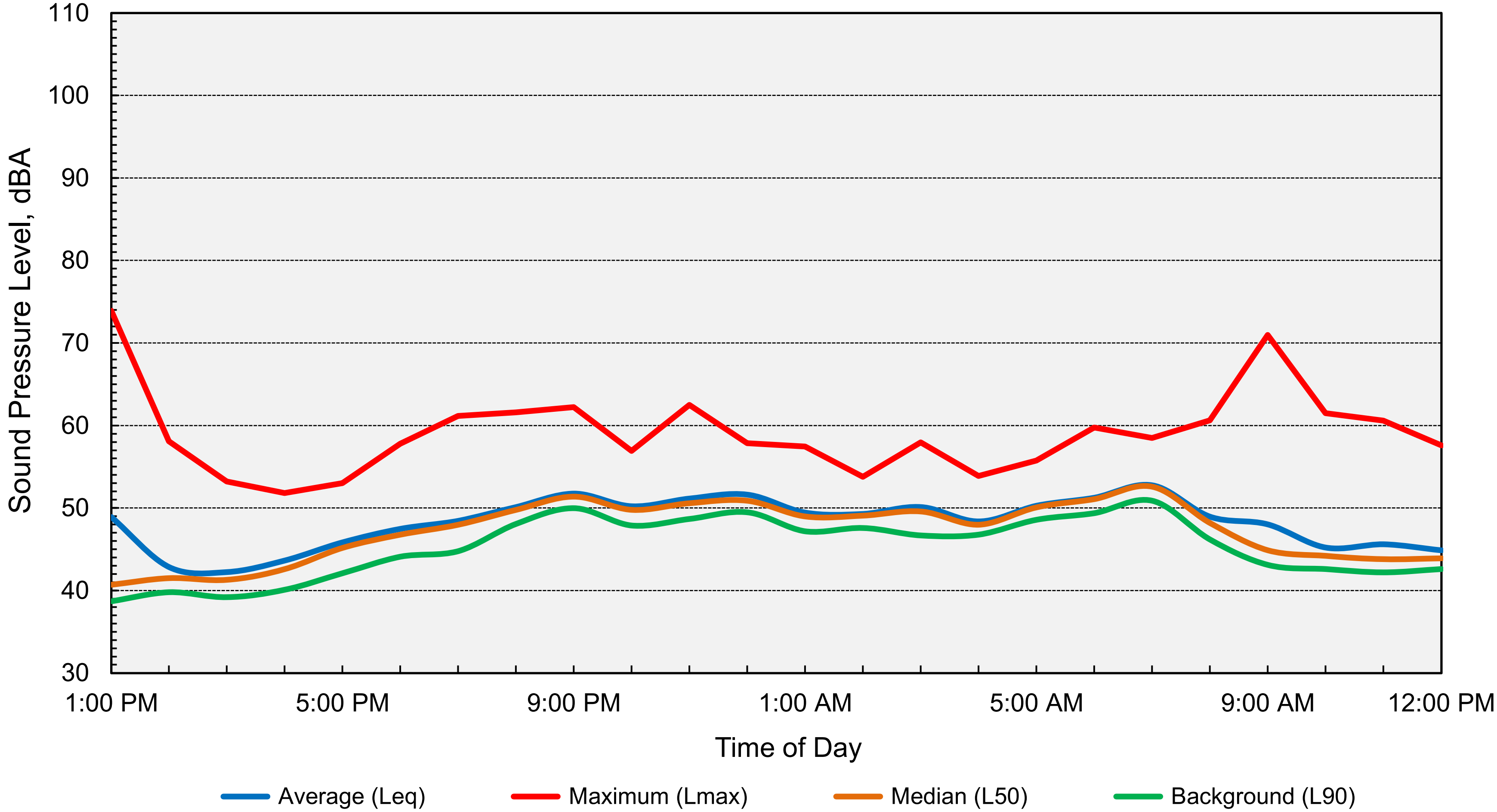
Appendix E-2
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21



Computed DNL = 56 dB

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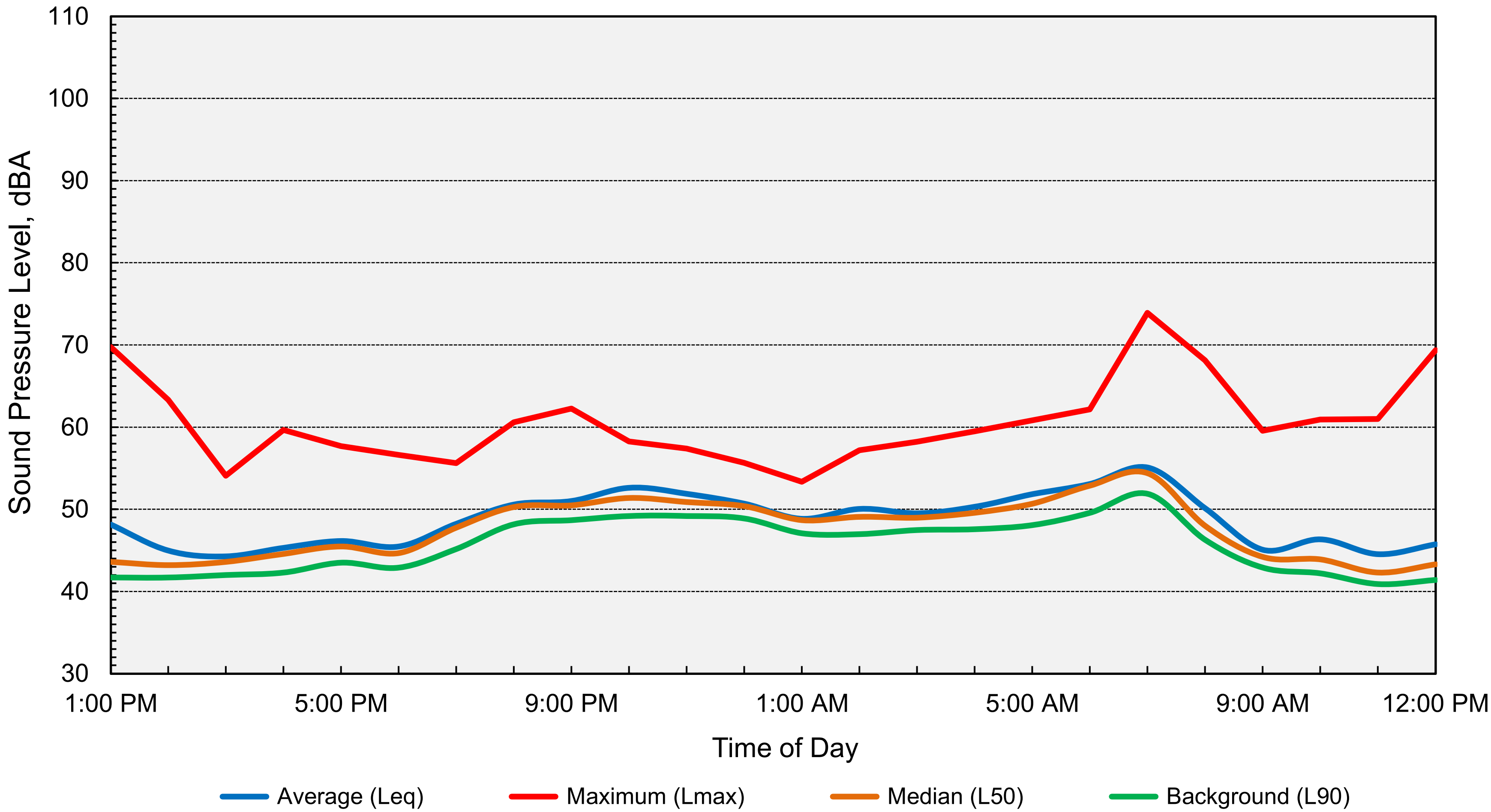
Appendix E-3
Ambient Noise Monitoring Results - Site 1
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21



Computed DNL = 57 dB

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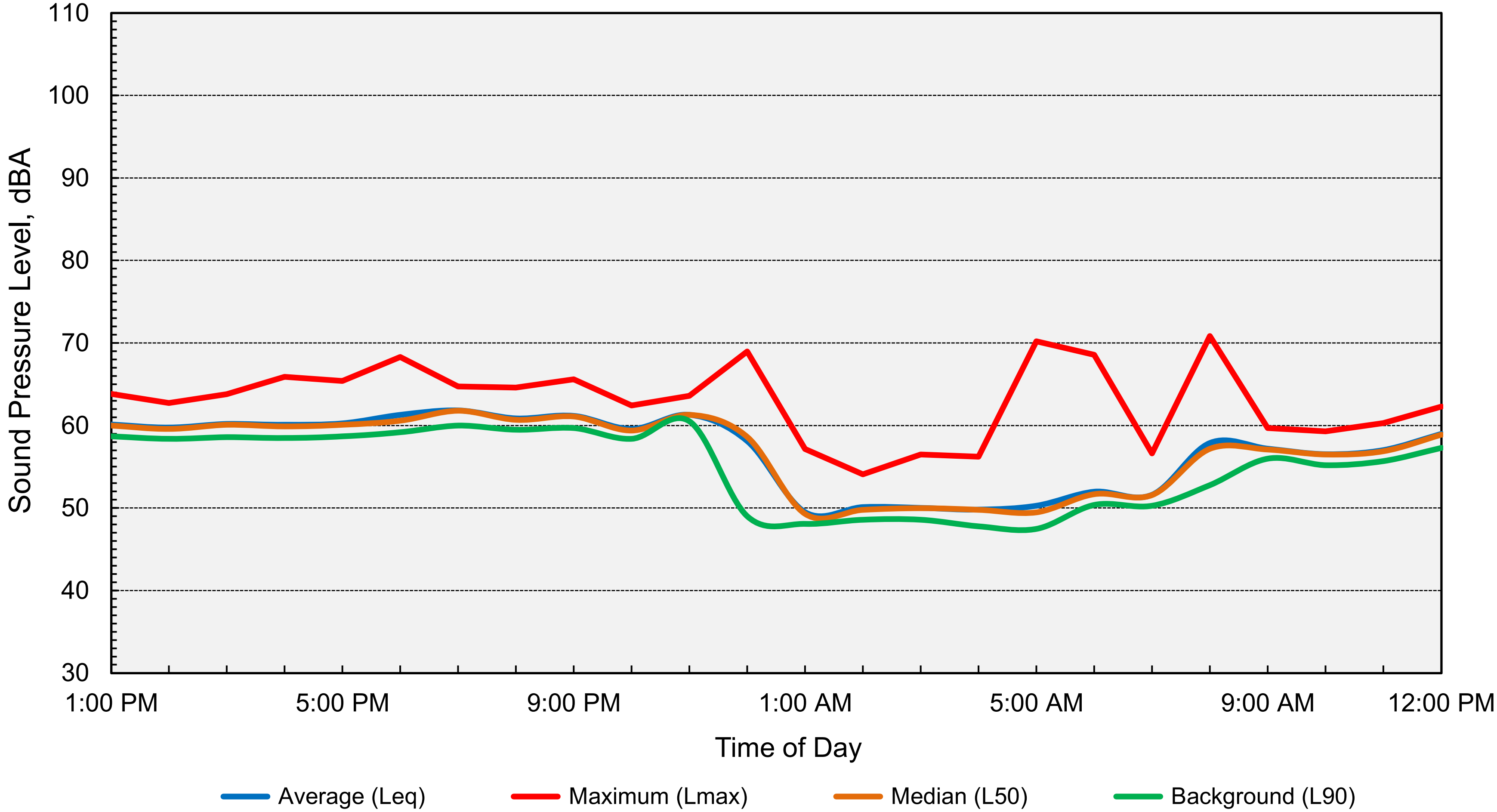
Appendix E-4
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21



Computed DNL = 63 dB

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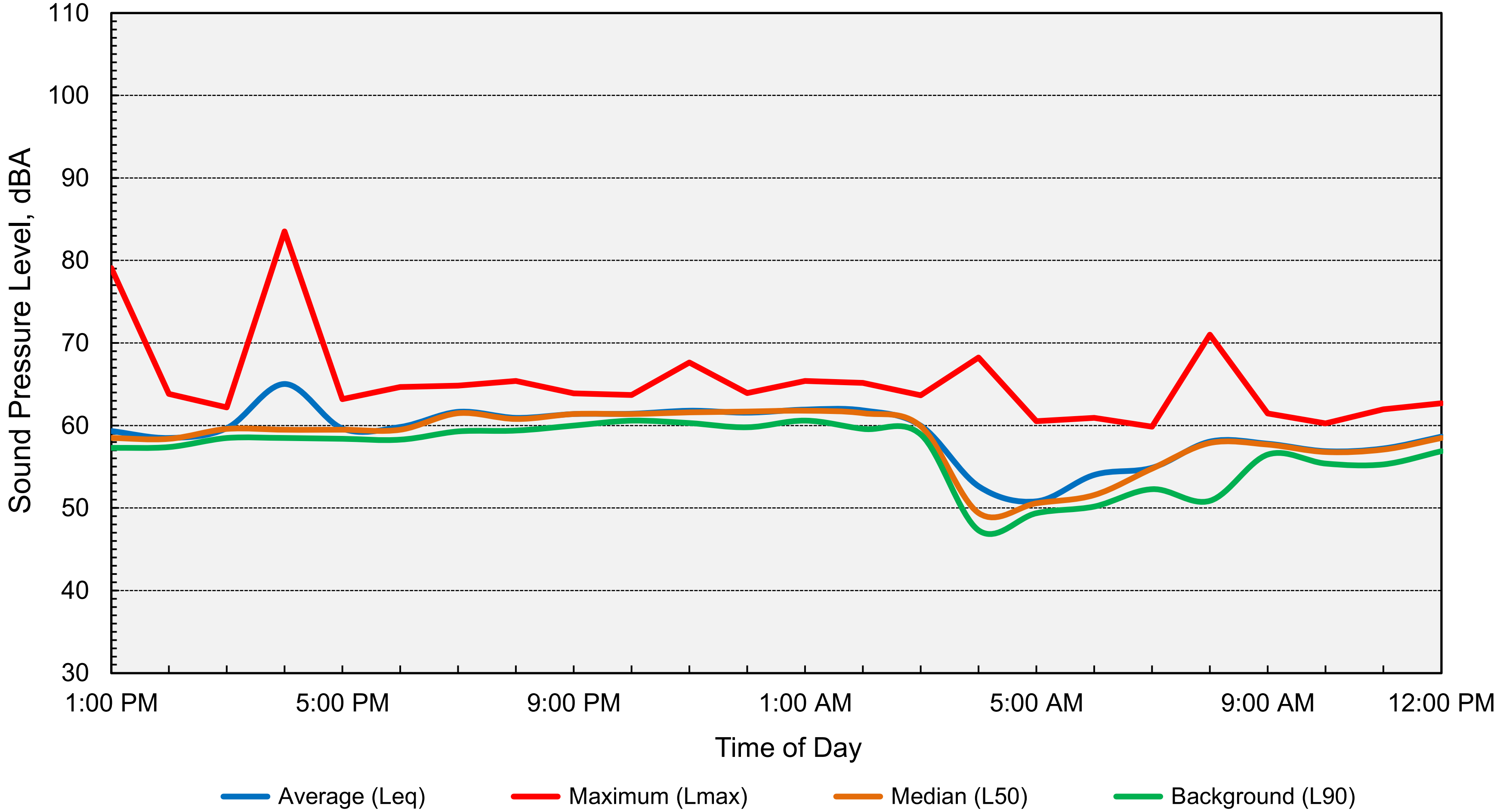
Appendix E-5
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21



Computed DNL = 66 dB

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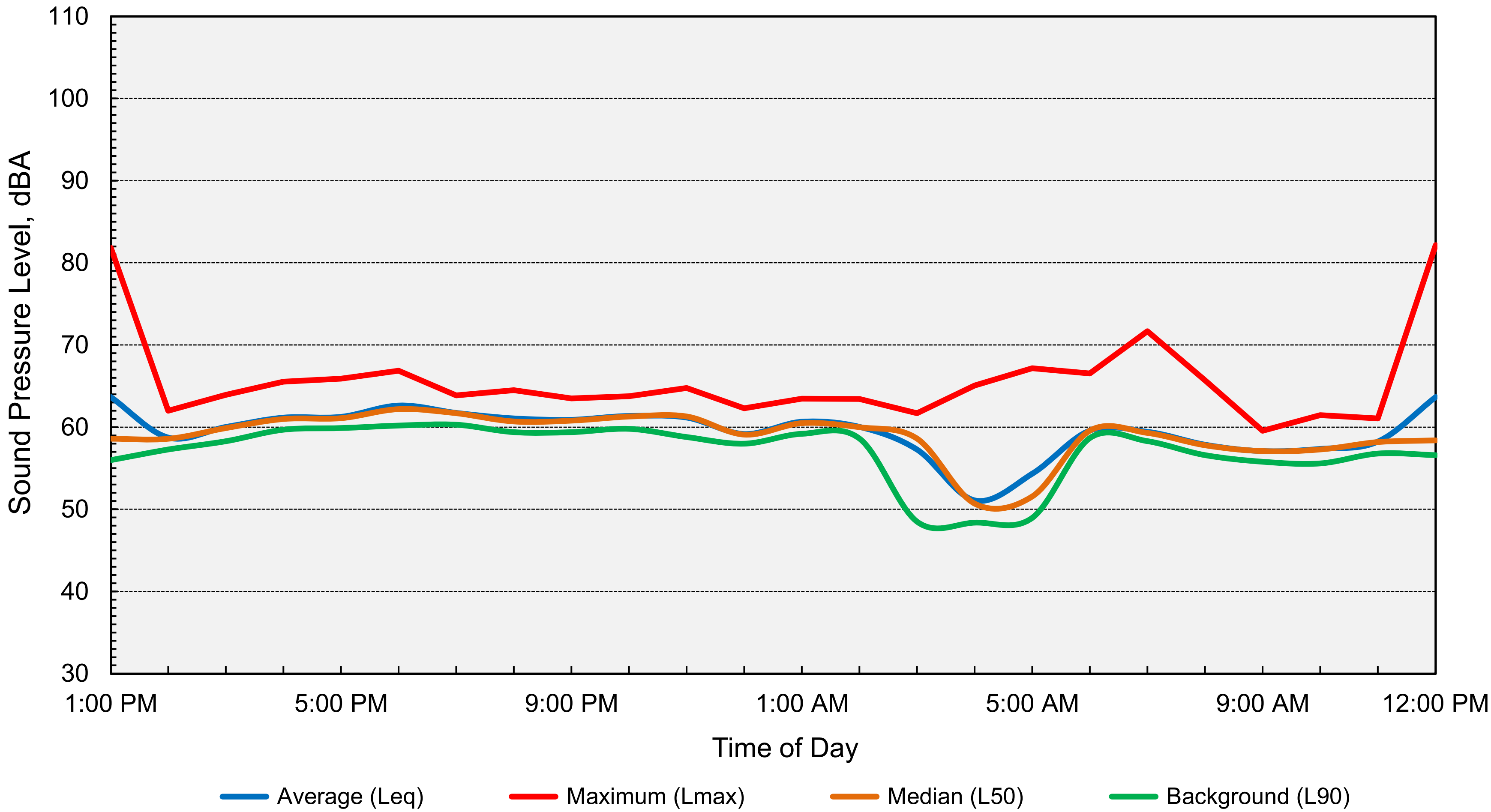
Appendix E-6
Ambient Noise Monitoring Results - Site 2
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21



Computed DNL = 66 dB

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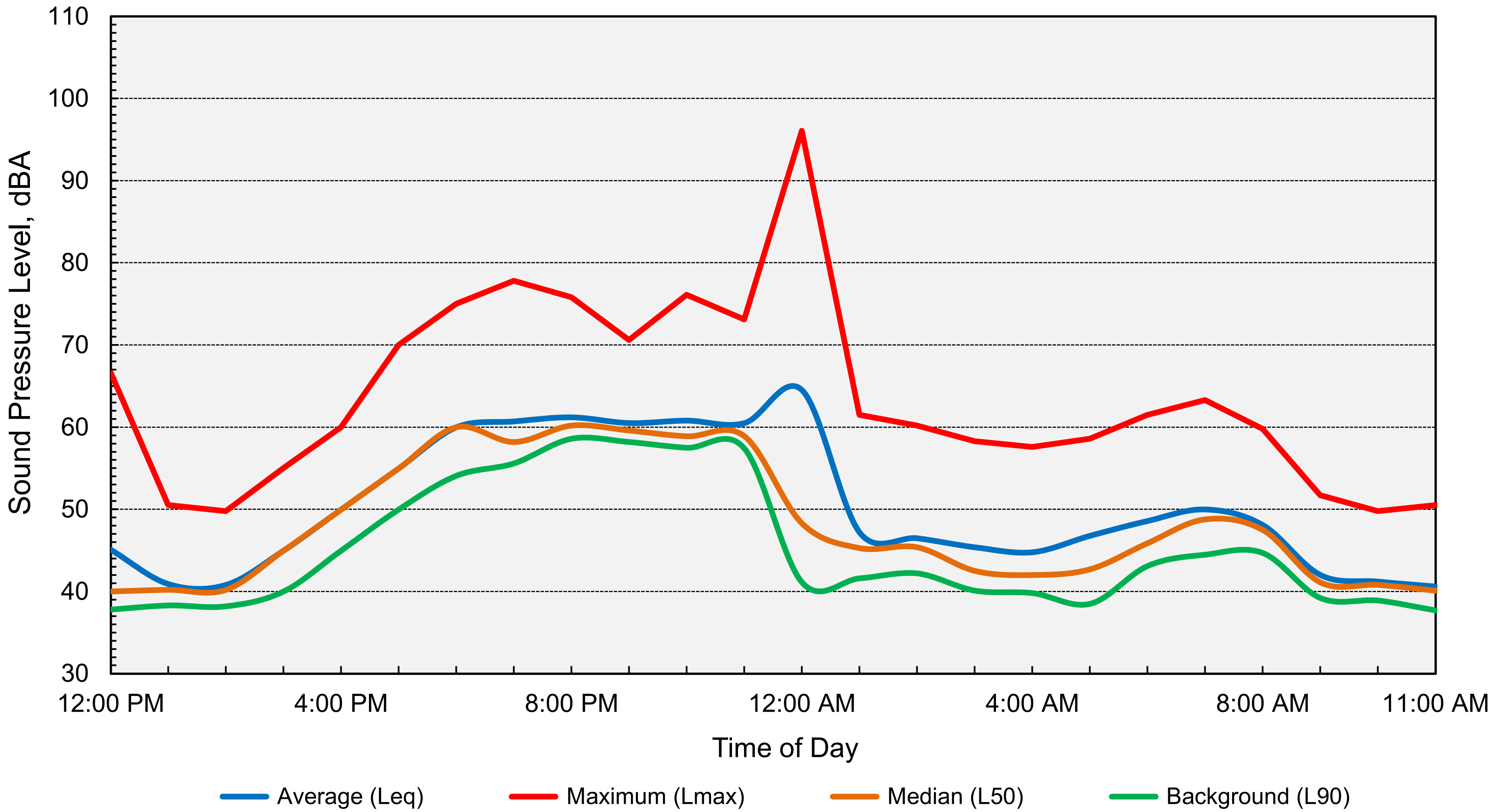
Appendix E-7
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21



Computed DNL = 64 dB

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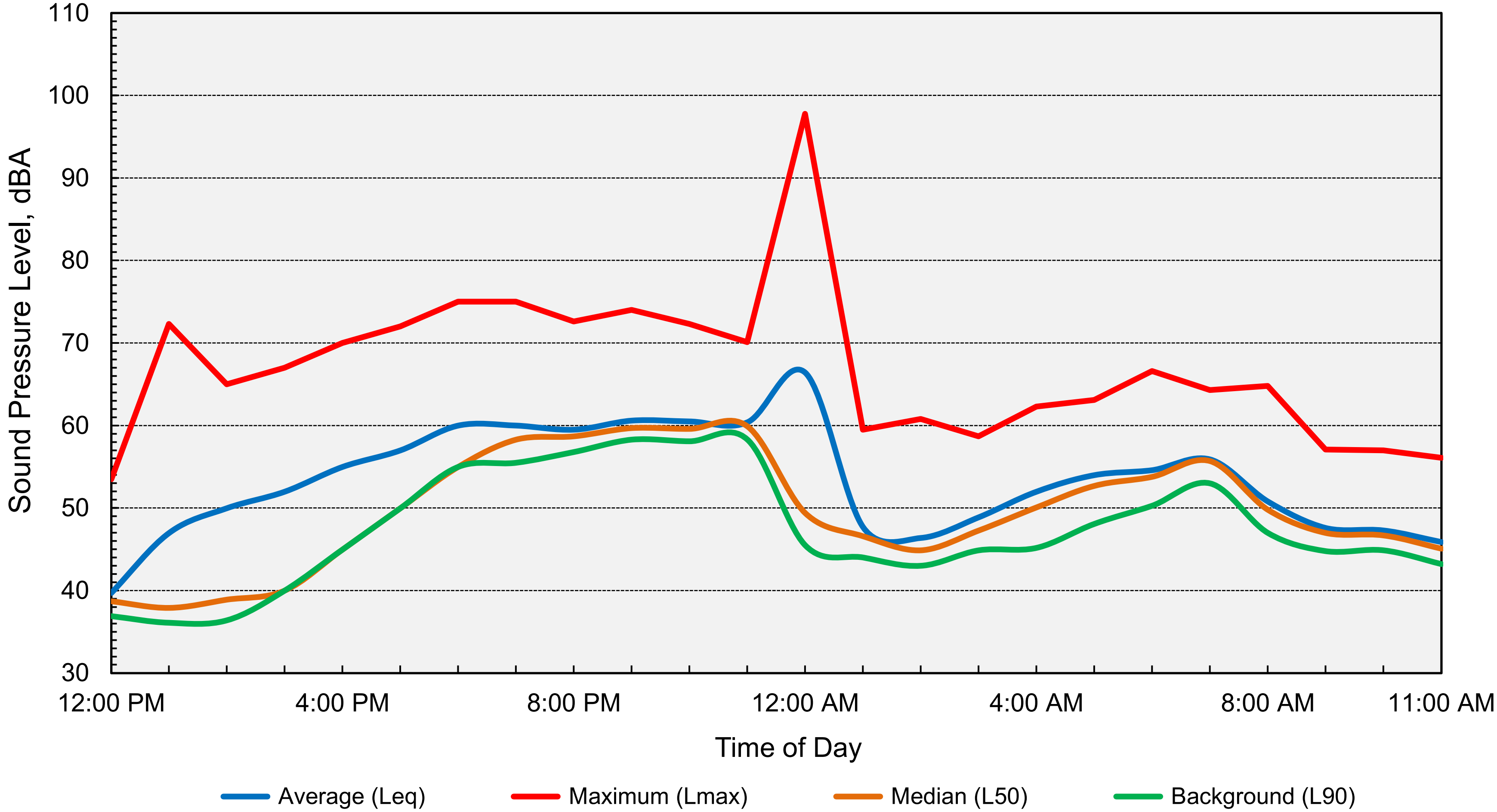
Appendix E-8
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21



Computed DNL = 65 dB

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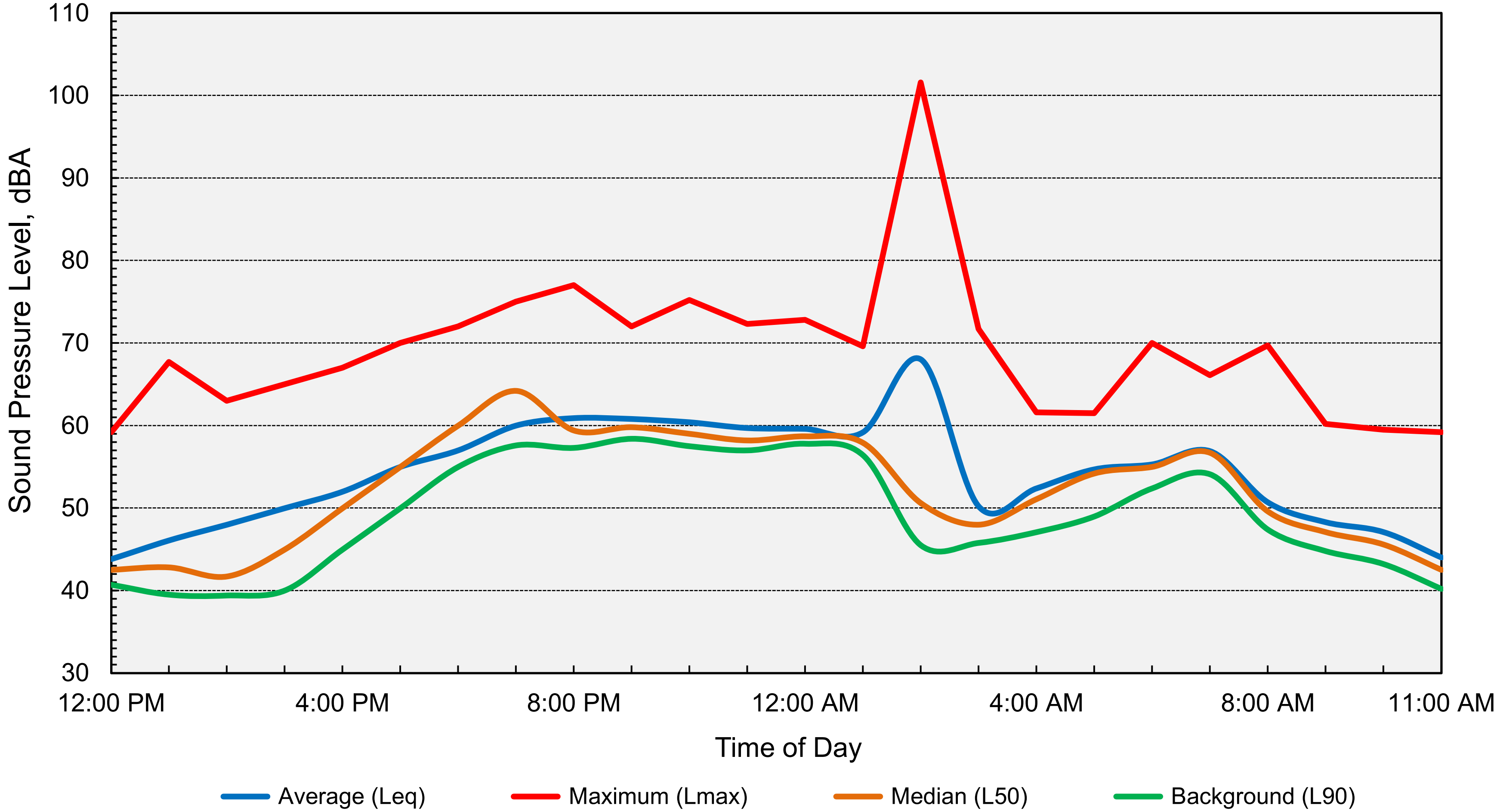
Appendix E-9
Ambient Noise Monitoring Results - Site 3
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21



Computed DNL = 67 dB

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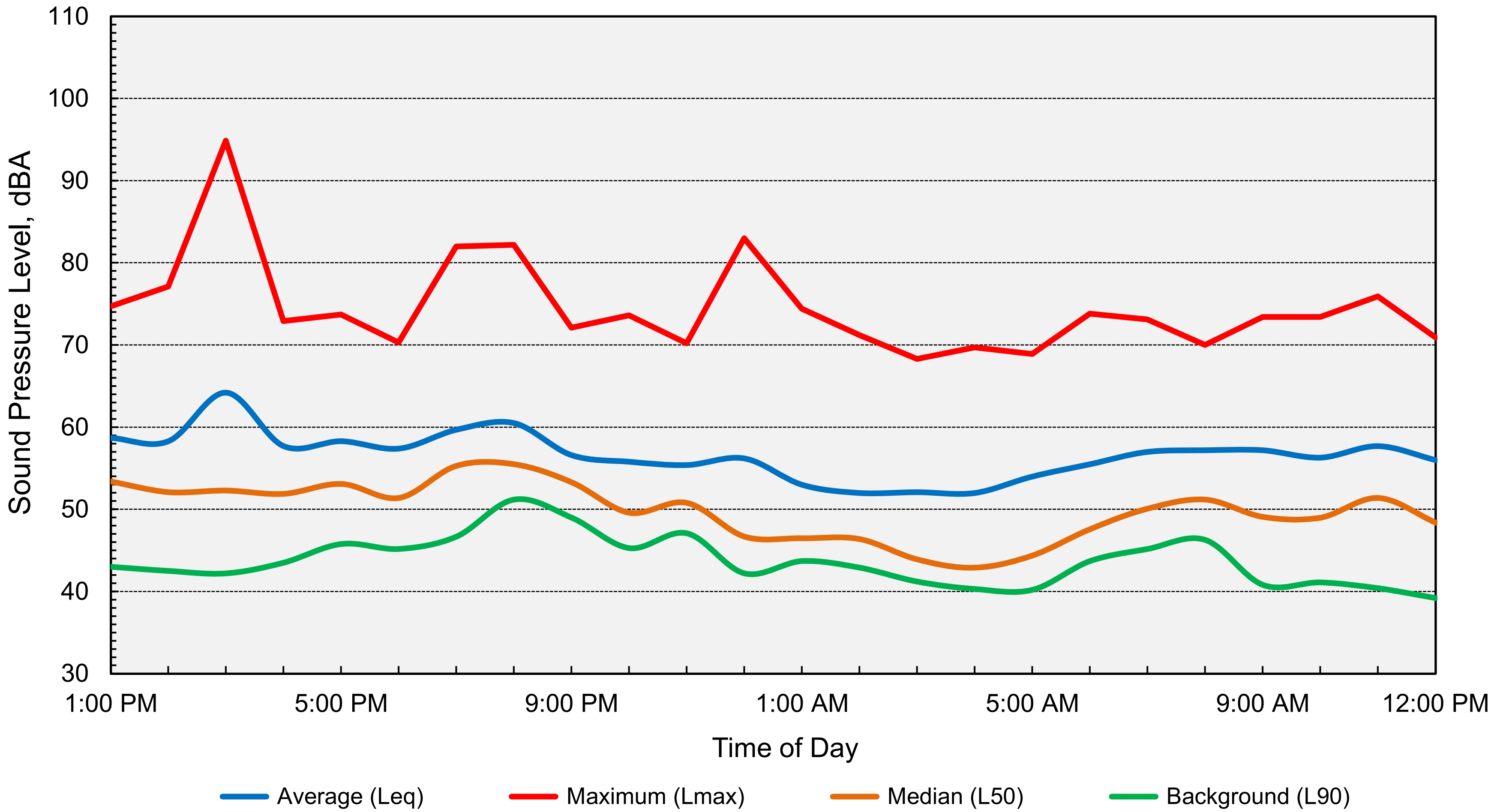
Appendix E-10
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/28/21 - 8/29/21



Computed DNL = 62 dB

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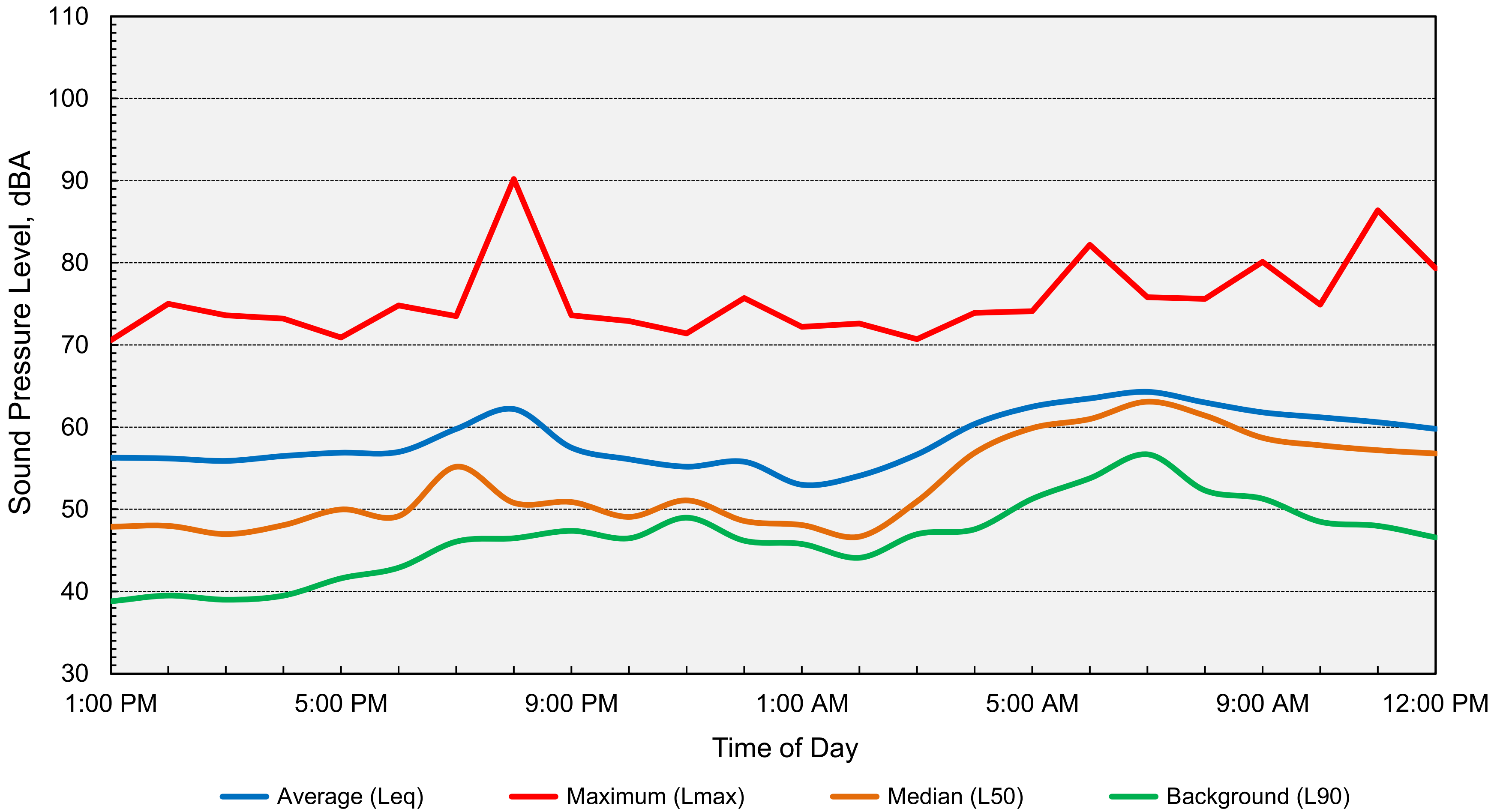
Appendix E-11
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/29/21 - 8/30/21



Computed DNL = 66 dB

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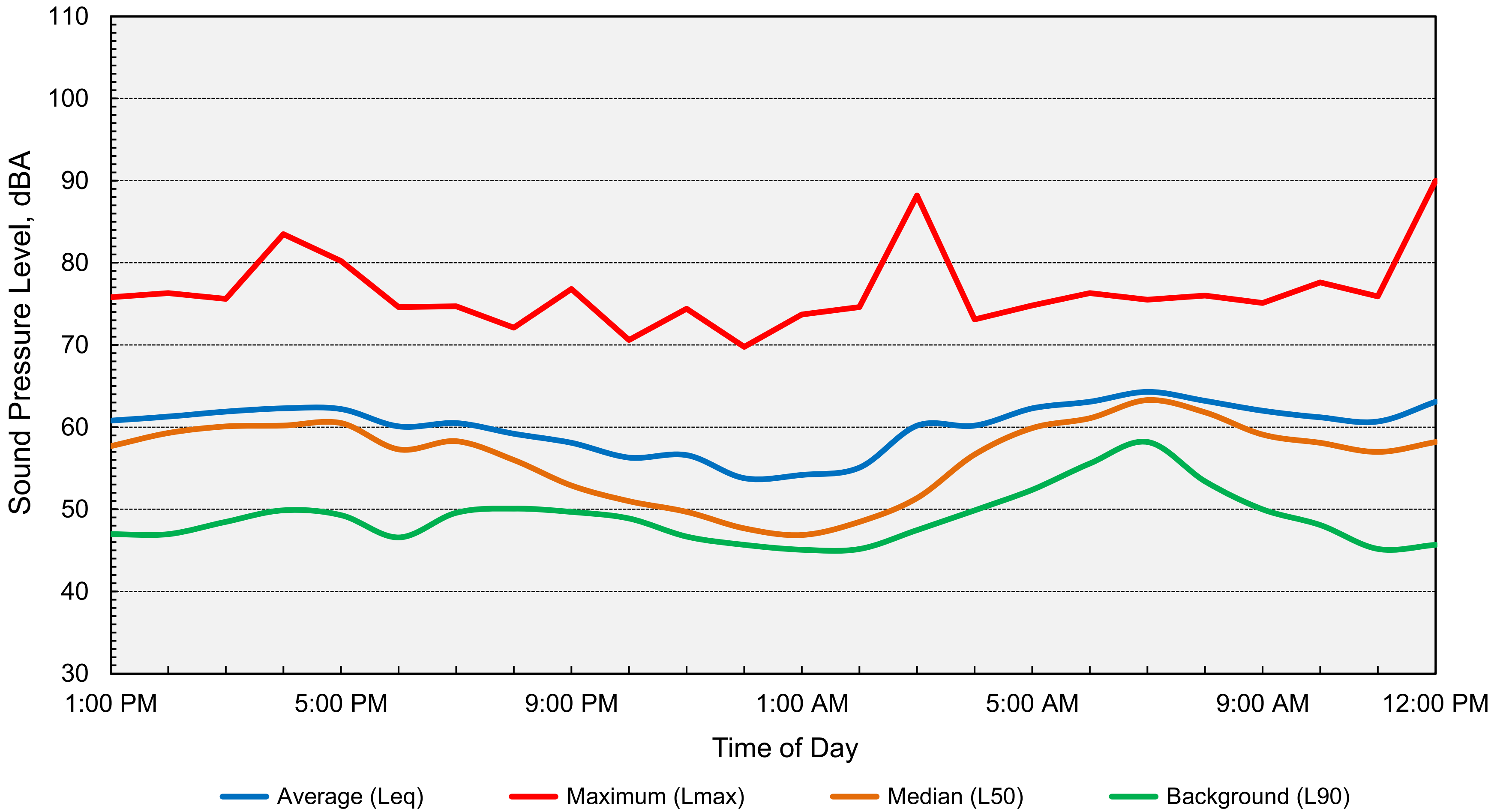
Appendix E-12
Ambient Noise Monitoring Results - Site 4
Iron Ridge Development I & II - Visalia, California
8/30/21 - 8/31/21



Computed DNL = 66 dB

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Appendix F-1
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information:

Job Number: 2021-133
Project Name: Iron Ridge Development I & II
Roadway Name: Road 88

Traffic Data:

Year: Future (5-Year Horizon Plus Project)
Average Daily Traffic Volume (ADT): 1,830
Percent Daytime Traffic: 75
Percent Nighttime Traffic: 25
Percent Medium Trucks (2 axle): 2
Percent Heavy Trucks (3+ axle): 2
Assumed Vehicle Speed (mph): 40
Intervening Ground Type (hard/soft): **Soft**

Traffic Noise Levels:

				---------------- DNL (dB) ----------------			
Location	**Receiver Description**	**Distance**	**Offset (dB)**	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Total**
1	Nearest backyards	70		56	48	53	59
2	Nearest first-floor building facades	80		55	48	52	58
3	Nearest upper-floor building facades	80	2	57	50	54	60

Traffic Noise Contours (No Calibration Offset):

DNL Contour (dB)	Distance from Centerline (feet)
75	6
70	12
65	26
60	56

Notes:

1. Future ADT volume for roadway was calculated by using traffic volume data provided in the project traffic impact study. Future traffic volume was conservatively estimated by applying a factor of 5 to the sum of AM and PM peak hour conditions (5-Year Horizon Plus Project scenario).
2. Distances scaled from the centerline of roadway to said locations using provided site plans.
3. A +2 dB offset was applied to upper-floor facades to account for reduced ground absorption of sound at elevated locations.

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Appendix F-2
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information:

Job Number: 2021-133
Project Name: Iron Ridge Development I & II
Roadway Name: Road 92

Traffic Data:

Year: Future (5-Year Horizon Plus Project)
Average Daily Traffic Volume (ADT): 17,645
Percent Daytime Traffic: 75
Percent Nighttime Traffic: 25
Percent Medium Trucks (2 axle): 2
Percent Heavy Trucks (3+ axle): 2
Assumed Vehicle Speed (mph): 40
Intervening Ground Type (hard/soft): **Soft**

Traffic Noise Levels:

				DNL (dB)			
Location	**Receiver Description**	**Distance**	**Offset (dB)**	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Total**
1	Nearest backyards	70		66	58	63	68
2	Nearest first-floor building facades	80		65	57	62	67
3	Nearest upper-floor building facades	80	2	67	59	64	69

Traffic Noise Contours (No Calibration Offset):

DNL Contour (dB)	Distance from Centerline (feet)
75	25
70	54
65	117
60	252

Notes:

1. Future ADT volume for roadway was calculated by using traffic volume data provided in the project traffic impact study. Future traffic volume was conservatively estimated by applying a factor of 5 to the sum of AM and PM peak hour conditions (5-Year Horizon Plus Project scenario).
2. Distances scaled from the centerline of roadway to said locations using provided site plans.
3. A +2 dB offset was applied to upper-floor facades to account for reduced ground absorption of sound at elevated locations.

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Appendix G-1
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 2021-133
Project Name: Iron Ridge Development I & II
Roadway Name: Road 92

Noise Level Data:

Year: Future (5-Year Horizon Plus Project)
Auto DNL (dB): 66
Medium Truck DNL (dB): 58
Heavy Truck DNL (dB): 63

Site Geometry:

Receiver Description: Nearest backyards
Centerline to Barrier Distance (C_1): 60
Barrier to Receiver Distance (C_2): 10
Automobile Elevation: 0
Medium Truck Elevation: 2
Heavy Truck Elevation: 8
Pad/Ground Elevation at Receiver: 0
Receiver Elevation: 5
Base of Barrier Elevation: 0
Starting Barrier Height: 6

Barrier Effectiveness:

		-------------------- DNL (dB) --------------------				Barrier Breaks Line of Sight to…		
Top of Barrier Elevation (ft)	**Barrier Height (ft)**	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Total**	**Autos?**	**Medium Trucks?**	**Heavy Trucks?**
6	6	60	52	58	**62**	Yes	Yes	Yes
7	7	58	51	57	**61**	Yes	Yes	Yes
8	8	57	49	55	**59**	Yes	Yes	Yes
9	9	55	48	54	**58**	Yes	Yes	Yes
10	10	54	47	53	**57**	Yes	Yes	Yes
11	11	53	46	52	**56**	Yes	Yes	Yes
12	12	52	45	50	**55**	Yes	Yes	Yes
13	13	52	44	50	**54**	Yes	Yes	Yes
14	14	52	44	49	**54**	Yes	Yes	Yes

Notes:
1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).
2. Indicated barrier heights assume the difference in roadway and lot elevation is within +/- 2 feet. If a difference of more than +/- 2 feet between roadway and lot elevation would be present, an additional analysis would be required. Nonetheless, the indicated barrier heghts are relative to roadway or lot elevation, whichever is greater.

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Appendix G-2
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 2021-133
Project Name: Iron Ridge Development I & II
Roadway Name: Road 92

Noise Level Data:

Year: Future (5-Year Horizon Plus Project)
Auto DNL (dB): 65
Medium Truck DNL (dB): 57
Heavy Truck DNL (dB): 62

Site Geometry:

Receiver Description: Nearest first-floor building facades
Centerline to Barrier Distance (C_1): 60
Barrier to Receiver Distance (C_2): 20
Automobile Elevation: 0
Medium Truck Elevation: 2
Heavy Truck Elevation: 8
Pad/Ground Elevation at Receiver: 0
Receiver Elevation: 5
Base of Barrier Elevation: 0
Starting Barrier Height: 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	-------------------- DNL (dB) --------------------				Barrier Breaks Line of Sight to…		
		Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
6	6	59	52	57	**61**	Yes	Yes	Yes
7	7	58	50	57	**61**	Yes	Yes	Yes
8	8	56	49	56	**59**	Yes	Yes	Yes
9	9	55	48	55	**58**	Yes	Yes	Yes
10	10	55	47	53	**57**	Yes	Yes	Yes
11	11	54	46	52	**57**	Yes	Yes	Yes
12	12	53	45	52	**56**	Yes	Yes	Yes
13	13	52	45	51	**55**	Yes	Yes	Yes
14	14	51	44	50	**54**	Yes	Yes	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).
2. Indicated barrier heights assume the difference in roadway and lot elevation is within +/- 2 feet. If a difference of more than +/- 2 feet between roadway and lot elevation would be present, an additional analysis would be required. Nonetheless, the indicated barrier heghts are relative to roadway or lot elevation, whichever is greater.

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Iron Ridge Residential Development

Traffic Impact Study
June 27, 2022

Prepared by:
VRPA Technologies, Inc.
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Iron Ridge
Traffic Impact Study

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Executive Summary

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Iron Ridge Development (Project). The Project site is generally located along Shirk Street (Road 92) between Hurley Avenue and Goshen Avenue, two-thirds of a mile north of State Route (SR) 198. Regional access to the site is provided by SR 198. The Project seeks to develop approximately 238 single family dwelling units on roughly 50 acres of land.

Vehicular access to the site would be provided by Shirk Street, Allen Avenue (new road), and Road 88. The new roadway would be constructed to City standards and would be dedicated as public right of way. Project access at Road 88 would also be consistent with City standards and would meet adequate spacing requirements with respect to the existing driveway to the north.

STUDY AREA

The study intersections included in this TIS are listed below. The study intersections were developed in consultation with City of Visalia staff and are located within 1-mile of the Project site based on analysis requirements found in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021.

Intersections

- ✓ Shirk Street / SR 198 EB Ramps
- ✓ Shirk Street / SR 198 WB Ramps
- ✓ Shirk Street / Hillsdale Avenue
- ✓ Shirk Street / School Avenue
- ✓ Shirk Street / Hurley Avenue
- ✓ Shirk Street / Allen Avenue (New Road)
- ✓ Shirk Street / Goshen Avenue
- ✓ Road 88 / Project Access
- ✓ Road 88 / Goshen Avenue

Study Scenarios

The TIS completed for the Project includes level of service (LOS) analysis for the following traffic scenarios.

- ✓ Existing Conditions
- ✓ Opening Year Without Project
- ✓ Opening Year Plus Project
- ✓ 5-Year Horizon Without Project
- ✓ 5-Year Horizon Plus Project
- ✓ 10-Year Horizon Without Project (Shirk Street and SR 198 intersections Only)
- ✓ 10-Year Horizon Plus Project (Shirk Street and SR 198 intersections Only)

- ✓ 20-Year Horizon Without Project (Shirk Street and SR 198 intersections Only)
- ✓ 20-Year Horizon Plus Project (Shirk Street and SR 198 intersections Only)

IMPACTS

Intersections

Table E-1 shows intersections that are expected to fall short of desirable operating conditions for various scenarios. Potential mitigation measures are discussed below. Results of the analysis show that the Project will contribute to an unacceptable LOS at four (4) of the study intersections when comparing the 5-Year Horizon scenarios.

Table E-1

Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	All-Way Stop Sign	--[1]	AM	20.1	C	24.1	C	25.6	D	32.8	D	**42.6**	**E**	**52.5**	**F**	**98.6**	**F**	**116.0**	**F**
			PM	26.2	D	34.8	D	27.7	D	**49.1**	**E**	**57.7**	**F**	**62.7**	**F**	**130.3**	**F**	**148.3**	**F**
2. Shirk Street / SR 198 WB Ramps	All-Way Stop Sign	--[1]	AM	**64.7**	**F**	**95.1**	**F**	**96.3**	**F**	**127.0**	**F**	**138.4**	**F**	**169.9**	**F**	**239.8**	**F**	**275.0**	**F**
			PM	**83.0**	**F**	**117.4**	**F**	**115.4**	**F**	**156.7**	**F**	**173.6**	**F**	**218.4**	**F**	**309.5**	**F**	**354.3**	**F**
3. Shirk Street / Hillsdale Avenue	One-Way Stop Sign	D	AM	**92.4**	**F +**	**140.4**	**F +**	**157.9**	**F +**	**242.4**	**F +**								
			PM	**54.6**	**F +**	**79.0**	**F +**	**77.6**	**F +**	**121.9**	**F +**								
4. Shirk Street / School Avenue	One-Way Stop Sign	D	AM	**43.1**	**E +**	**54.3**	**F +**	**56.4**	**F +**	**74.5**	**F +**								
			PM	34.8	D	**44.6**	**E +**	**42.9**	**E +**	**56.4**	**F +**								
5. Shirk Street / Hurley Avenue	Signalized	D	AM	18.7	B	19.7	B	21.3	C	22.4	C								
			PM	10.0	B	11.3	B	10.7	B	12.1	B								
6. Shirk Street / Allen Avenue	One-Way Stop Sign	D	AM			16.6	C			18.1	C								
			PM			16.5	C			18.0	C								
7. Shirk Street / Goshen Avenue	Signalized	D	AM	40.0	D	41.1	D	44.3	D	46.6	D								
			PM	34.4	C	41.9	D	38.0	D	49.0	D								
8. Road 88 / Project Access	One-Way Stop Sign	D	AM			8.5	A			8.5	A								
			PM			8.5	A			8.5	A								
9. Road 88 / Goshen Avenue	One-Way Stop Sign	D	AM	17.8	C	17.8	C	19.1	C	19.3	C								
			PM	17.9	C	17.9	C	19.6	C	20.1	C								

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

+ Does not meet peak hour signal warrants. Provided for informational purposes only.

MITIGATION

This section describes potential improvements to mitigate the traffic impacts of the Project. The potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections in the long term. Considering the criteria provided in Section 1.3 and the results presented above, the following improvements could be considered to alleviate project-specific impacts.

Roadway Improvements

Intersections

- ✓ Shirk Street at SR 198 EB Ramps
  Improvements to achieve acceptable levels of service:
  - 5-Year With Project and 10-Year With and Without Project Horizon scenarios:
    - Install Traffic Signal
  - 20-Year With and Without Project Horizon scenarios:
    - Install Traffic Signal
    - Widen the eastbound approach to 1 left turn lane, 1 left-through lane, and 1 right turn lane (adding 1 left turn lane)

- ✓ Shirk Street at SR 198 WB Ramps
  Improvements to achieve acceptable levels of service:
  - Opening Year With and Without Project, 5-Year With and Without Project, and 10-Year Without Project Horizon scenarios:
    - Install Traffic Signal
  - 10-Year With Project and 20-Year With and Without Project Horizon scenarios:
    - Install Traffic Signal
    - Widen the westbound approach to 1 left-through lane and 2 right turn lanes (adding 1 right turn lane)

- ✓ Shirk Street at Hillsdale Avenue
  No improvements are recommended.

  The intersection is forecasted to operate at unacceptable levels of service under the Existing (AM only), Opening Year, and 5-Year Horizon scenarios. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. As noted in Section 1.2.1, the City of Visalia uses the California MUTCD Eight (8) Peak Hour Signal Warrant (Warrant 1) when evaluating the need for signalization at an intersection.

It should be noted that the City of Visalia proposes to widen Shirk Street from two to four lanes between a point approximately 750 feet north of the intersection of Shirk Road and State Route 198 and the North Mill Creek culvert, north of School Avenue. The Project is intended to improve traffic flow and safety and to accommodate existing development and future growth in the area.

- ✓ Shirk Street at School Avenue
  No improvements are recommended.

  The intersection is forecasted to operate at unacceptable levels of service under the Existing (AM only), Opening Year, and 5-Year Horizon scenarios. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that installation of a traffic signal would alleviate level of service deficiencies at the intersection.

Post-Mitigation Level of Service

The level of service resulting from the potential improvements identified above is shown in Table E-2 for study area intersections.

Table E-2
Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	-- [1]	AM							18.9	B	18.7	B	21.0	C	22.1	C	26.5	C
		PM							20.5	C	23.7	C	29.2	C	32.2	C	37.6	D
2. Shirk Street / SR 198 WB Ramps	-- [1]	AM	23.1	C	26.5	C	27.9	C	36.5	D	39.2	D	23.0	C	47.8	D	50.1	D
		PM	12.9	B	15.6	B	14.5	B	18.5	B	22.0	C	17.0	B	26.5	C	37.5	D

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

Project Percentage of Future Traffic

This section of the report provides analysis of the percentage of future traffic generated by the project at key study area locations. This information can be used in evaluating the need for improvements to be provided by the Project. The formulas used to calculate the Project percentage of future traffic to City of Visalia/Caltrans facilities is as follows:

Project Percentage of Future Traffic = (Project Trips)/(20-Year Horizon Plus Project Traffic – Existing Traffic)

Table E-3 shows the Project percentage of future traffic to City of Visalia/Caltrans facilities as described above.

Table E-3
20-Year Horizon Project Percentage of Future Traffic

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	20-YEAR HORIZON PLUS PROJECT	PROJECT PERCENTAGE
Shirk Street / SR 198 EB Ramps	AM	1,136	77	2,037	8.5%
	PM	1,275	79	2,230	8.3%
Shirk Street / SR 198 WB Ramps	AM	1,519	122	2,773	9.7%
	PM	1,446	164	2,677	13.3%
Shirk Street / Hillsdale Avenue [1]	AM	1,362	122	1,871	24.0%
	PM	1,349	164	1,872	31.4%
Shirk Street / School Avenue [1]	AM	1,304	122	1,765	26.5%
	PM	1,277	164	1,738	35.6%

1 - Provided for inomational purposes only and based on 5-Year Horizon

Implementation

Based on the results of the capacity analysis and mitigation analysis, improvements are recommended at the Shir Avenue intersections with the SR 198 Eastbound ramps and Shirk Avenue/SR 198 Westbound Ramps. Traffic signals as well as the additional lanes are expected to be needed. Implementation of this level of improvements is beyond the scale of the proposed Project and is recommended to be done by others.

It is recommended that the Project contribute to the City of Visalia's traffic impact fee program. Contribution of fees to this program will directly or indirectly contribute to the improvements described above as will as general roadway improvements in the City of Visalia.

1.0 Introduction

1.1 Description of the Region/Project

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Iron Ridge Development (Project). The Project site is generally located along Shirk Street (Road 92) between Hurley Avenue and Goshen Avenue, two-thirds of a mile north of State Route (SR) 198. Regional access to the site is provided by SR 198. The Project seeks to develop approximately 241 single family dwelling units on roughly 50 acres of land. Figure 1-1 shows the site's regional context while Figure 1-2 shows the Project location within the City of Visalia. Figure 1-3 shows the conceptual layout of the Project.

1.1.1 *Project Access*

Vehicular access to the site would be provided by Shirk Street, Allen Avenue (new road), and Road 88. The new roadway would be constructed to City standards and would be dedicated as public right of way. Regional access to the site is provided via SR 198.

1.1.2 *Study Area*

The study intersections included in this TIS are listed below and shown in Figure 1-2. The study intersections were developed in consultation with City of Visalia staff and are located within 1-mile of the Project site based on analysis requirements found in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021.

Intersections

- ✓ Shirk Street / SR 198 EB Ramps
- ✓ Shirk Street / SR 198 WB Ramps
- ✓ Shirk Street / Hillsdale Avenue
- ✓ Shirk Street / School Avenue
- ✓ Shirk Street / Hurley Avenue
- ✓ Shirk Street / Allen Avenue (New Road)
- ✓ Shirk Street / Goshen Avenue
- ✓ Road 88 / Project Access
- ✓ Road 88 / Goshen Avenue

1.1.3 *Study Scenarios*

The TIS completed for the Project includes level of service (LOS) analysis for the following traffic scenarios.

- ✓ Existing Conditions
- ✓ Opening Year Without Project
- ✓ Opening Year Plus Project

- ✓ 5-Year Horizon Without Project
- ✓ 5-Year Horizon Plus Project
- ✓ 10-Year Horizon Without Project (Shirk Street and SR 198 intersections Only)
- ✓ 10-Year Horizon Plus Project (Shirk Street and SR 198 intersections Only)
- ✓ 20-Year Horizon Without Project (Shirk Street and SR 198 intersections Only)
- ✓ 20-Year Horizon Plus Project (Shirk Street and SR 198 intersections Only)

1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the Level of Service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized intersections or other improvements. Guidelines incorporated in the Highway Capacity Manual (HCM), 6th Edition, published in 2016 were also used in the development of this TIS.

1.2.1 *Intersection Analysis*

Intersection LOS analysis was conducted using the Synchro software program. Synchro supports HCM methodologies and is deemed an acceptable program by City of Visalia staff for assessment of traffic impacts. Levels of Service can be determined for both signalized and unsignalized intersections.

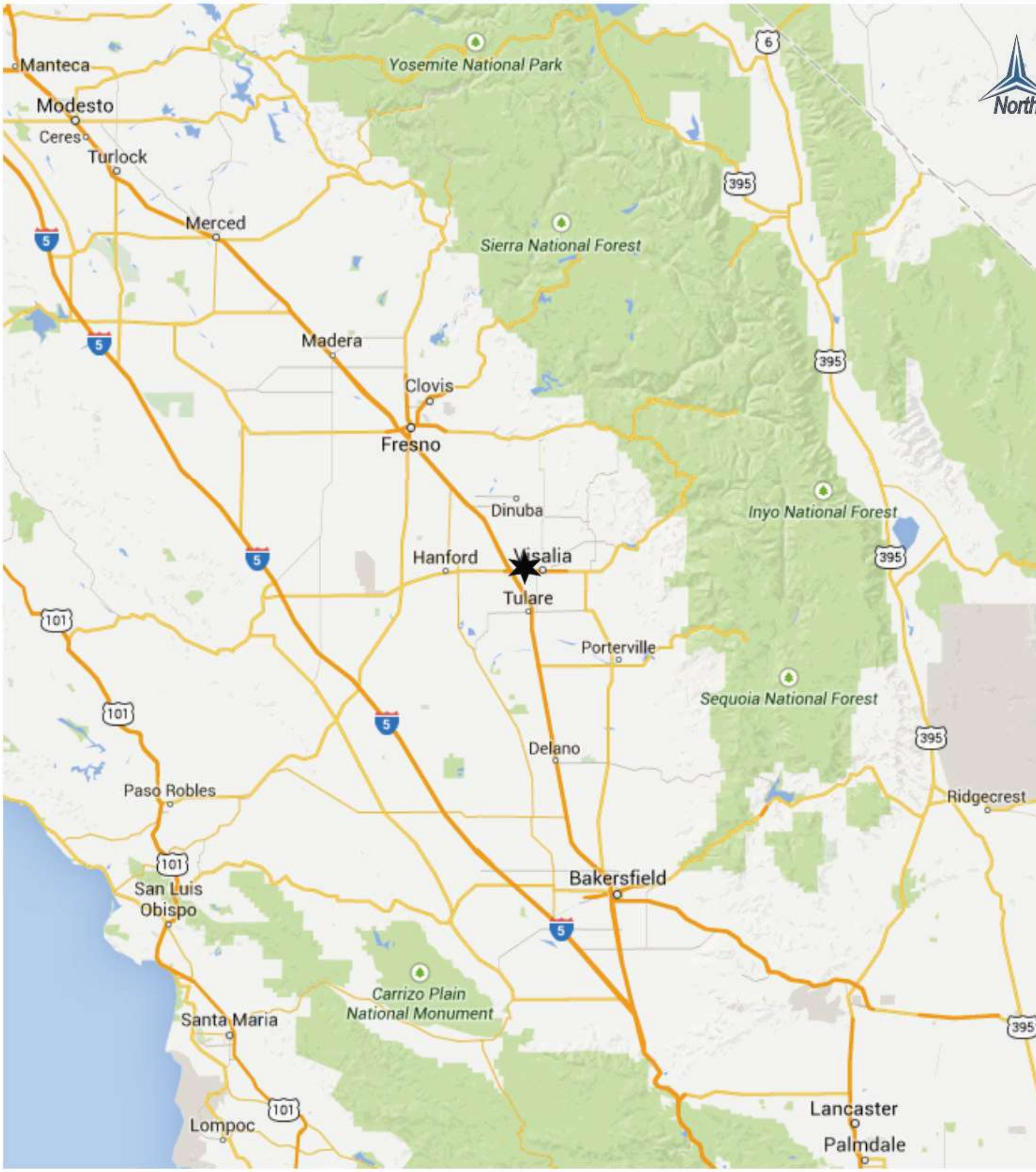
Tables 1-1 and 1-2 indicate the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for the various levels of service ranging from LOS "A" to "F".

The signalized LOS standards applied to calculate intersection LOS are in accordance with the current edition of the HCM. Intersection turning movement counts and roadway geometrics used to develop LOS calculations were obtained from field review findings and count data provided from the traffic count sources identified in Section 2.1.

When an unsignalized intersection does not meet acceptable LOS standards, the investigation of the need for a traffic signal shall be evaluated. The latest edition of the California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) introduces standards for determining the need for traffic signals. The California MUTCD indicates that the satisfaction of one or more traffic signal warrants does not in itself require the installation of a traffic signal. In addition to the warrant analysis, an engineering study of the current or expected traffic conditions should be conducted to determine whether the installation of a traffic signal is justified. The City of Visalia uses the California MUTCD Eight (8) Peak Hour Signal Warrant (Warrant 1) when evaluating the need for signalization at an intersection. The California MUTCD Peak Hour Warrant (Warrant 3) was solely used to illustrate peak hour conditions at unsignalized intersections that do not meet the City of Visalia's acceptable level of service criteria.

Iron Ridge Development
Regional Location

Figure 1-1

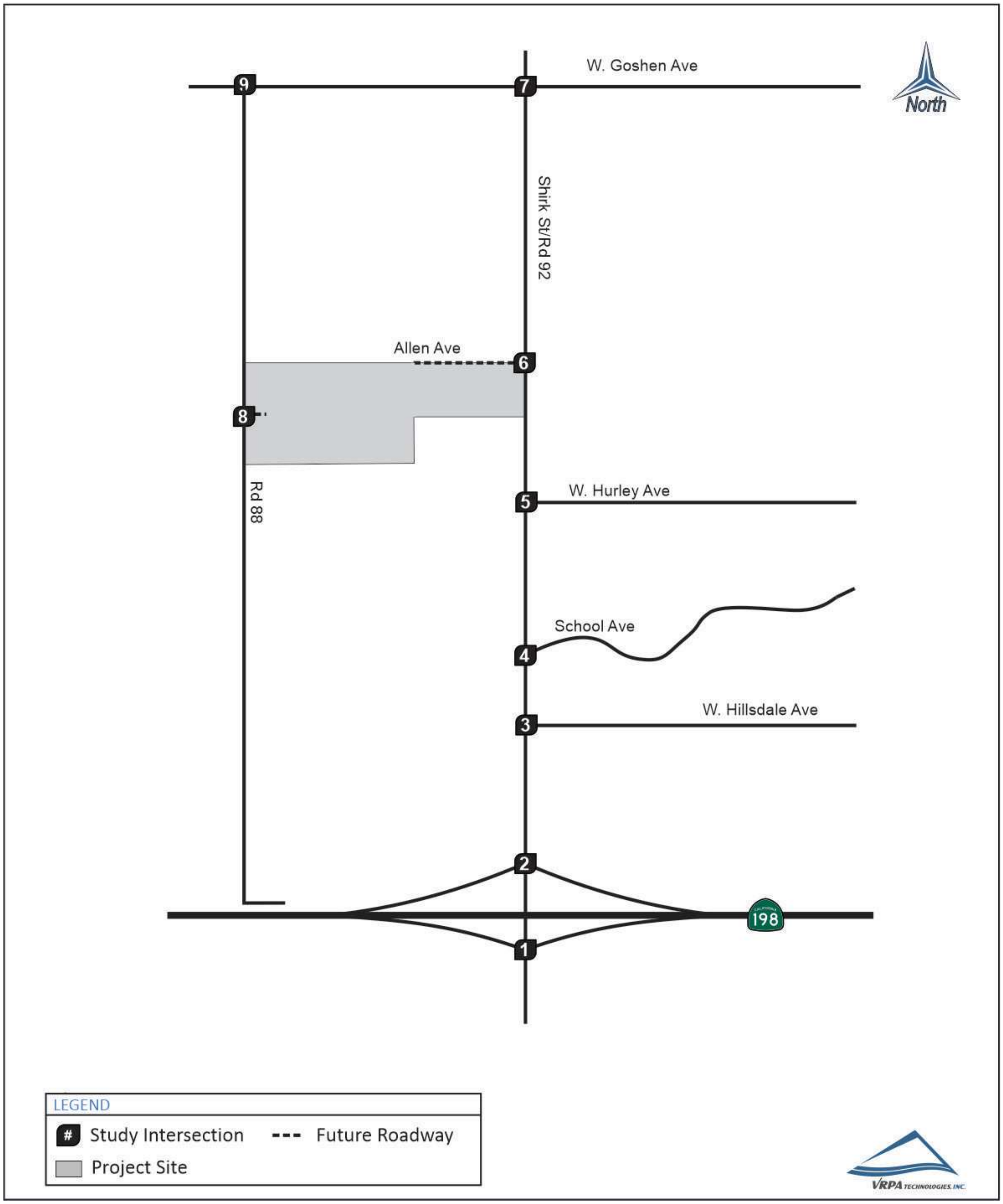


LEGEND

★ Project Location

Iron Ridge Development
Study Area

Figure 1-2



Iron Ridge Development
Project Conceptual Layout

Figure 1-3

Table 1-1
Signalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

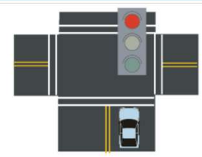
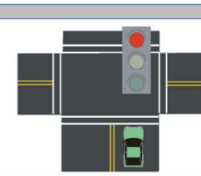
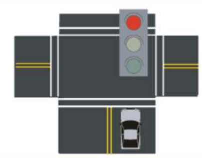
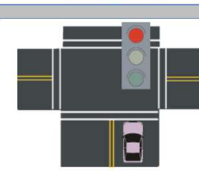
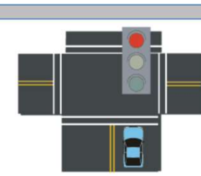
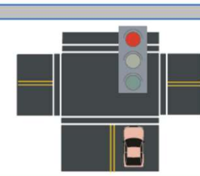
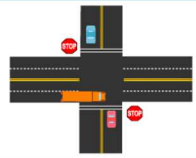
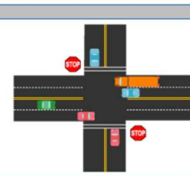
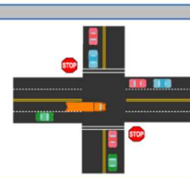
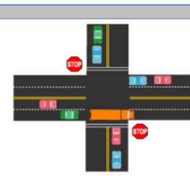
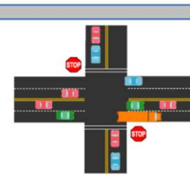
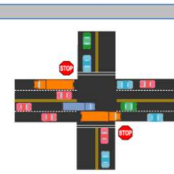
LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street. 	**≤ 10.0**
B	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay. 	**> 10.0 - 20.0**
C	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer. 	**> 20.0 - 35.0**
D	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing. 	**> 35.0 - 55.0**
E	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues. 	**> 55.0 - 80.0**
F	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely. 	**> 80.0**

Table 1-2
Unsignalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	No delay for stop-controlled approaches. 	**0 - 10.0**
B	Describes operations with minor delay. 	**> 10.0 - 15.0**
C	Describes operations with moderate delays. 	**> 15.0 - 25.0**
D	Describes operations with some delays. 	**> 25.0 - 35.0**
E	Describes operations with high delays and long queues. 	**> 35.0 - 50.0**
F	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers. 	**> 50.0**

1.3 Policies to Maintain Level of Service

1.3.1 *City of Visalia*

The City of Visalia General Plan states the City will plan for LOS "D" for street segments and intersections.

1.3.2 *California Department of Transportation (Caltrans)*

With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020, and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

1.4 VMT Analysis

Senate Bill 743 (SB 743) went into effect throughout California on July 1, 2020. This legislation changed the performance measure for CEQA transportation studies from level of service to vehicle miles traveled (VMT). An assessment of potential VMT impacts associated with the Project is provided in Chapter 3 to address changes in CEQA requirements.

2.0 Existing Conditions

2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing AM and PM peak hour turning movements were collected at each study intersection by National Data and Surveying Services. Intersection turning movement counts were conducted for the peak hour periods of 7:00-9:00 AM and 4:00-6:00 PM for study intersections on Tuesday, September 21st, 2021. Traffic count data worksheets are provided in Appendix A.

2.2 Existing Functional Roadway Classification System

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

The current hierarchical system of roadways within the study area consists of the following four (4) basic classifications:

- ✓ **State Freeways and Highways** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the City/County and link the City/County to other parts of the State.
- ✓ **Arterials** – provide for mobility within the City/County, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. Access to abutting private property and intersecting local streets shall generally be restricted.
- ✓ **Collectors** – provide for internal traffic movement within communities and connect local roads to arterials. Direct access to abutting private property shall generally be permitted.
- ✓ **Local Streets** – Roadways which provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. Access to abutting private property and intersecting streets shall be permitted.

2.3 Affected Streets and Highways

The study intersections included in this TIS are listed below and shown in Figure 1-2. The study intersections were developed in consultation with City of Visalia staff and are located within 1-mile of the Project site based on analysis requirements found in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021.

Intersections

- ✓ Shirk Street / SR 198 EB Ramps
- ✓ Shirk Street / SR 198 WB Ramps
- ✓ Shirk Street / Hillsdale Avenue
- ✓ Shirk Street / School Avenue
- ✓ Shirk Street / Hurley Avenue
- ✓ Shirk Street / Allen Avenue (New Road)
- ✓ Shirk Street / Goshen Avenue
- ✓ Road 88 / Project Access
- ✓ Road 88 / Goshen Avenue

The existing lane geometry at study area intersections is shown in Figure 2-1. Figure 2-2 shows existing traffic volumes for the AM and PM peak hours in the study area.

2.4 Level of Service

2.4.1 *Intersection Capacity Analysis*

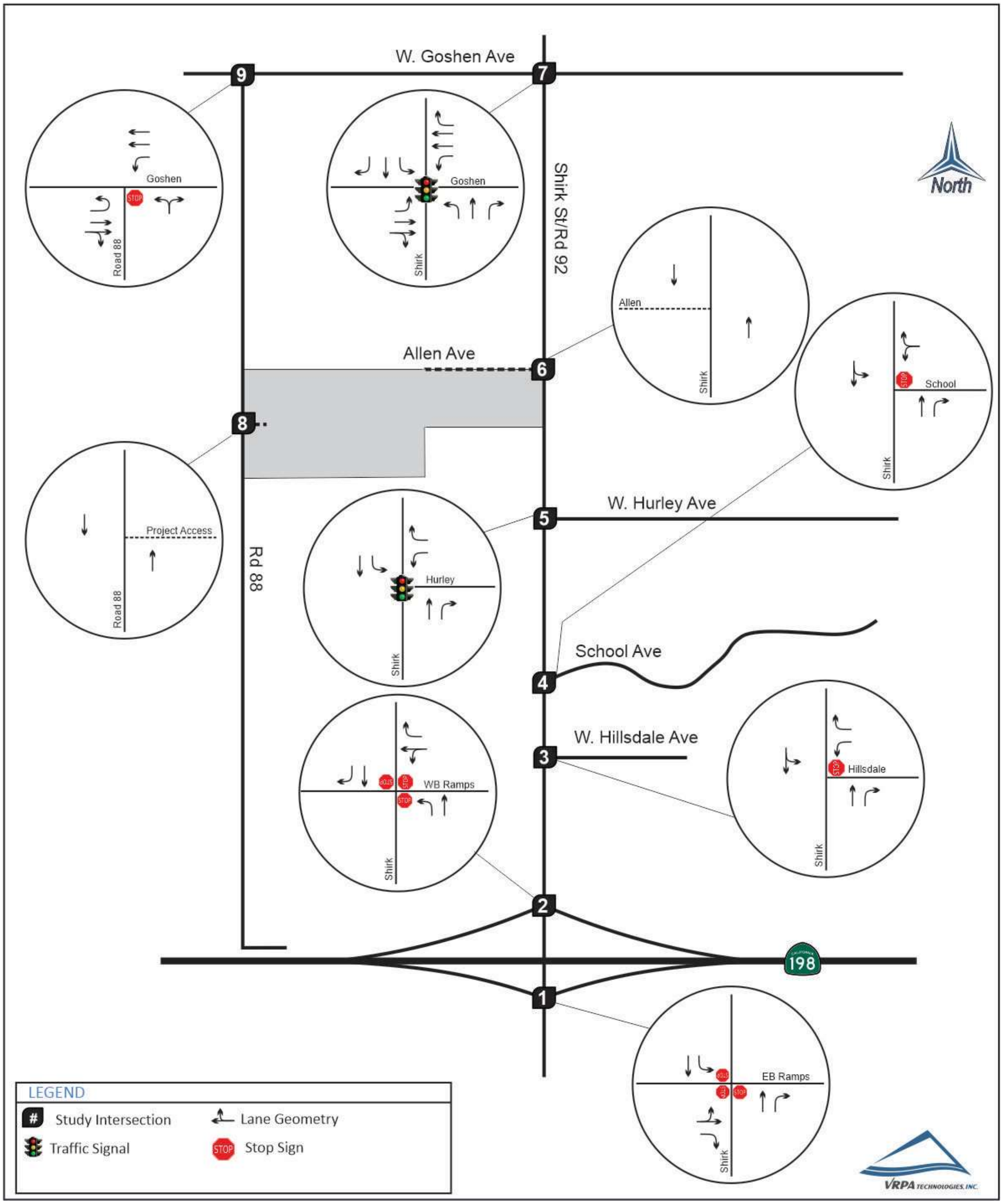
All intersection LOS analyses were estimated using Synchro 10 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc.) were input into the Synchro 10 Software program to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 6th Edition HCM outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

- ✓ **Lane Geometry**
  - Storage lengths for turn lanes for existing intersections were obtained from aerial photos and rounded to the nearest 25 feet
  - VRPA conducted a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data such as signal timing and phasing, where applicable

- ✓ **Traffic Conditions**
  - Peak hour factors (PHF) for each intersection approach was obtained from traffic counts in the study area and were utilized for Existing, Opening Day, and 5-Year Horizon conditions. For 10-Year Horizon and 20-Year Horizon conditions, a PHF of 0.92 was applied unless the existing PHF was greater than 0.92
  - Heavy vehicle percentages were based on the HCM default
  - Roadway link speed limits were observed in the field and input into the Synchro network to determine roadway link speeds

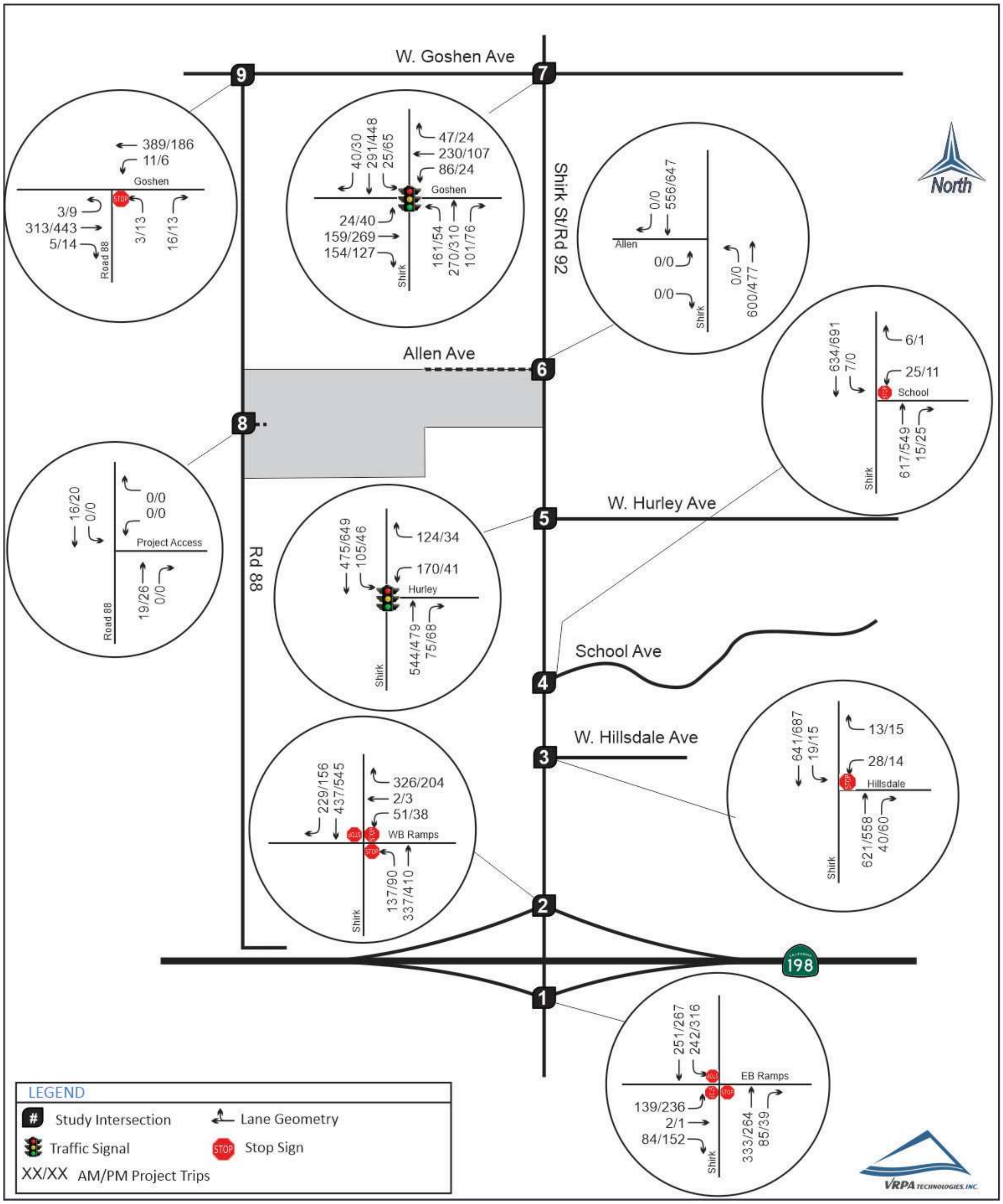
Iron Ridge Development
Existing Lane Geometry

Figure 2-1



Iron Ridge Development
Existing AM & PM Peak Hour Volumes

Figure 2-2



Results of the analysis show that all of the study intersections currently meet the City of Visalia's minimum level of service criteria with the exception of the Shirk Street at Hillsdale Avenue intersection (AM Peak hour). It should be noted that the peak hour traffic at the intersection does not meet the California MUTCD Peak Hour (Warrant 3). As indicated in Chapter 1, the City of Visalia uses the California MUTCD Eight (8) Peak Hour Signal Warrant (Warrant 1) when evaluating the need for signalization at an intersection. Table 2-1 shows the intersection LOS for the existing conditions. Synchro 10 (HCM 6th Edition) Worksheets are provided in Appendix B.

2.4.2 *Queuing Analysis*

Table 2-2 provides a queue length summary for left and right turn lanes at the study intersections for Existing Conditions. Queuing analysis for City of Visalia intersections was completed using the queuing formulas presented in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021. Queuing analysis for Caltrans intersections was completed using Index 405.2 pf the Highway Design Manual (HDM). As shown in Table 2-2, there are a few locations where queuing currently exceeds the existing queue lane storage length.

2.5 Study Area Collision Data

The Transportation Injury Mapping System (TIMS) provided by University of California, Berkeley was used to evaluate traffic collisions in the study area. TIMS utilizes geocoded data provided by the Statewide Integrated Traffic Records System (SWITRS). SWITRS is a tool used by California Highway Patrol (CHP) and other Allied Agencies throughout California and includes various types of statistical reports and data. The database serves as a means to collect and process data gathered from a collision scene. Information from the TIMS database shows that approximately seven (7) injury or fatal accidents have occurred throughout the study area in the past 3 years. A graphical representation of traffic collisions throughout the study area for the past 3 years is provided in Figure 2-3. Collision data worksheets are provided in Appendix C. The City of Visalia area had approximately 1,276 injury or fatal accidents over the same timeframe referenced above. Injury and fatal accidents in the study area represent 0.5% of incidents that occurred in the City of Visalia. Collision data in the study area shows that 'Rear End' and 'Broadside' collisions are the most common accidents in the study area.

Table 2-1
Existing Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	All-Way Stop Sign	-- [1]	AM	15.8	C
			PM	17.3	C
2. Shirk Street / SR 198 WB Ramps	All-Way Stop Sign	-- [1]	AM	33.7	D
			PM	32.0	D
3. Shirk Street / Hillsdale Avenue	One-Way Stop Sign	D	AM	**38.2**	**E +**
			PM	29.4	D
4. Shirk Street / School Avenue	One-Way Stop Sign	D	AM	30.3	D
			PM	26.7	D
5. Shirk Street / Hurley Avenue	Signalized	D	AM	18.0	B
			PM	8.4	A
6. Shirk Street / Allen Avenue	One-Way Stop Sign	D	AM		
			PM		
7. Shirk Street / Goshen Avenue	Signalized	D	AM	30.4	C
			PM	24.8	C
8. Road 88 / Project Access	One-Way Stop Sign	D	AM		
			PM		
9. Road 88 / Goshen Avenue	One-Way Stop Sign	D	AM	10.8	B
			PM	12.8	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

+ Does not meet peak hour signal warrants. Provided for inormation purposes only.

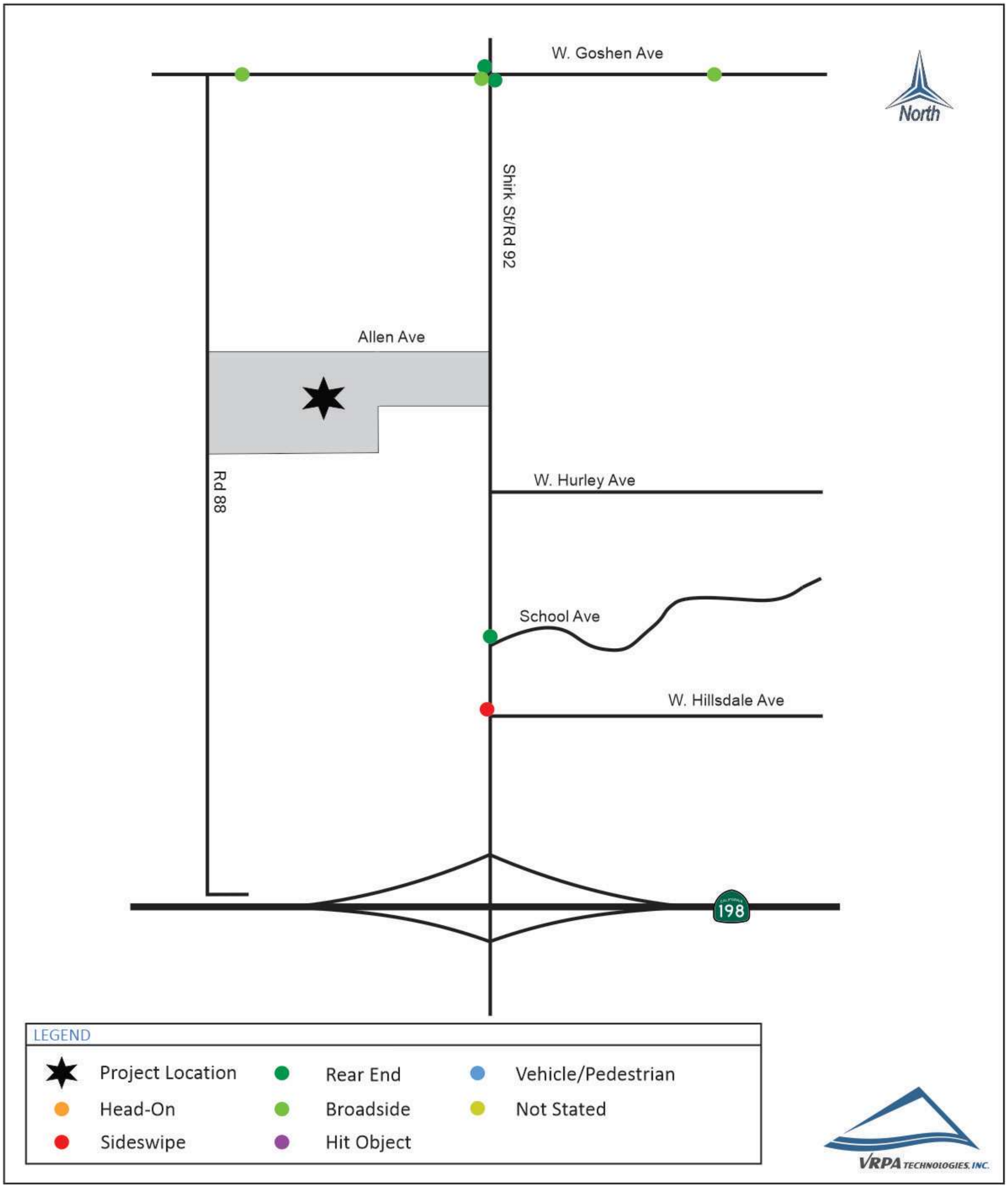
Table 2-2
Existing Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING CONDITIONS AM Queue	EXISTING CONDITIONS PM Queue
Shirk Street / SR 198 EB Ramps	NB Right	50	**71**	33
	SB Left	150	**202**	**263**
	EB Right	200	70	127
Shirk Street / SR 198 WB Ramps	NB Left	200	114	158
	SB Right	50	**191**	**130**
	WB Right	350	272	170
Shirk Street / Hillsdale Avenue	NB Right	100	33	50
	WB Right	125	11	13
Shirk Street / School Avenue	NB Right	225	13	21
Shirk Street / Hurley Avenue	NB Right	250	109	99
	SB Left	200	153	67
	WB Left	275	248	60
Shirk Street / Goshen Avenue	NB Left	250	235	79
	NB Right	100	**147**	**111**
	SB Left	50	36	**95**
	SB Right	50	**58**	44
	EB Left	275	35	58
	WB Left	275	125	35
	WB Right	250	69	35
Road 88 / Goshen Avenue	EB Left	200	3	8
	WB Left	200	9	5

Queue is measured in feet / **BOLD** denotes exceedance

Iron Ridge Development
Existing Study Are Collision Map (01/01/2018 - 12/31/2020)

Figure 2-3



3.0 Traffic Impacts

3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Table 3-1.

Table 3-1
Project Trip Generation

									Peak Hour Trips			
Land Use	**Units**	**ITE Land Use Code**	**Daily Trip Rate**	**Daily Trips**	**% AM Peak**	**% AM Inbound**	**% PM Peak**	**% PM Inbound**	**AM In**	**AM Out**	**PM In**	**PM Out**
Single Family Housing	241	210	9.407	2,267	7.3%	26%	10.0%	63%	43	123	143	84
			Total	2,267				**Total**	43	123	143	84
									166		227	

Generation factors from ITE Trip Generation Manual, 11th Edition

The trip generation in Table 3-1 is based on a project size of 241 dwelling units and the current (11th Edition) of the ITE trip generation manual. The remainder of the calculations are based on slightly larger (more conservative) trip generation numbers using a previous project size (238 dwelling units) and the (10th Edition) of the ITE trip generation manual. The remainder of the calculations are based on 2,309 daily trips, 174 AM peak hour trips, and 234 PM peak hour trips.

3.2 Trip Distribution

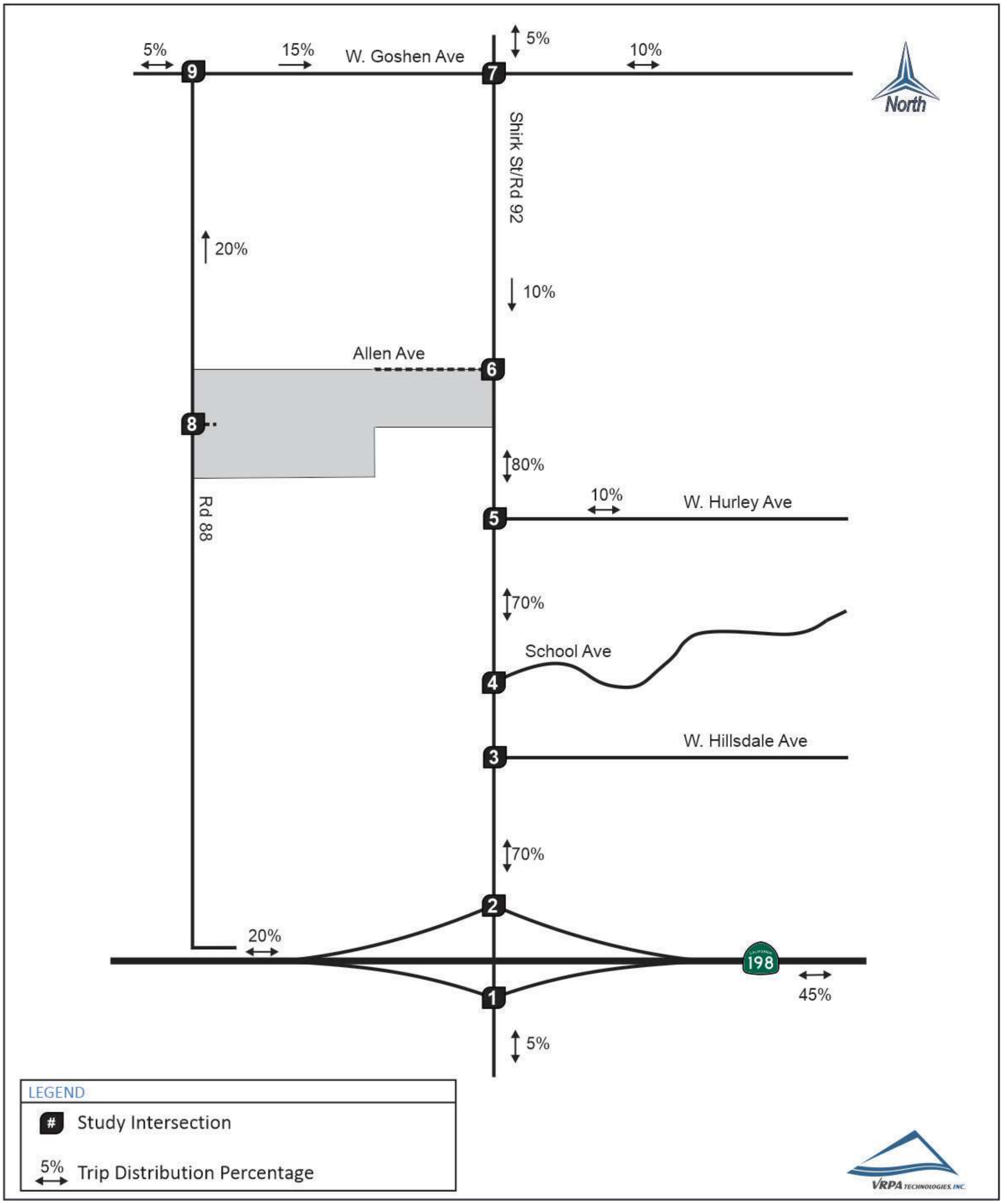
Project trip distribution percentages for the Opening Year, 5-Year Horizon, 10-Year Horizon, and 20-Year Horizon scenarios is shown in Figure 3-1. These percentages are based upon knowledge of the study area, engineering judgement, prevailing traffic patterns in the study area, major routes, population centers, and other existing development.

Vehicular access to the site would be provided by Shirk Street, Allen Avenue (new road), and Road 88. The new roadway would be constructed to City standards and would be dedicated as public right of way. Regional access to the site is provided via SR 198.

Based on the projected trips, the project will generate 174 AM peak hour trips and 234 PM peak hour trips. A project of this size is considered a moderate development and therefore requires a Category II analysis. VRPA has prepared an analysis consistent with Table 1 in the City of Visalia "Procedures for Traffic Impact Analysis (TIA)".

Iron Ridge Development
Trip Distribution - Opening Year and Horizon Scenarios

Figure 3-1



3.3 Project Traffic

Project traffic as shown in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figures 3-1. A graphical representation of the resulting AM and PM peak hour Project trips used is shown in Figure 3-2.

3.4 Approved/Pending Project Traffic

Traffic impact analyses typically require the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. There are several development projects in the Project's vicinity that will add new trips to the intersections and roadway segments being evaluated in this TIS. The approved or pending projects included in this TIS are graphically displayed in Figure 3-3. Trip generation and distribution information for the approved and pending developments was estimated using trip generation rates from the ITE Trip Generation Manual (10th Edition) and engineering judgement and prevailing traffic patterns. Table 3-2 shows the trip generation information for approved and pending projects and Figure 3-4 shows the AM and PM peak hour trips for approved and pending project traffic. The peak hour trips for approved and pending project traffic were applied to the Opening Year, 5-Year Horizon, 10-Year Horizon, and 20-Year Horizon conditions discussed later in the report.

3.5 Opening Year Traffic Conditions

Traffic conditions with and without the Project in the Year 2022 were estimated by applying a growth rate of 2% per year to the existing traffic volumes. A comparison of the TCAG base year and future year travel model showed that the growth in the study area is approximately 2% per year. The resulting traffic for the Opening Year scenario is shown in Figures 3-5 and 3-6.

3.6 5-Year Horizon Traffic Conditions

Traffic conditions with and without the Project in the Year 2027 (5 years after Opening conditions) were estimated by applying a growth rate of 2% per year to the existing traffic volumes. A comparison of the TCAG base year and future year travel model showed that the growth in the study area is approximately 2% per year. The resulting traffic for the Opening Year scenario is shown in Figures 3-7 and 3-8.

3.7 10-Year and 20-Year Horizon Traffic Conditions

The impacts of the Project were analyzed considering future traffic conditions in the year 2032 and 2042. It should be noted that 2032 and 2042 conditions were only evaluated for the Shirk Street at SR 198 intersections. The levels of traffic expected in 2032 and 2042 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies, including the City of Visalia and Tulare County. Traffic conditions without the Project in the Year 2032 and 2042 were estimated by applying a growth rate of 2.3% per year to the existing traffic volumes which is based on the SR 198 Transportation Concept Report. The resulting traffic for the 10-Year and 20-Year scenario is shown in Figure 3-9, 3-10, 3-11, and 3-12.

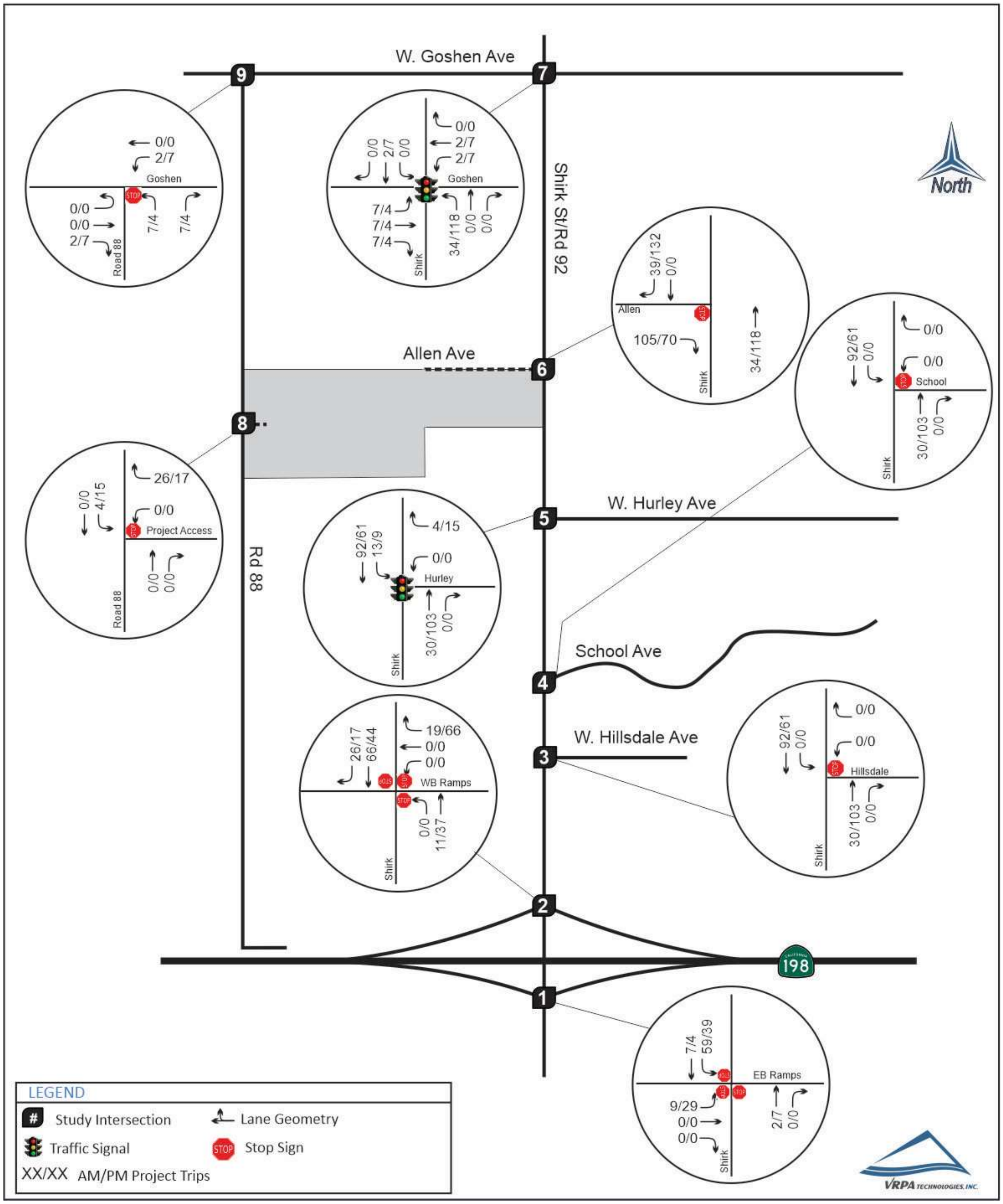
Table 3-2
Approved and Pending Project Trip Generation

PROJECT NAME	LAND USE	QUANTITY	WEEKDAY AM PEAK HOUR				WEEKDAY PM PEAK HOUR			
			RATE	VOLUME			RATE	VOLUME		
				IN	OUT	TOTAL		IN	OUT	TOTAL
C.U.P. 2017-08	Multi-Family Residential	200 D.U.	0.46	23	69	92	0.56	71	41	112
Building Permit B204641	RV Park Storage	6.6 acres	0.74	2	1	3	0.98	4	2	6
	Single Family Residential	3 D.U.	0.74	2	0	2	0.99	2	1	3
C.U.P. 2021-01	Church	18.65 k.s.f	0.33	4	2	6	0.49	5	6	11
Walnut Park Estates Tentative Subdivision Map No. 5572	Single Family Residential	34 D.U.	0.74	7	22	29	0.99	23	13	36
Hillsdale Southland Tentative Subdivision Map No. 5574	Single Family Residential	41 D.U.	0.74	8	26	34	0.99	27	16	43
Building Permit B213733 [1]	Fuel transfer facility improvement	N/A	N/A	0	0	0	N/A	0	0	0
C. U.P 2020-24	11,100 sq. ft. Vocational Training and Administrative Facility	11.1 k.s.f	11.59	88	73	161	6.53	35	37	72
TOTAL TRIP GENERATION				**134**	**193**	**327**		**167**	**116**	**283**

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.
1: Onsite Improvements

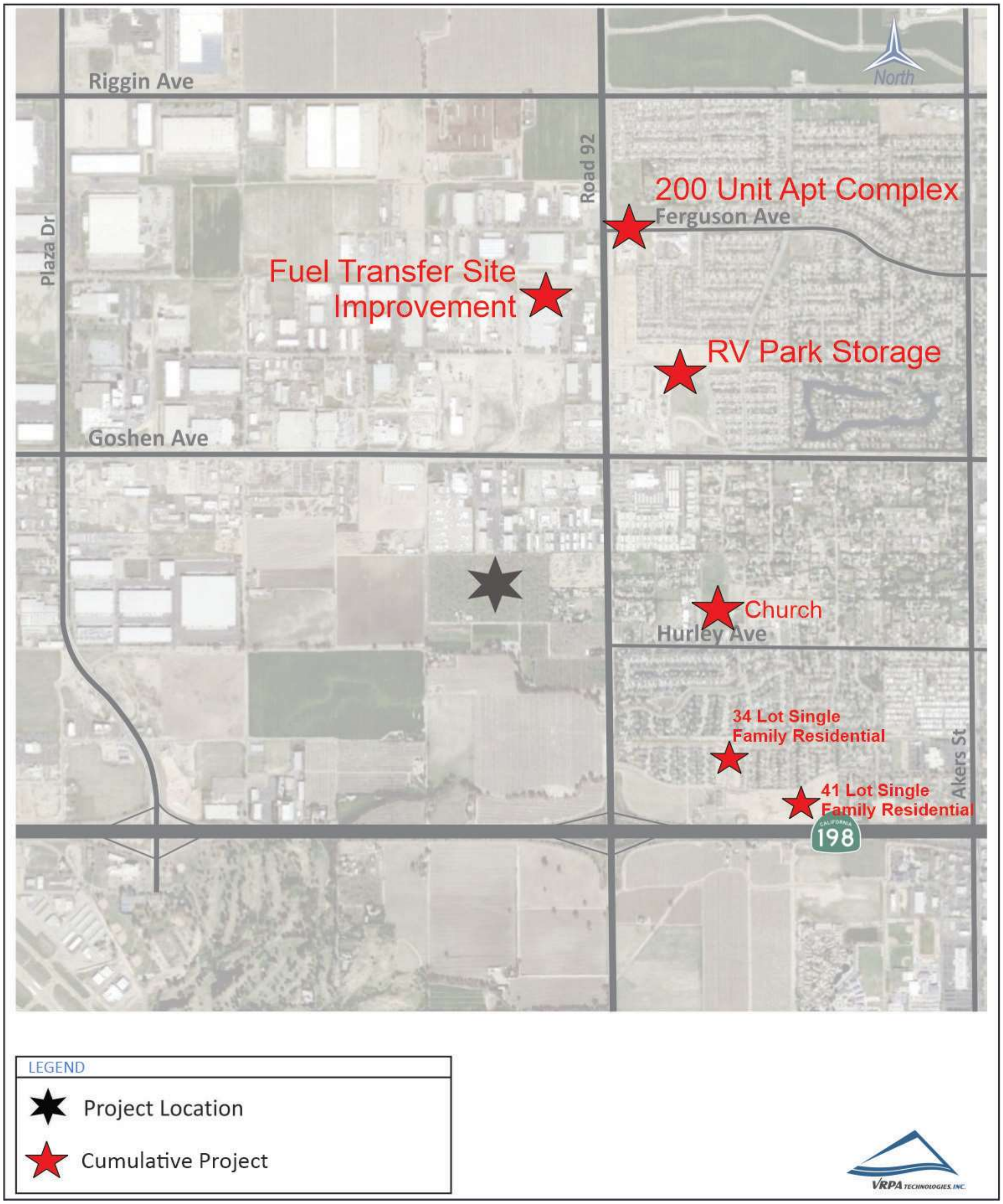
Iron Ridge Development
AM & PM Peak Hour Project Trips

Figure 3-2



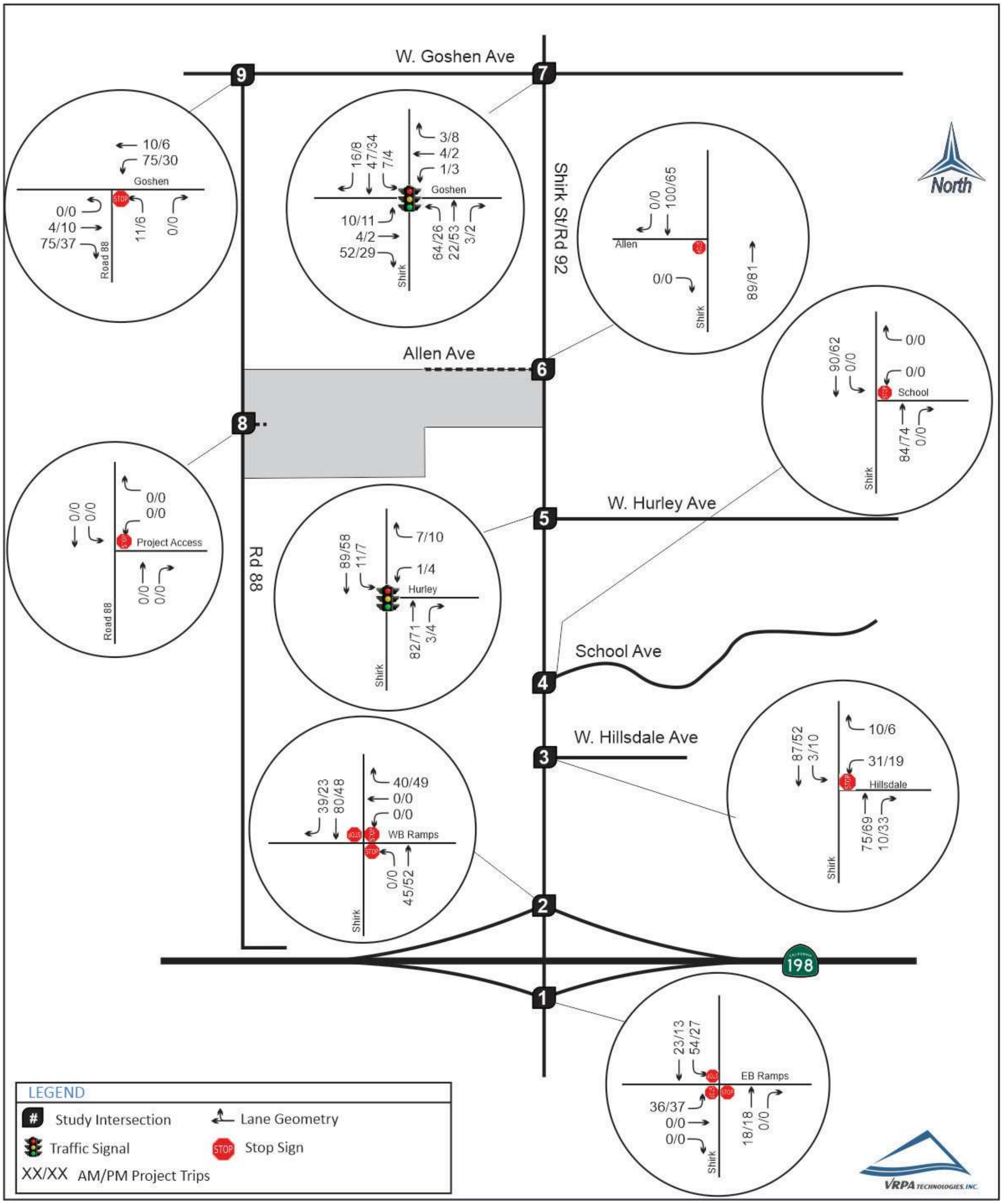
Iron Ridge Development
Approved/Pending Project Location

Figure 3-3



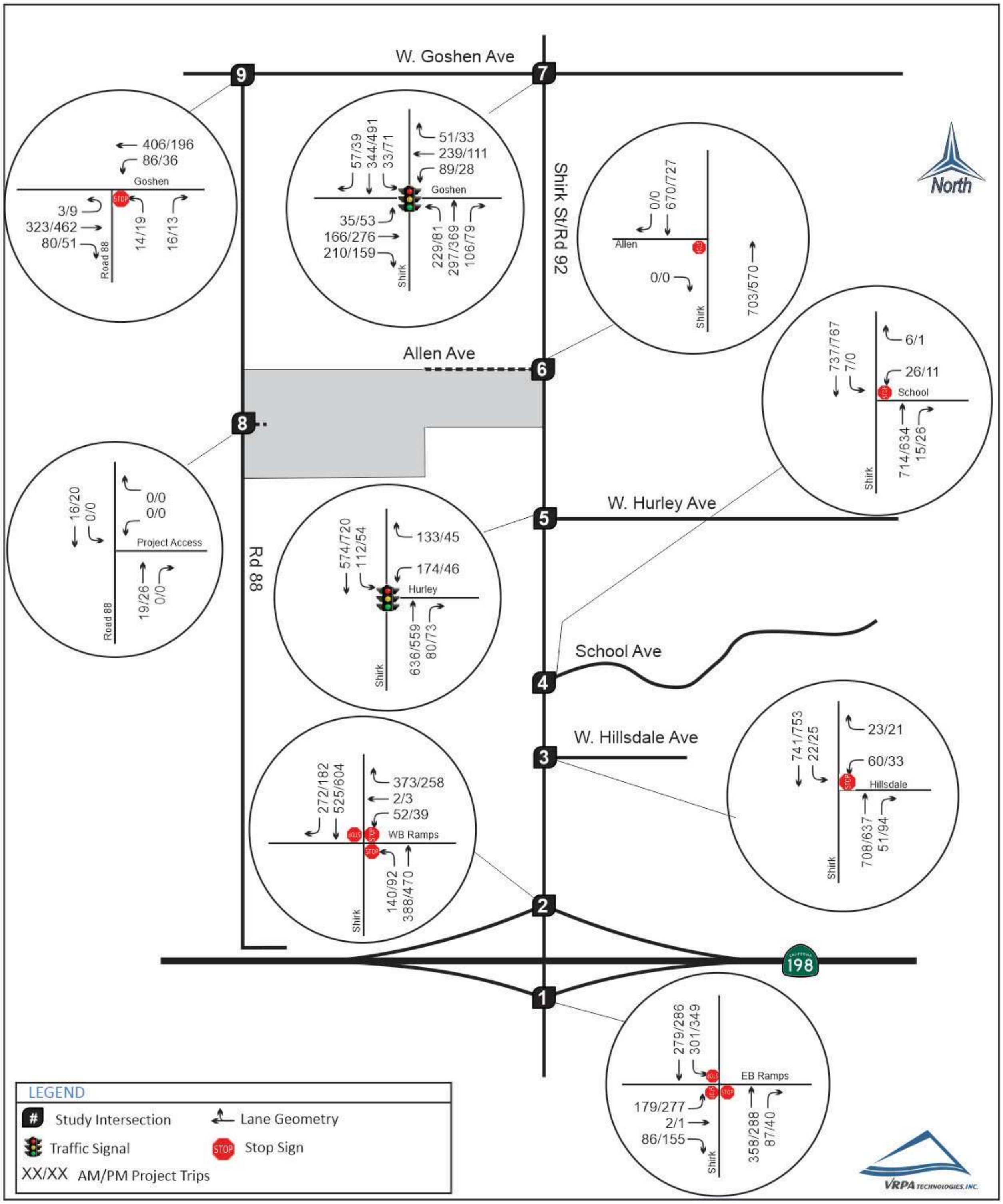
Iron Ridge Development
Approved/Pending Projects AM & PM Peak Hour Traffic

Figure 3-4



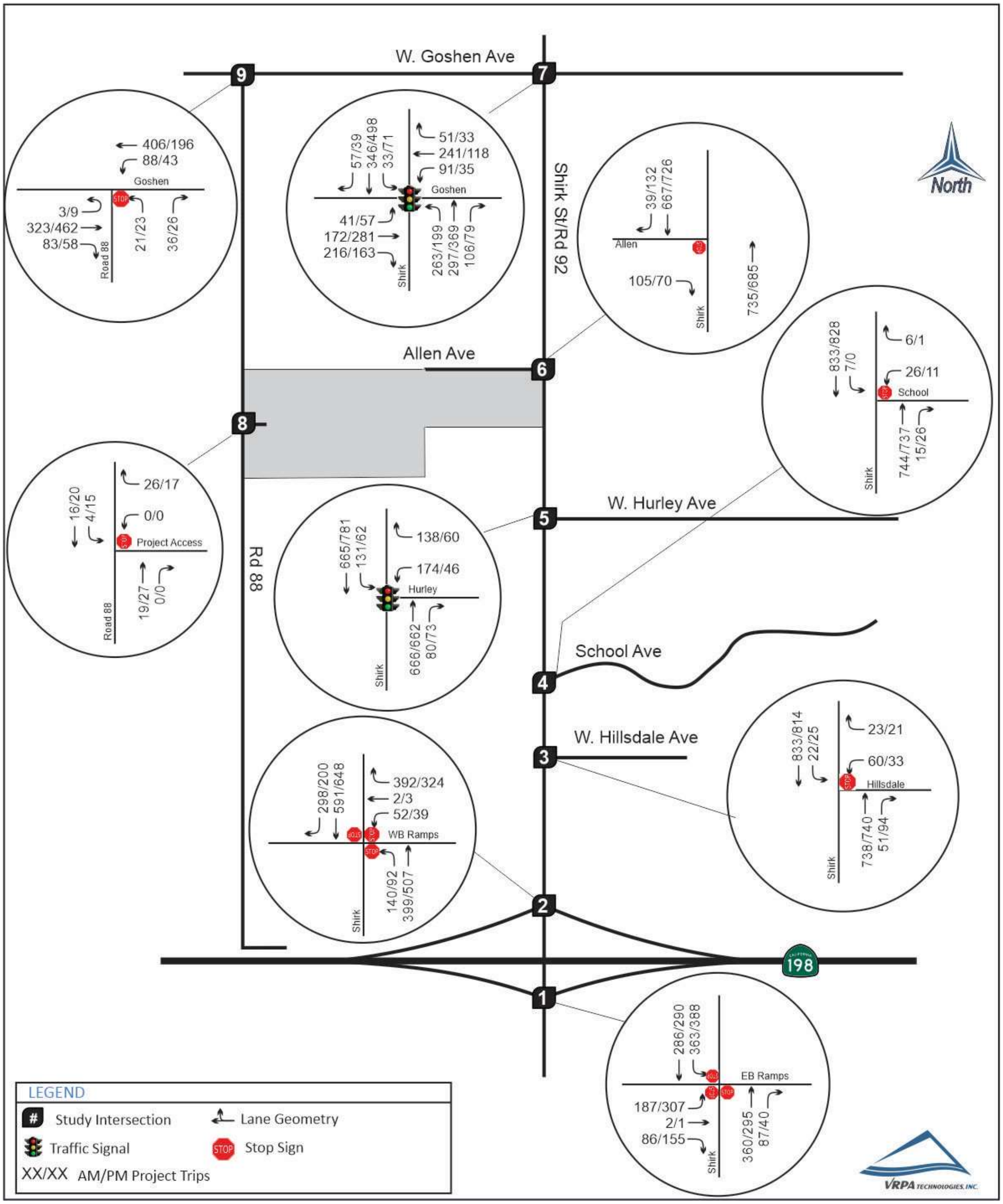
Iron Ridge Development
Opening Year Without Project AM & PM Peak Hour Traffic

Figure 3-5



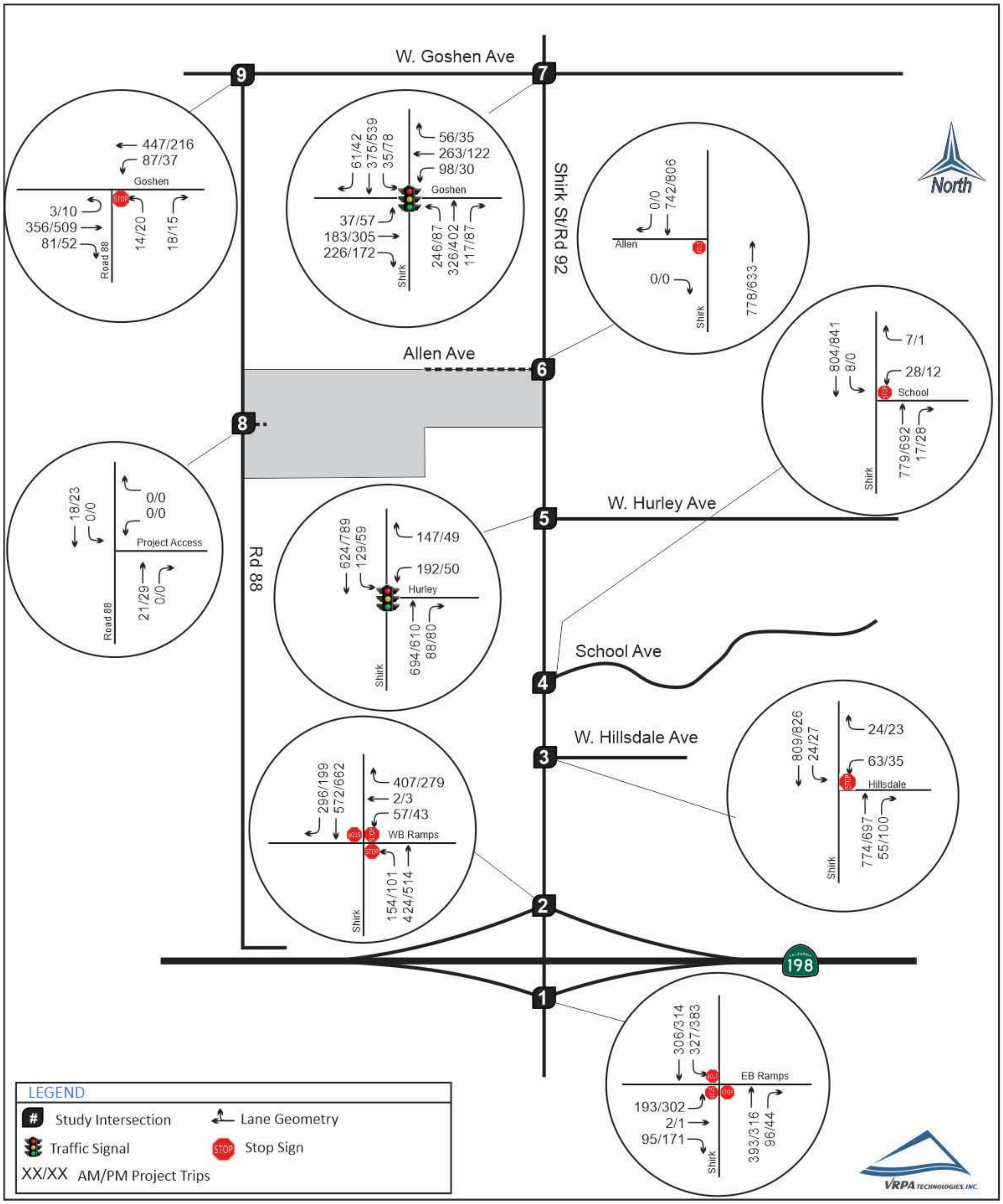
Iron Ridge Development
Opening Year Plus Project AM & PM Peak Hour Traffic

Figure 3-6



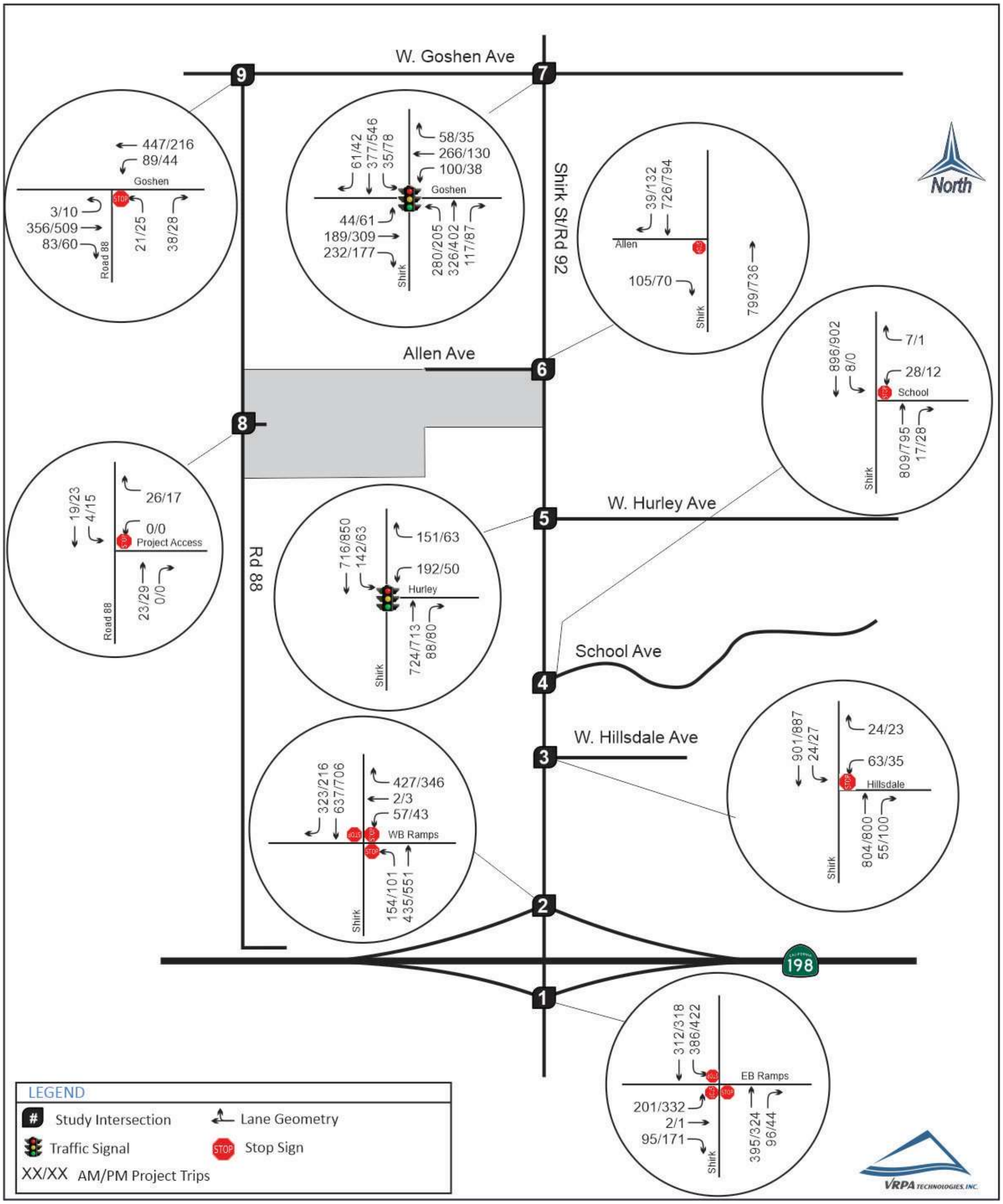
Iron Ridge Development
5-Year Horizon Without Project AM & PM Peak Hour Traffic

Figure 3-7



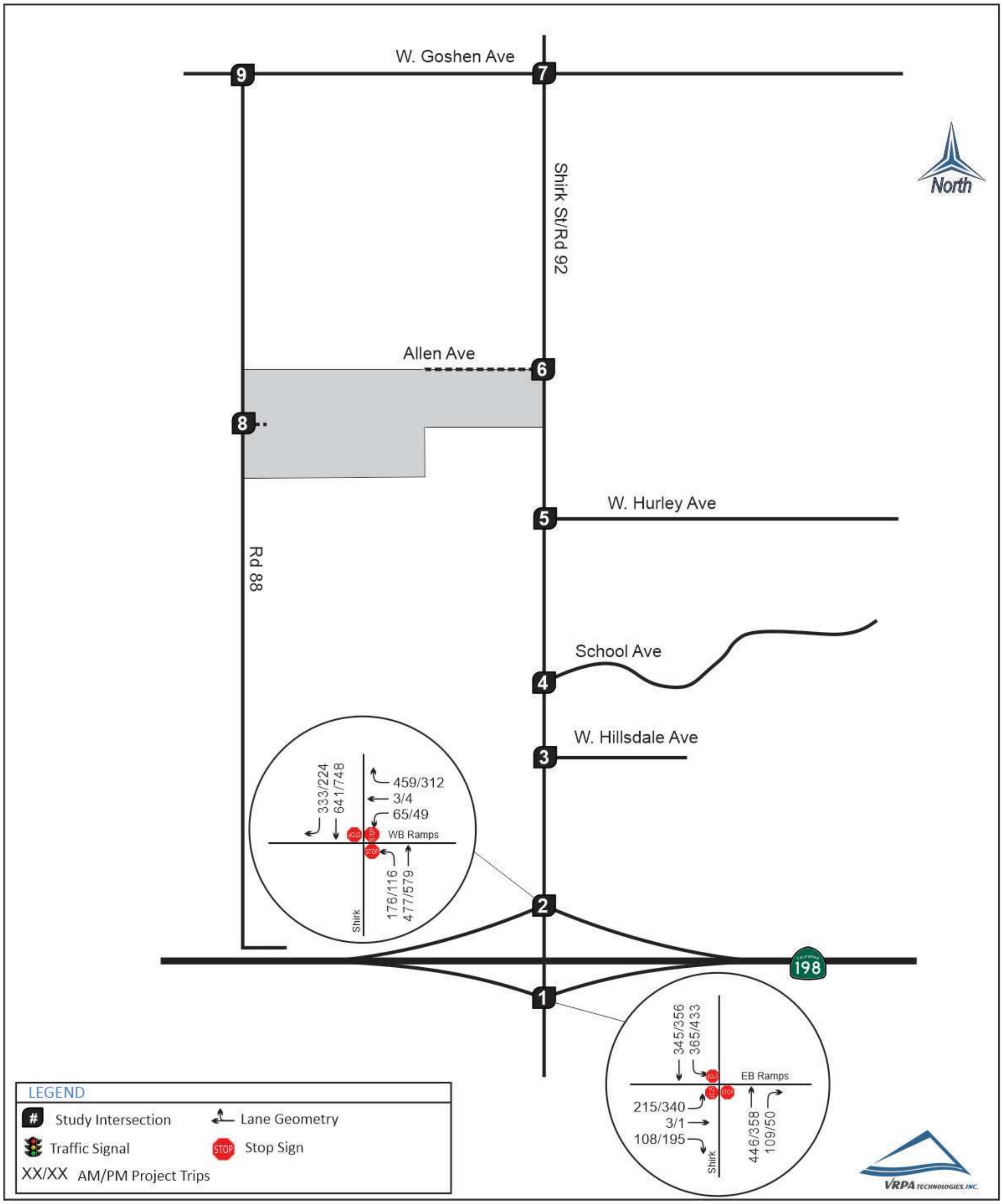
Iron Ridge Development
5-Year Horizon Plus Project AM & PM Peak Hour Traffic

Figure 3-8



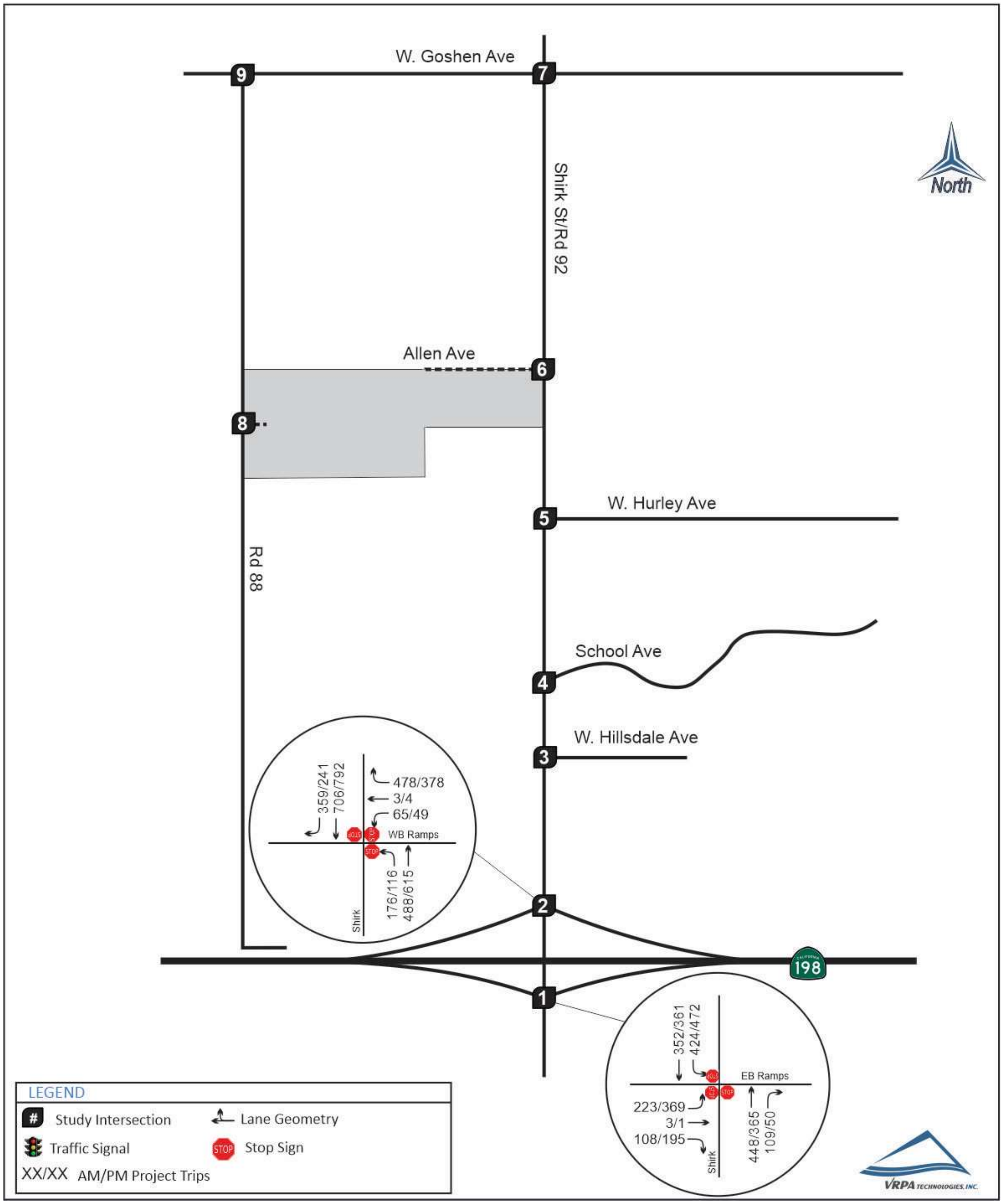
Iron Ridge Development
10-Year Horizon Without Project AM & PM Peak Hour Traffic

Figure 3-9



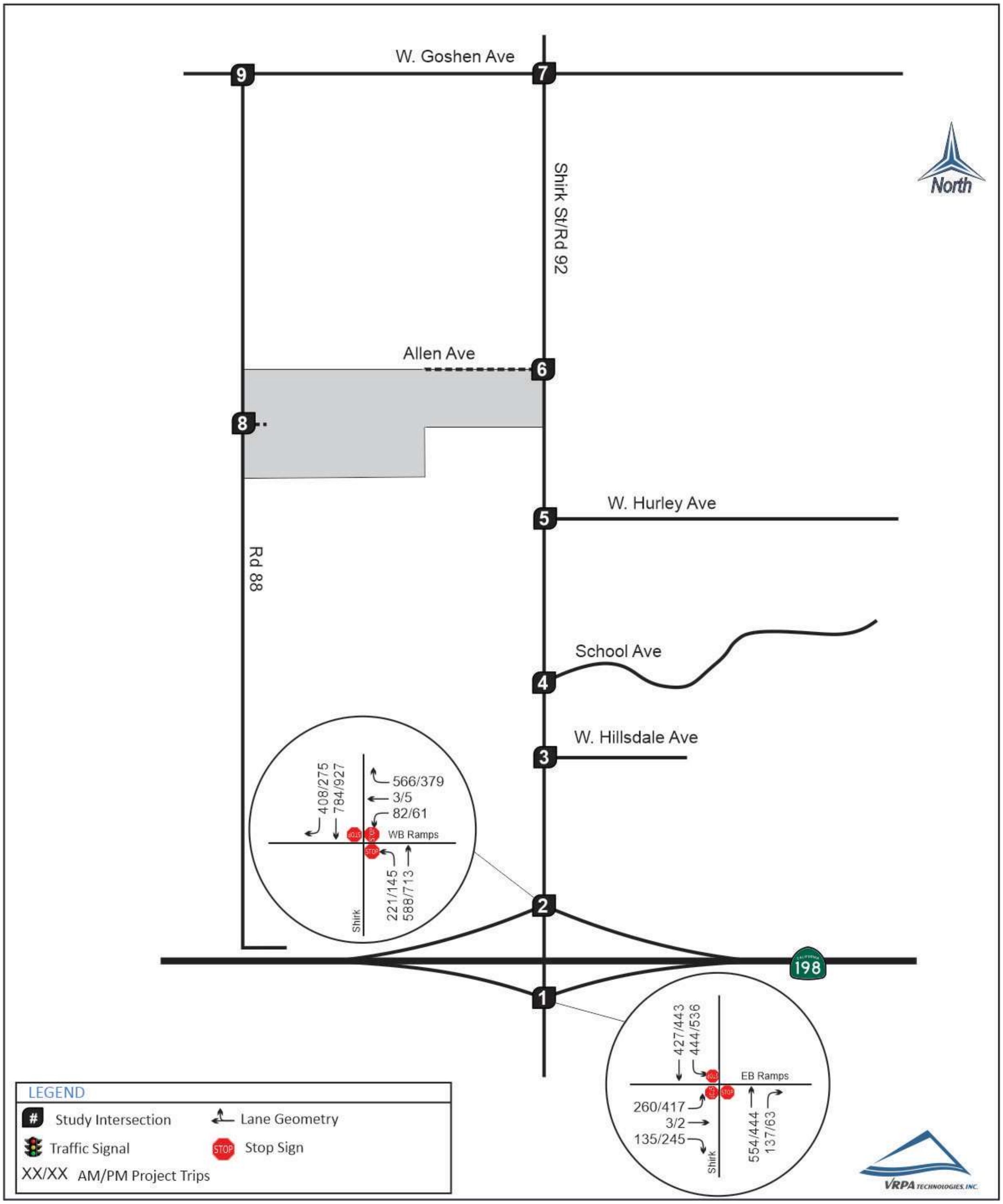
Iron Ridge Development
10-Year Horizon Plus Project AM & PM Peak Hour Traffic

Figure 3-10



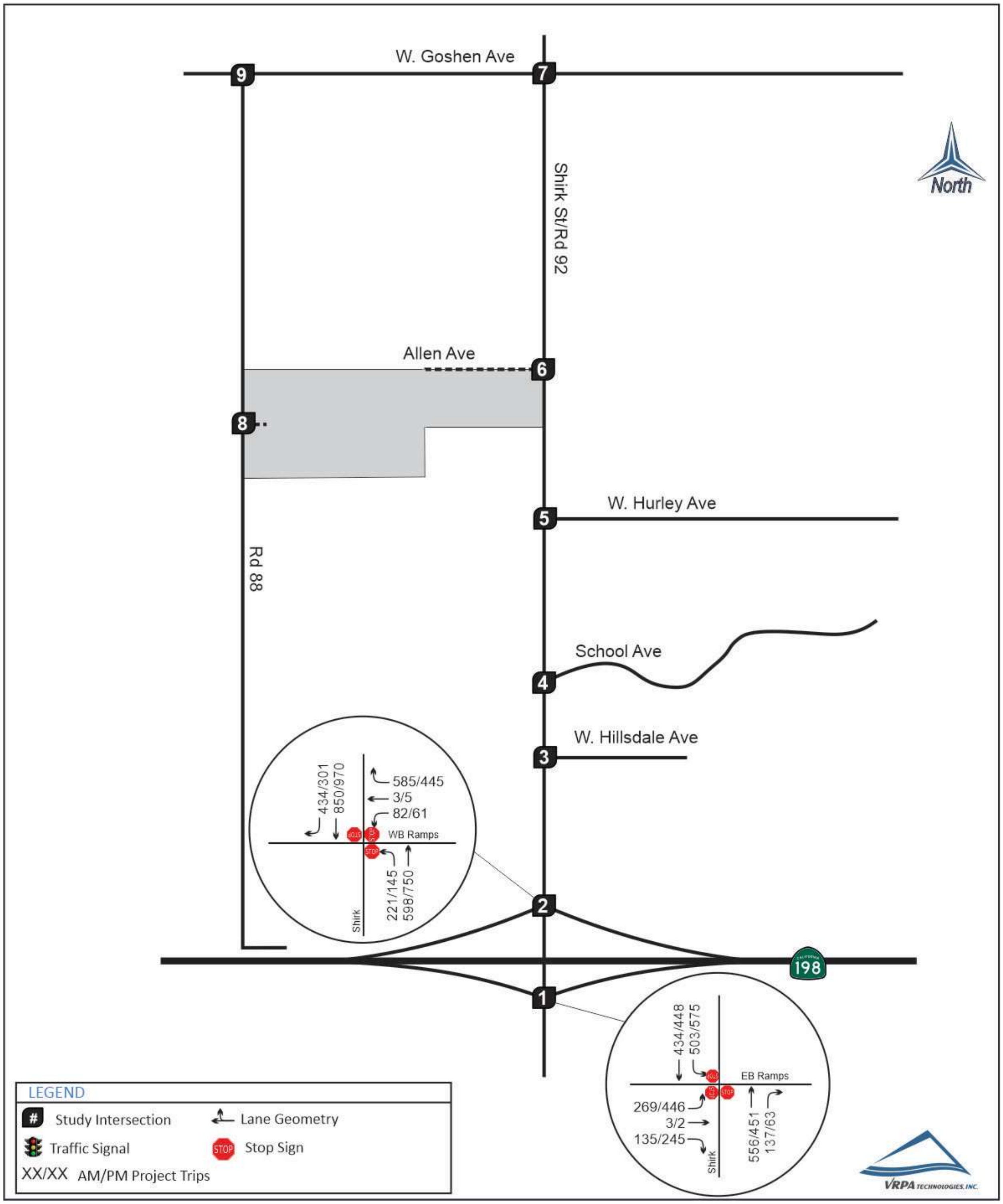
Iron Ridge Development
20-Year Horizon Without Project AM & PM Peak Hour Traffic

Figure 3-11



Iron Ridge Development
20-Year Horizon Plus Project AM & PM Peak Hour Traffic

Figure 3-12



3.8 Impacts

3.8.1 *Intersection Capacity Analysis*

Table 3-3 provides the intersection level of service analysis for the study intersections considering the study scenarios discussed above. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the Project will contribute to an unacceptable LOS at four (4) of the study intersections when comparing the 5-Year Horizon scenarios.

3.8.2 *Queuing Analysis*

Table 3-4 provides a queue length summary for left and right turn lanes at the study intersections for Existing Conditions. Queuing analysis for City of Visalia intersections was completed using the queuing formulas presented in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021. Queuing analysis for Caltrans intersections was completed using Index 405.2 of the HDM. The queue presented in Table 3-4 represents the approximate queue lengths for the respective lane movements. Results of the queuing analysis show that several movements exceed the existing queue lane storage lengths. Chapter 4 of this report provides recommended storage lengths for study area intersections.

3.9 Project Access

Vehicular access to the site would be provided by Shirk Street, Allen Avenue (new road), and Road 88. The new roadway would be constructed to City standards and would be dedicated as public right of way. Project access at Road 88 would also be consistent with City standards and would meet adequate spacing requirements with respect to the existing driveway to the north. Shirk Street is classified as an arterial which includes restricted access along the corridor. The Project driveway at Shirk Street and Allen Avenue would be restricted to right-in and right-out access once a center median is installed. Results of the analysis presented in Table 3-3 indicates that the intersection will meet the City of Visalia's level of service criteria/standard. The Project Driveway located along Road 88 is also projected to meet the City's level of service criteria.

3.10 VMT Analysis

The VMT analysis was conducted according to the City of Visalia's VMT Thresholds and Implementation Guidelines (City of Visalia 2021).

For residential projects, VMT analysis is conducted by comparing the project's expected VMT/capita to regional averages. The Project's VMT impacts are considered to be less than significant if the Project's VMT per capita is 16% below regional averages (or lower). A model run of the Tulare Council of Governments (TCAG) regional travel demand model was used in making this calculation.

The City of Visalia's VMT Thresholds and Implementation Guidelines provide the following documentation for the selection of a significance threshold of VMT per capita 16% below the regional average:

"CARB establishes GHG targets for each of the 18 MPOs in the State, reviews the SCSs, and makes a determination of whether the SCSs would achieve GHG reduction targets if implemented. In the spring of 2018, CARB adopted new GHG targets for all the 18 MPOs in the State based on the 2017 Scoping Plan and other new data as illustrated in Figure 9. CARB established a 16 percent GHG reduction target for 2035 for the Tulare region. The State recognizes that Tulare County's contribution to the aggregate 15 percent statewide GHG emission reduction is 16 percent. Other regions may achieve lower reductions to achieve the aggregate statewide goal.4 As such, reduction in GHG directly corresponds to reduction in VMT. In order to reach the statewide GHG reduction goal of 15 percent, the Tulare region must reduce GHG by 16 percent. The method of reducing GHG by 16 percent is to reduce VMT by 16 percent as well.

Therefore, the City has established a threshold for land use developments, specifically residential and office, of exceeding 16 percent below the existing regional VMT per capita or VMT per employee as indicative of a significant environmental impact."

The results are as follows:

Project VMT/capita: 8.07

Regional VMT/capita: 11.7

The project's VMT/capita is 32.8% less than the regional average. Therefore, the project's VMT impacts are less than significant. A copy of the results of the model run is included in Appendix E.

Table 3-3
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	All-Way Stop Sign	-- [1]	AM	20.1	C	24.1	C	25.6	D	32.8	D	**42.6**	**E**	**52.5**	**F**	**98.6**	**F**	**116.0**	**F**
			PM	26.2	D	34.8	D	27.7	D	**49.1**	**E**	**57.7**	**F**	**62.7**	**F**	**130.3**	**F**	**148.3**	**F**
2. Shirk Street / SR 198 WB Ramps	All-Way Stop Sign	-- [1]	AM	**64.7**	**F**	**95.1**	**F**	**96.3**	**F**	**127.0**	**F**	**138.4**	**F**	**169.9**	**F**	**239.8**	**F**	**275.0**	**F**
			PM	**83.0**	**F**	**117.4**	**F**	**115.4**	**F**	**156.7**	**F**	**173.6**	**F**	**218.4**	**F**	**309.5**	**F**	**354.3**	**F**
3. Shirk Street / Hillsdale Avenue	One-Way Stop Sign	D	AM	**92.4**	**F +**	**140.4**	**F +**	**157.9**	**F +**	**242.4**	**F +**								
			PM	**54.6**	**F +**	**79.0**	**F +**	**77.6**	**F +**	**121.9**	**F +**								
4. Shirk Street / School Avenue	One-Way Stop Sign	D	AM	**43.1**	**E +**	**54.3**	**F +**	**56.4**	**F +**	**74.5**	**F +**								
			PM	34.8	D	**44.6**	**E +**	**42.9**	**E +**	**56.4**	**F +**								
5. Shirk Street / Hurley Avenue	Signalized	D	AM	18.7	B	19.7	B	21.3	C	22.4	C								
			PM	10.0	B	11.3	B	10.7	B	12.1	B								
6. Shirk Street / Allen Avenue	One-Way Stop Sign	D	AM			16.6	C			18.1	C								
			PM			16.5	C			18.0	C								
7. Shirk Street / Goshen Avenue	Signalized	D	AM	40.0	D	41.1	D	44.3	D	46.6	D								
			PM	34.4	C	41.9	D	38.0	D	49.0	D								
8. Road 88 / Project Access	One-Way Stop Sign	D	AM			8.5	A			8.5	A								
			PM			8.5	A			8.5	A								
9. Road 88 / Goshen Avenue	One-Way Stop Sign	D	AM	17.8	C	17.8	C	19.1	C	19.3	C								
			PM	17.9	C	17.9	C	19.6	C	20.1	C								

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

+ Does not meet peak hour signal warrants. Provided for informational purposes only.

Table 3-4
Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
			AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue
Shirk Street / SR 198 EB Ramps	NB Right	50	**73**	33	**73**	33	**80**	37	**80**	37	**91**	42	**91**	42	**114**	**53**	**114**	**53**
	SB Left	150	**251**	**291**	**303**	**323**	**273**	**319**	**322**	**352**	**304**	**361**	**353**	**393**	**370**	**447**	**419**	**479**
	EB Right	200	72	129	72	129	79	143	79	143	90	163	90	195	113	**204**	113	**204**
Shirk Street / SR 198 WB Ramps	NB Left	200	117	77	117	77	128	84	128	84	147	97	147	97	184	121	184	121
	SB Right	50	**227**	**152**	**248**	**167**	**247**	**166**	**269**	**180**	**278**	**187**	**299**	**201**	**340**	**229**	**362**	**251**
	WB Right	350	311	215	327	270	339	233	**356**	288	**383**	260	**398**	315	**472**	316	**488**	371
Shirk Street / Hillsdale Avenue	NB Right	100	43	78	43	78	46	83	46	83								
	WB Right	125	19	18	19	18	20	19	20	19								
Shirk Street / School Avenue	NB Right	225	13	22	13	22	14	23	14	23								
Shirk Street / Hurley Avenue	NB Right	250	117	106	117	106	128	117	128	117								
	SB Left	200	163	79	191	90	188	86	**207**	92								
	WB Left	275	**254**	67	**254**	67	**280**	73	**280**	73								
Shirk Street / Goshen Avenue	NB Left	250	**334**	118	**384**	**290**	**359**	127	**408**	**299**								
	NB Right	100	**155**	**115**	**155**	**115**	**171**	**127**	**171**	**127**								
	SB Left	50	48	**104**	48	**104**	**51**	**114**	**51**	**114**								
	SB Right	50	**83**	**57**	**83**	**57**	**89**	**61**	**89**	**61**								
	EB Left	275	51	77	60	83	54	83	64	89								
	WB Left	275	130	41	133	51	143	44	146	55								
	WB Right	250	74	48	74	48	82	51	85	51								
Road 88 / Goshen Avenue	EB Left	200	3	8	3	8	3	8	3	8								
	WB Left	200	72	30	73	36	73	31	74	37								

Queue is measured in feet / **BOLD** denotes exceedance

3.11 Impacts to Public Transit, Bicycle, and Pedestrian Facilities

The Project does not conflict with any applicable adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Visalia Transit (VT) operates 13 bus routes that serve Visalia, Farmersville, Exeter, Goshen, and Tulare. Implementation of the Project will not hinder the operation of Route 15 in the City of Visalia which runs along Shirk Street from SR 198 to north of Goshen Avenue.

The City of Visalia's Active Transportation Plan (ATP) identifies goals and objectives to improve conditions for people walking, bicycling, or using other mobility devices throughout the City of Visalia. The proposed Project will not prohibit walking or bicycling throughout the study area or within the Project boundaries. As shown in Figure 1-3, the Project includes the development of multi-use trails with exercise stations which coincides with the goals and objectives of the ATP. The Project will also include the development of sidewalks throughout the Project site.

As a result, the Project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

4.0 Mitigation

As discussed in Section 3.0 Impacts, the potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections in the long term. Considering the criteria provided in Section 1.3 and the results presented in Section 3.0, the following improvements are recommended to alleviate project-specific impacts.

4.1 Recommended Improvements

4.1.1 *Intersections*

✓ Shirk Street at SR 198 EB Ramps
Recommended improvements to achieve acceptable levels of service:

- 5-Year With Project and 10-Year With and Without Project Horizon scenarios:
  - Install Traffic Signal
- 20-Year With and Without Project Horizon scenarios:
  - Install Traffic Signal
  - Widen the eastbound approach to 1 left turn lane, 1 left-through lane, and 1 right turn lane (adding 1 left turn lane)

✓ Shirk Street at SR 198 WB Ramps
Recommended improvements to achieve acceptable levels of service:

- Opening Year With and Without Project, 5-Year With and Without Project, and 10-Year Without Project Horizon scenarios:
  - Install Traffic Signal
- 10-Year With Project and 20-Year With and Without Project Horizon scenarios:
  - Install Traffic Signal
  - Widen the westbound approach to 1 left-through lane and 2 right turn lanes (adding 1 right turn lane)

Caltrans District 6 prepared the SR 198 Corridor Study in September 2016 for TCAG and the City of Visalia. The SR 198 Corridor Study identified an L-9 interchange as the ultimate design for the Shirk Street at SR 198 interchange. The ultimate L-9 interchange would be developed over three (3) phases and includes the relocation of the SR 198 EB Ramp intersection to the south (approx. 250 ft) and four (4) lanes along Shirk Street at the interchange among other improvements.

✓ Shirk Street at Hillsdale Avenue
No improvements are recommended.

The intersection is forecasted to operate at unacceptable levels of service under the Existing (AM only), Opening Year, and 5-Year Horizon scenarios. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. As noted in Section 1.2.1, the City of Visalia uses the California MUTCD Eight (8) Peak Hour Signal Warrant (Warrant 1) when evaluating the need for signalization at an intersection.

It should be noted that the City of Visalia proposes to widen Shirk Street from two to four lanes between a point approximately 750 feet north of the intersection of Shirk Road and State Route 198 and the North Mill Creek culvert, north of School Avenue. The Project is intended to improve traffic flow and safety and to accommodate existing development and future growth in the area.

✓ Shirk Street at School Avenue
No improvements are recommended.

The intersection is forecasted to operate at unacceptable levels of service under the Existing (AM only), Opening Year, and 5-Year Horizon scenarios. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that installation of a traffic signal would alleviate level of service deficiencies at the intersection.

Post-Mitigation Level of Significance

The level of service resulting from the potential improvements identified above is shown in Table 4-1. Figure 4-1 graphically displays the recommended improvements. Table 4-2 identifies the recommended left turn and right turn lane pocket lengths for the 5-Year Horizon scenario. Although the need for extended turn lane pockets would occur at some locations prior to the 5-Year Horizon scenario, this scenario provides the maximum length needed and therefore these lengths would also provide for projected traffic volumes under the Opening Year scenario.

Table 4-1
Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		5-YEAR HORIZON WITHOUT PROJECT		5-YEAR HORIZON PLUS PROJECT		10-YEAR HORIZON WITHOUT PROJECT		10-YEAR HORIZON PLUS PROJECT		20-YEAR HORIZON WITHOUT PROJECT		20-YEAR HORIZON PLUS PROJECT	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Shirk Street / SR 198 EB Ramps	-- [1]	AM							18.9	B	18.7	B	21.0	C	22.1	C	26.5	C
		PM							20.5	C	23.7	C	29.2	C	32.2	C	37.6	D
2. Shirk Street / SR 198 WB Ramps	-- [1]	AM	23.1	C	26.5	C	27.9	C	36.5	D	39.2	D	23.0	C	47.8	D	50.1	D
		PM	12.9	B	15.6	B	14.5	B	18.5	B	22.0	C	17.0	B	26.5	C	37.5	D

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

1 - With the changes brought about by SB 743, Caltrans no longer uses level of service to determine the need for transportation improvements. Instead, the focus is on providing adequate facilities for pedestrians, bicycles, and transit as well as safety considerations for all transportation modes. Guidance is provided in the Transportation Impact Study Guide dated May 20, 2020 and the Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance dated July 2020. This guidance was used in determining the need for roadway improvements on Caltrans facilities.

Iron Ridge Development
Proposed Roadway Improvements

Figure 4-1

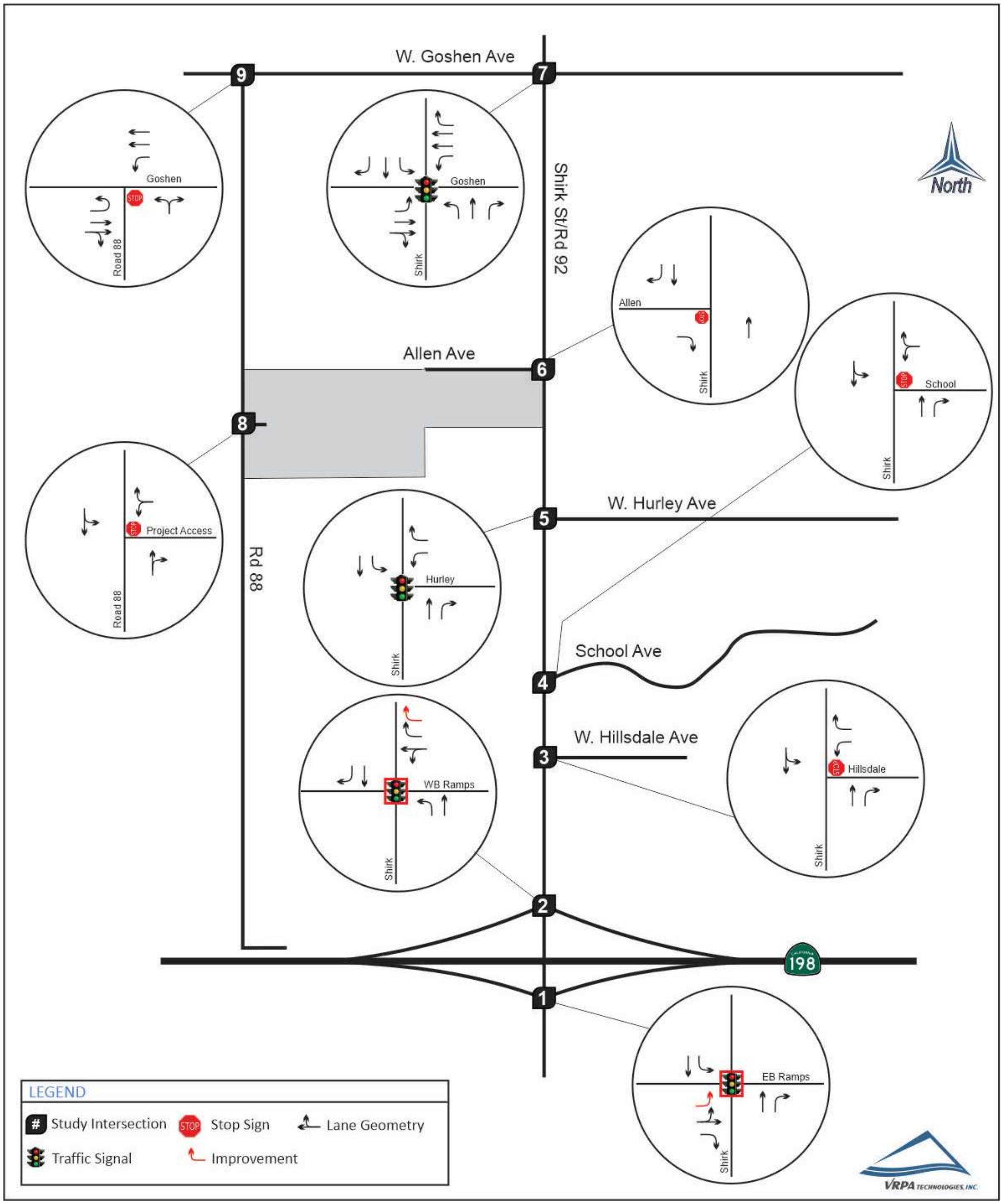


Table 4-2
Left Turn and Right Turn Storage Requirements

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		5-YEAR HORIZON RECOMMENDED STORAGE LENGTH (ft)	
Shirk Street / SR 198 EB Ramps [1]	NB Right	50	NB Right	**75**
	SB Left	150	SB Left	150
	EB Right	200	EB Right	200
Shirk Street / SR 198 WB Ramps [1]	NB Left	200	NB Left	200
	SB Right	50	SB Right	**375**
	WB Right	350	WB Right	**2 @ 350**
Shirk Street / Hillsdale Avenue	NB Right	100	NB Right	100
	WB Right	125	WB Right	125
Shirk Street / School Avenue	NB Right	225	NB Right	225
Shirk Street / Hurley Avenue	NB Right	250	NB Right	250
	SB Left	200	SB Left	**225**
	WB Left	275	WB Left	**300**
Shirk Street / Goshen Avenue	NB Left	250	NB Left	**400**
	NB Right	100	NB Right	**175**
	SB Left	50	SB Left	**125**
	SB Right	50	SB Right	**100**
	EB Left	275	EB Left	275
	WB Left	275	WB Left	275
	WB Right	250	WB Right	250
Road 88 / Goshen Avenue	EB Left	200	EB Left	200
	WB Left	200	WB Left	200

BOLD denotes change in storage length

1: Based upon 20-Year Horizon Scenario

4.2 Project Percentage of Future Traffic

This section of the report provides analysis of the percentage of future traffic generated by the project at key study area locations. This information can be used in evaluating the need for improvements to be provided by the Project. The formulas used to calculate the Project percentage of future traffic to City of Visalia/Caltrans facilities is as follows:

Project Percentage of Future Traffic = (Project Trips)/(20-Year Horizon Plus Project Traffic – Existing Traffic)

Table 4-3 the Project percentage of future traffic to City of Visalia/Caltrans facilities as described above.

Table 4-3
20-Year Horizon Equitable Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	20-YEAR HORIZON PLUS PROJECT	PROJECT PERCENTAGE
Shirk Street / SR 198 EB Ramps	AM	1,136	77	2,037	8.5%
	PM	1,275	79	2,230	8.3%
Shirk Street / SR 198 WB Ramps	AM	1,519	122	2,773	9.7%
	PM	1,446	164	2,677	13.3%
Shirk Street / Hillsdale Avenue [1]	AM	1,362	122	1,871	24.0%
	PM	1,349	164	1,872	31.4%
Shirk Street / School Avenue [1]	AM	1,304	122	1,765	26.5%
	PM	1,277	164	1,738	35.6%

1 - Provided for inormational purposes only and based on 5-Year Horizon

Implementation

Based on the results of the capacity analysis and mitigation analysis, improvements are recommended at the Shir Avenue intersections with the SR 198 Eastbound ramps and Shirk Avenue/SR 198 Westbound Ramps. Traffic signals as well as the additional lanes are expected to be needed. Implementation of this level of improvements is beyond the scale of the proposed Project and is recommended to be done by others.

It is recommended that the Project contribute to the City of Visalia's traffic impact fee program. Contribution of fees to this program will directly or indirectly contribute to the improvements described above as will as general roadway improvements in the City of Visalia.

Iron Ridge Residential Development

Transportation Impact Study - Appendix

June 27, 2022

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APPENDIX A

Existing Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: Rd 92 & SR 198 EB Ramps
City: Visalia
Control: 3-Way Stop(NB/SB/EB)

Project ID: 21-090086-001
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Rd 92				Rd 92				SR 198 EB Ramps				SR 198 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	59	7	0	36	34	0	0	38	0	15	0	0	0	0	0	189
7:15 AM	0	56	12	0	46	46	0	0	27	0	17	0	0	0	0	0	204
7:30 AM	0	73	25	0	62	66	0	0	34	0	15	0	0	0	0	0	275
7:45 AM	0	96	25	0	64	62	0	0	41	1	33	0	0	0	0	0	322
8:00 AM	0	82	15	0	56	73	0	0	39	0	25	0	0	0	0	0	290
8:15 AM	0	82	20	0	60	50	0	0	25	1	11	0	0	0	0	0	249
8:30 AM	0	54	10	0	51	25	0	0	21	1	18	0	0	0	0	0	180
8:45 AM	0	35	10	0	45	33	0	0	29	0	13	0	0	0	0	0	165
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	537	124	0	420	389	0	0	254	3	147	0	0	0	0	0	1874
APPROACH %'s :	0.00%	81.24%	18.76%	0.00%	51.92%	48.08%	0.00%	0.00%	62.87%	0.74%	36.39%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	333	85	0	242	251	0	0	139	2	84	0	0	0	0	0	1136
PEAK HR FACTOR :	0.000	0.867	0.850	0.000	0.945	0.860	0.000	0.000	0.848	0.500	0.636	0.000	0.000	0.000	0.000	0.000	0.882
	0.864				0.955				0.750								

	Rd 92				Rd 92				SR 198 EB Ramps				SR 198 EB Ramps				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	59	9	0	78	63	0	0	50	1	32	0	0	0	0	0	292
4:15 PM	0	58	10	0	80	54	0	0	44	0	41	0	0	0	0	0	287
4:30 PM	0	66	9	0	74	59	0	0	65	1	39	0	0	0	0	0	313
4:45 PM	0	61	9	0	92	80	0	0	58	0	34	0	0	0	0	0	334
5:00 PM	0	78	14	0	82	61	0	0	49	0	44	0	0	0	0	0	328
5:15 PM	0	59	7	0	68	67	0	0	64	0	35	0	0	0	0	0	300
5:30 PM	0	50	6	0	66	58	0	0	61	0	35	0	0	0	0	0	276
5:45 PM	0	54	5	0	57	37	0	0	57	0	34	0	0	0	0	0	244
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	485	69	0	597	479	0	0	448	2	294	0	0	0	0	0	2374
APPROACH %'s :	0.00%	87.55%	12.45%	0.00%	55.48%	44.52%	0.00%	0.00%	60.22%	0.27%	39.52%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	264	39	0	316	267	0	0	236	1	152	0	0	0	0	0	1275
PEAK HR FACTOR :	0.000	0.846	0.696	0.000	0.859	0.834	0.000	0.000	0.908	0.250	0.864	0.000	0.000	0.000	0.000	0.000	0.954
	0.823				0.847				0.926								

National Data & Surveying Services Intersection Turning Movement Count

Location: Rd 92 & SR 198 WB Ramps
City: Visalia
Control: 3-Way Stop(NB/SB/WB)

Project ID: 21-090086-002
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Rd 92				Rd 92				SR 198 WB Ramps				SR 198 WB Ramps				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	1	0	0	0	1	1	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	29	67	0	0	0	62	39	0	0	0	0	0	10	0	74	0	281
7:15 AM	28	54	0	0	0	85	76	0	0	0	0	0	10	1	61	0	315
7:30 AM	33	76	0	0	0	113	75	0	0	0	0	0	10	1	73	0	381
7:45 AM	39	94	0	0	0	111	52	0	0	0	0	0	15	0	116	0	427
8:00 AM	38	87	0	0	0	116	55	0	0	0	0	0	19	1	78	0	394
8:15 AM	27	80	0	0	0	97	47	0	0	0	0	0	7	0	59	0	317
8:30 AM	23	48	0	0	0	71	38	0	0	0	0	0	8	0	57	0	245
8:45 AM	19	49	0	0	0	67	22	0	0	0	0	0	8	1	58	0	224
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	236	555	0	0	0	722	404	0	0	0	0	0	87	4	576	0	2584
APPROACH %'s :	29.84%	70.16%	0.00%	0.00%	0.00%	64.12%	35.88%	0.00%					13.04%	0.60%	86.36%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	137	337	0	0	0	437	229	0	0	0	0	0	51	2	326	0	1519
PEAK HR FACTOR :	0.878	0.896	0.000	0.000	0.000	0.942	0.763	0.000	0.000	0.000	0.000	0.000	0.671	0.500	0.703	0.000	0.889
	0.891				0.886								0.723				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	1	0	0	0	1	1	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	14	92	0	0	0	138	36	0	0	0	0	0	12	0	35	0	327
4:15 PM	12	93	0	0	0	112	23	0	0	0	0	0	13	1	42	0	296
4:30 PM	27	98	0	0	0	134	38	0	0	0	0	0	8	0	47	0	352
4:45 PM	18	107	0	0	0	155	33	0	0	0	0	0	8	2	40	0	363
5:00 PM	27	97	0	0	0	137	45	0	0	0	0	0	12	1	54	0	373
5:15 PM	18	108	0	0	0	119	40	0	0	0	0	0	10	0	63	0	358
5:30 PM	19	90	0	0	0	110	28	0	0	0	0	0	18	0	48	0	313
5:45 PM	24	89	0	0	0	84	25	0	0	0	0	0	8	2	45	0	277
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	159	774	0	0	0	989	268	0	0	0	0	0	89	6	374	0	2659
APPROACH %'s :	17.04%	82.96%	0.00%	0.00%	0.00%	78.68%	21.32%	0.00%					18.98%	1.28%	79.74%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	90	410	0	0	0	545	156	0	0	0	0	0	38	3	204	0	1446
PEAK HR FACTOR :	0.833	0.949	0.000	0.000	0.000	0.879	0.867	0.000	0.000	0.000	0.000	0.000	0.792	0.375	0.810	0.000	0.969
	0.992				0.932								0.839				

National Data & Surveying Services Intersection Turning Movement Count

Location: Shirk Rd/Rd 92 & Hillsdale Ave
City: Visalia
Control: 1-Way Stop(WB)

Project ID: 21-090086-003
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Hillsdale Ave				Hillsdale Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	132	8	0	2	94	0	0	0	0	0	0	9	0	0	0	245
7:15 AM	0	106	10	0	2	149	0	0	0	0	0	0	10	0	1	0	278
7:30 AM	0	141	4	0	5	180	0	0	0	0	0	0	11	0	3	0	344
7:45 AM	0	198	14	0	3	151	0	0	0	0	0	0	9	0	5	0	380
8:00 AM	0	153	14	0	3	169	0	0	0	0	0	0	2	0	5	0	346
8:15 AM	0	129	8	0	8	141	0	0	0	0	0	0	6	0	0	0	292
8:30 AM	0	99	8	0	2	104	0	0	0	0	0	0	4	0	0	0	217
8:45 AM	0	101	5	0	1	84	0	0	0	0	0	0	3	0	0	0	194
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1059	71	0	26	1072	0	0	0	0	0	0	54	0	14	0	2296
APPROACH %'s :	0.00%	93.72%	6.28%	0.00%	2.37%	97.63%	0.00%	0.00%					79.41%	0.00%	20.59%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	621	40	0	19	641	0	0	0	0	0	0	28	0	13	0	1362
PEAK HR FACTOR :	0.000	0.784	0.714	0.000	0.594	0.890	0.000	0.000	0.000	0.000	0.000	0.000	0.636	0.000	0.650	0.000	0.896
	0.779				0.892								0.732				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	122	5	0	4	179	0	0	0	0	0	0	5	0	4	0	319
4:15 PM	0	124	7	0	4	121	0	0	0	0	0	0	4	0	5	0	265
4:30 PM	0	134	15	0	4	177	0	0	0	0	0	0	2	0	2	0	334
4:45 PM	0	126	17	0	2	180	0	0	0	0	0	0	1	0	5	0	331
5:00 PM	0	140	15	0	5	187	0	0	0	0	0	0	4	0	5	0	356
5:15 PM	0	158	13	0	4	143	0	0	0	0	0	0	7	0	3	0	328
5:30 PM	0	127	10	0	2	134	0	0	0	0	0	0	5	0	5	0	283
5:45 PM	0	126	9	0	2	100	0	0	0	0	0	0	8	0	4	0	249
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1057	91	0	27	1221	0	0	0	0	0	0	36	0	33	0	2465
APPROACH %'s :	0.00%	92.07%	7.93%	0.00%	2.16%	97.84%	0.00%	0.00%					52.17%	0.00%	47.83%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	558	60	0	15	687	0	0	0	0	0	0	14	0	15	0	1349
PEAK HR FACTOR :	0.000	0.883	0.882	0.000	0.750	0.918	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.750	0.000	0.947
	0.904				0.914								0.725				

National Data & Surveying Services Intersection Turning Movement Count

Location: Shirk Rd/Rd 92 & W School Ave
City: Visalia
Control: 1-Way Stop(WB)

Project ID: 21-090086-004
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				W School Ave				W School Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	130	3	0	1	90	0	0	0	0	0	0	5	0	0	0	229
7:15 AM	0	105	0	0	1	140	0	0	0	0	0	0	12	0	0	0	258
7:30 AM	0	143	3	0	1	175	0	0	0	0	0	0	9	0	1	0	332
7:45 AM	0	200	1	0	0	148	0	0	0	0	0	0	8	0	0	0	357
8:00 AM	0	154	6	0	2	170	0	0	0	0	0	0	3	0	2	0	337
8:15 AM	0	120	5	0	4	141	0	0	0	0	0	0	5	0	3	0	278
8:30 AM	0	98	5	0	0	98	0	0	0	0	0	0	8	0	1	0	210
8:45 AM	0	98	3	0	1	83	0	0	0	0	0	0	2	0	2	0	189
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1048	26	0	10	1045	0	0	0	0	0	0	52	0	9	0	2190
APPROACH %'s :	0.00%	97.58%	2.42%	0.00%	0.95%	99.05%	0.00%	0.00%					85.25%	0.00%	14.75%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	617	15	0	7	634	0	0	0	0	0	0	25	0	6	0	1304
PEAK HR FACTOR :	0.000	0.771	0.625	0.000	0.438	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.694	0.000	0.500	0.000	0.913
	0.786				0.911								0.775				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	119	6	0	2	182	0	0	0	0	0	0	3	0	2	0	314
4:15 PM	0	116	12	0	2	120	0	0	0	0	0	0	3	0	1	0	254
4:30 PM	0	133	5	0	0	184	0	0	0	0	0	0	1	0	0	0	323
4:45 PM	0	125	4	0	0	176	0	0	0	0	0	0	2	0	0	0	307
5:00 PM	0	140	7	0	0	192	0	0	0	0	0	0	5	0	1	0	345
5:15 PM	0	151	9	0	0	139	0	0	0	0	0	0	3	0	0	0	302
5:30 PM	0	128	5	0	2	130	0	0	0	0	0	0	6	0	0	1	272
5:45 PM	0	125	5	0	2	99	0	0	0	0	0	0	3	0	1	0	235
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1037	53	0	8	1222	0	0	0	0	0	0	26	0	5	1	2352
APPROACH %'s :	0.00%	95.14%	4.86%	0.00%	0.65%	99.35%	0.00%	0.00%					81.25%	0.00%	15.63%	3.13%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	549	25	0	0	691	0	0	0	0	0	0	11	0	1	0	1277
PEAK HR FACTOR :	0.000	0.909	0.694	0.000	0.000	0.900	0.000	0.000	0.000	0.000	0.000	0.000	0.550	0.000	0.250	0.000	0.925
	0.897				0.900								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Shirk Rd/Rd 92 & Hurley Ave
City: Visalia
Control: Signalized

Project ID: 21-090086-005
Date: 9/21/2021

Data - Totals

NS/EW Streets: Shirk Rd/Rd 92 | Shirk Rd/Rd 92 | Hurley Ave | Hurley Ave

AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	127	7	0	7	81	0	0	0	0	0	0	11	0	10	0	243
7:15 AM	0	98	9	0	9	117	0	0	0	0	0	0	23	0	14	0	270
7:30 AM	0	127	9	0	15	141	0	0	0	0	0	0	37	0	18	0	347
7:45 AM	0	180	28	0	24	83	0	0	0	0	0	0	63	0	29	0	407
8:00 AM	0	122	25	0	52	130	0	0	0	0	0	0	42	0	47	1	419
8:15 AM	0	115	13	0	14	121	0	0	0	0	0	0	27	0	30	0	320
8:30 AM	0	100	5	0	6	85	0	0	0	0	0	0	11	0	7	0	214
8:45 AM	0	98	1	0	4	70	0	0	0	0	0	0	13	0	7	0	193

	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	967	97	0	131	828	0	0	0	0	0	0	227	0	162	1	2413
APPROACH %'s :	0.00%	90.88%	9.12%	0.00%	13.66%	86.34%	0.00%	0.00%					58.21%	0.00%	41.54%	0.26%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	544	75	0	105	475	0	0	0	0	0	0	169	0	124	1	1493
PEAK HR FACTOR :	0.000	0.756	0.670	0.000	0.505	0.842	0.000	0.000	0.000	0.000	0.000	0.000	0.671	0.000	0.660	0.250	0.891
	0.744				0.797								0.799				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	101	20	0	15	182	0	0	0	0	0	0	5	0	11	0	334
4:15 PM	0	100	14	0	7	113	0	0	0	0	0	0	7	0	8	0	249
4:30 PM	0	119	15	0	12	174	0	0	0	0	0	0	9	0	12	0	341
4:45 PM	0	110	17	0	18	167	0	0	0	0	0	0	11	0	6	0	329
5:00 PM	0	116	21	0	6	182	0	0	0	0	0	0	9	0	7	0	341
5:15 PM	0	134	15	0	10	126	0	0	0	0	0	0	12	0	9	0	306
5:30 PM	0	123	11	0	10	124	0	0	0	0	0	0	9	0	5	0	282
5:45 PM	0	109	15	0	4	91	0	0	0	0	0	0	11	0	7	0	237

	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	912	128	0	82	1159	0	0	0	0	0	0	73	0	65	0	2419
APPROACH %'s :	0.00%	87.69%	12.31%	0.00%	6.61%	93.39%	0.00%	0.00%					52.90%	0.00%	47.10%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	479	68	0	46	649	0	0	0	0	0	0	41	0	34	0	1317
PEAK HR FACTOR :	0.000	0.894	0.810	0.000	0.639	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.854	0.000	0.708	0.000	0.966
	0.918				0.924								0.893				

National Data & Surveying Services Intersection Turning Movement Count

Location: Shirk Rd/Rd 92 & Goshen Ave
City: Visalia
Control: Signalized

Project ID: 21-090086-006
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Goshen Ave				Goshen Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	1	1	0	1	1	1	0	1	2	0	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	30	77	12	0	1	61	24	0	3	23	10	0	5	37	8	0	291
7:15 AM	29	56	5	0	3	81	11	0	5	25	19	0	10	36	7	2	289
7:30 AM	27	75	13	0	6	101	7	0	7	37	33	0	13	42	8	0	369
7:45 AM	64	15	47	0	0	24	3	0	1	47	34	1	32	97	2	0	367
8:00 AM	30	100	28	0	14	97	15	0	8	40	59	0	20	49	25	1	486
8:15 AM	40	80	13	0	5	69	15	0	6	35	28	1	21	42	12	1	368
8:30 AM	17	48	7	0	6	62	8	0	4	27	12	0	11	26	12	0	240
8:45 AM	16	64	8	0	5	38	8	0	7	24	21	1	7	28	6	0	233
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	253	515	133	0	40	533	91	0	41	258	216	3	119	357	80	4	2643
APPROACH %'s :	28.08%	57.16%	14.76%	0.00%	6.02%	80.27%	13.70%	0.00%	7.92%	49.81%	41.70%	0.58%	21.25%	63.75%	14.29%	0.71%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	161	270	101	0	25	291	40	0	22	159	154	2	86	230	47	2	1590
PEAK HR FACTOR :	0.629	0.675	0.537	0.000	0.446	0.720	0.667	0.000	0.688	0.846	0.653	0.500	0.672	0.593	0.470	0.500	0.818
	0.842				0.706				0.787				0.697				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	1	1	0	1	1	1	0	1	2	0	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	12	70	19	3	21	90	6	0	11	83	64	0	10	31	3	0	423
4:15 PM	16	62	17	1	7	66	7	1	7	68	34	0	9	27	6	0	328
4:30 PM	13	75	16	0	19	133	7	1	11	77	34	0	6	26	9	0	427
4:45 PM	12	84	19	0	20	104	10	0	10	63	32	0	6	27	2	0	389
5:00 PM	13	77	23	0	19	115	4	0	15	74	31	0	4	21	8	0	404
5:15 PM	16	74	18	0	7	96	9	0	4	55	30	0	7	33	5	1	355
5:30 PM	11	92	23	0	12	89	3	0	13	54	23	0	8	31	7	1	367
5:45 PM	10	76	13	0	5	52	7	0	10	48	22	1	12	33	5	0	294
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	103	610	148	4	110	745	53	2	81	522	270	1	62	229	45	2	2987
APPROACH %'s :	11.91%	70.52%	17.11%	0.46%	12.09%	81.87%	5.82%	0.22%	9.27%	59.73%	30.89%	0.11%	18.34%	67.75%	13.31%	0.59%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	54	310	76	0	65	448	30	1	40	269	127	0	23	107	24	1	1575
PEAK HR FACTOR :	0.844	0.923	0.826	0.000	0.813	0.842	0.750	0.250	0.667	0.873	0.934	0.000	0.821	0.811	0.667	0.250	0.922
	0.957				0.850				0.893				0.842				

National Data & Surveying Services **Intersection Turning Movement Count**

Location: Rd 88 & Goshen Ave
City: Visalia
Control: 1-Way Stop(NB)

Project ID: 21-090086-007
Date: 9/21/2021

Data - Totals

NS/EW Streets:	Rd 88				Rd 88				Goshen Ave				Goshen Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	2	0	0	0	0	0	0	38	5	1	2	73	0	4	126
7:15 AM	1	0	1	0	0	0	0	0	0	40	2	3	2	71	0	0	120
7:30 AM	1	0	6	0	0	0	0	0	0	71	1	1	3	61	0	1	145
7:45 AM	1	0	6	0	0	0	0	0	0	82	0	1	2	163	0	0	255
8:00 AM	1	0	3	0	0	0	0	0	0	95	1	0	2	83	0	0	185
8:15 AM	0	0	1	0	0	0	0	0	0	62	3	1	3	82	0	0	152
8:30 AM	4	0	0	0	0	0	0	0	0	37	5	2	2	47	0	0	97
8:45 AM	5	0	3	0	0	0	0	0	0	36	4	3	3	41	0	0	95
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	0	22	0	0	0	0	0	0	461	21	12	19	621	0	5	1175
APPROACH %'s :	38.89%	0.00%	61.11%	0.00%					0.00%	93.32%	4.25%	2.43%	2.95%	96.28%	0.00%	0.78%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	0	16	0	0	0	0	0	0	310	5	3	10	389	0	1	737
PEAK HR FACTOR :	0.750	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.816	0.417	0.750	0.833	0.597	0.000	0.250	0.723
		0.679								0.828				0.606			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	0	1	0	0	0	0	0	0	134	5	4	0	53	0	0	202
4:15 PM	2	0	3	0	0	0	0	0	0	100	4	2	2	44	0	1	158
4:30 PM	2	0	4	0	0	0	0	0	0	113	2	2	1	40	0	0	164
4:45 PM	4	0	5	0	0	0	0	0	0	87	3	1	2	49	0	0	151
5:00 PM	2	0	1	0	0	0	0	0	0	123	2	3	4	32	0	0	167
5:15 PM	2	0	3	0	0	0	0	0	0	77	2	2	9	49	0	0	144
5:30 PM	2	0	2	0	0	0	0	0	0	87	2	3	3	44	0	0	143
5:45 PM	0	0	5	0	0	0	0	0	0	72	3	0	2	48	0	2	132
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	0	24	0	0	0	0	0	0	793	23	17	23	359	0	3	1261
APPROACH %'s :	44.19%	0.00%	55.81%	0.00%					0.00%	95.20%	2.76%	2.04%	5.97%	93.25%	0.00%	0.78%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	13	0	13	0	0	0	0	0	0	434	14	9	5	186	0	1	675
PEAK HR FACTOR :	0.650	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.810	0.700	0.563	0.625	0.877	0.000	0.250	0.835
		0.722								0.799				0.906			

APPENDIX B

Synchro Worksheets

EXISTING CONDITIONS

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	2	84	0	0	0	0	333	85	242	251	0
Future Vol, veh/h	139	2	84	0	0	0	0	333	85	242	251	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	158	2	95	0	0	0	0	378	97	275	285	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	12.8	18.1	15.2
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	85	141	84	242	251
LT Vol	0	0	139	0	242	0
Through Vol	333	0	2	0	0	251
RT Vol	0	85	0	84	0	0
Lane Flow Rate	378	97	160	95	275	285
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.657	0.149	0.339	0.17	0.505	0.484
Departure Headway (Hd)	6.253	5.542	7.611	6.396	6.614	6.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	645	473	559	545	588
Service Time	4.008	3.296	5.368	4.153	4.367	3.859
HCM Lane V/C Ratio	0.657	0.15	0.338	0.17	0.505	0.485
HCM Control Delay	20.3	9.3	14.2	10.5	16	14.5
HCM Lane LOS	C	A	B	B	C	B
HCM 95th-tile Q	4.8	0.5	1.5	0.6	2.8	2.6

Intersection	
Intersection Delay, s/veh	33.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	2	326	137	337	0	0	437	229
Future Vol, veh/h	0	0	0	51	2	326	137	337	0	0	437	229
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	57	2	366	154	379	0	0	491	257
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	24.4	26.3	44.3
HCM LOS	C	D	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	337	53	326	437	229
LT Vol	137	0	51	0	0	0
Through Vol	0	337	2	0	437	0
RT Vol	0	0	0	326	0	229
Lane Flow Rate	154	379	60	366	491	257
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.337	0.774	0.138	0.723	0.972	0.458
Departure Headway (Hd)	7.877	7.363	8.32	7.108	7.125	6.406
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	457	492	432	509	511	561
Service Time	5.622	5.108	6.06	4.847	4.867	4.148
HCM Lane V/C Ratio	0.337	0.77	0.139	0.719	0.961	0.458
HCM Control Delay	14.6	31.1	12.4	26.3	59.9	14.5
HCM Lane LOS	B	D	B	D	F	B
HCM 95th-tile Q	1.5	6.9	0.5	5.9	12.7	2.4

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	13	621	40	19	641
Future Vol, veh/h	28	13	621	40	19	641
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	14	690	44	21	712

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1444	690	0	0	734	0
Stage 1	690	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	145	443	-	-	866	-
Stage 1	496	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	139	443	-	-	866	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	444	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	139	443	866	-
HCM Lane V/C Ratio	-	-	0.224	0.033	0.024	-
HCM Control Delay (s)	-	-	38.2	13.4	9.3	0
HCM Lane LOS	-	-	E	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	6	617	15	7	634
Future Vol, veh/h	25	6	617	15	7	634
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	7	678	16	8	697

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1391	678	0	0	694	0
Stage 1	678	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	156	450	-	-	897	-
Stage 1	502	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	154	450	-	-	897	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	477	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	176	897	-
HCM Lane V/C Ratio	-	-	0.194	0.009	-
HCM Control Delay (s)	-	-	30.3	9	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3	310	5	10	389	3	16
Future Vol, veh/h	3	310	5	10	389	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	431	7	14	540	4	22

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	540	0	0	438	0	741	219
Stage 1	-	-	-	-	-	443	-
Stage 2	-	-	-	-	-	298	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	649	-	-	1111	-	350	782
Stage 1	-	-	-	-	-	611	-
Stage 2	-	-	-	-	-	724	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	649	-	-	1111	-	343	782
Mov Cap-2 Maneuver	-	-	-	-	-	343	-
Stage 1	-	-	-	-	-	607	-
Stage 2	-	-	-	-	-	715	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	0.2	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	651	649	-	-	1111	-
HCM Lane V/C Ratio	0.041	0.006	-	-	0.013	-
HCM Control Delay (s)	10.8	10.6	-	-	8.3	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	169	124	544	75	105	475
Future Volume (veh/h)	169	124	544	75	105	475
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	190	139	611	84	118	534
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	238	212	1082	917	149	1358
Arrive On Green	0.13	0.13	0.58	0.58	0.08	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	190	139	611	84	118	534
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	8.8	7.1	17.2	2.0	5.5	9.1
Cycle Q Clear(g_c), s	8.8	7.1	17.2	2.0	5.5	9.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	238	212	1082	917	149	1358
V/C Ratio(X)	0.80	0.66	0.56	0.09	0.79	0.39
Avail Cap(c_a), veh/h	370	329	1082	917	244	1358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.5	10.9	7.7	37.8	4.2
Incr Delay (d2), s/veh	6.6	3.4	2.1	0.2	8.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	2.8	6.3	0.6	2.7	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.9	38.0	13.0	7.9	46.7	5.1
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	329		695			652
Approach Delay, s/veh	40.2		12.4			12.6
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.5	54.9				67.4		16.7
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62		17.6
Max Q Clear Time (g_c+I1), s	7.5	19.2				11.1		10.8
Green Ext Time (p_c), s	0.1	4.1				3.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	159	154	86	230	47	161	270	101	25	291	40
Future Volume (veh/h)	22	159	154	86	230	47	161	270	101	25	291	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	27	194	188	105	280	57	196	329	123	30	355	49
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	198	283	252	133	437	195	235	798	677	69	623	528
Arrive On Green	0.11	0.16	0.16	0.08	0.12	0.12	0.13	0.43	0.43	0.04	0.34	0.34
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	27	194	188	105	280	57	196	329	123	30	355	49
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.1	8.4	9.2	4.7	6.1	2.7	8.7	9.9	2.4	1.3	12.7	1.0
Cycle Q Clear(g_c), s	1.1	8.4	9.2	4.7	6.1	2.7	8.7	9.9	2.4	1.3	12.7	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	283	252	133	437	195	235	798	677	69	623	528
V/C Ratio(X)	0.14	0.69	0.75	0.79	0.64	0.29	0.83	0.41	0.18	0.44	0.57	0.09
Avail Cap(c_a), veh/h	198	612	546	164	1289	575	298	798	677	131	623	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	31.9	32.3	36.6	33.6	32.1	34.1	15.9	5.3	37.9	22.0	6.8
Incr Delay (d2), s/veh	0.3	2.9	4.3	18.2	1.6	0.8	14.8	1.6	0.6	4.3	3.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.5	3.5	2.5	2.5	1.0	4.5	4.1	1.2	0.6	5.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	34.9	36.6	54.9	35.2	32.9	48.9	17.5	5.9	42.2	25.7	7.2
LnGrp LOS	C	C	D	D	D	C	D	B	A	D	C	A
Approach Vol, veh/h		409			442			648			434	
Approach Delay, s/veh		35.5			39.6			24.8			24.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	40.1	12.6	19.4	16.1	32.5	15.5	16.5
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	6.0	34.7	7.5	28.0	13.6	27.1	6.0	29.5
Max Q Clear Time (g_c+I1), s	3.3	11.9	6.7	11.2	10.7	14.7	3.1	8.1
Green Ext Time (p_c), s	0.0	2.2	0.0	1.7	0.1	1.7	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	236	1	152	0	0	0	0	264	39	316	267	0
Future Vol, veh/h	236	1	152	0	0	0	0	264	39	316	267	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	248	1	160	0	0	0	0	278	41	333	281	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.7	16.3	18.8
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	39	237	152	316	267
LT Vol	0	0	236	0	316	0
Through Vol	264	0	1	0	0	267
RT Vol	0	39	0	152	0	0
Lane Flow Rate	278	41	249	160	333	281
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.531	0.07	0.522	0.281	0.643	0.504
Departure Headway (Hd)	6.884	6.168	7.538	6.32	6.962	6.452
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	577	476	566	516	556
Service Time	4.662	3.945	5.306	4.087	4.729	4.219
HCM Lane V/C Ratio	0.533	0.071	0.523	0.283	0.645	0.505
HCM Control Delay	17.3	9.4	18.3	11.6	21.5	15.7
HCM Lane LOS	C	A	C	B	C	C
HCM 95th-tile Q	3.1	0.2	3	1.1	4.5	2.8

Intersection	
Intersection Delay, s/veh	32
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	38	3	204	90	410	0	0	545	156
Future Vol, veh/h	0	0	0	38	3	204	90	410	0	0	545	156
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	39	3	210	93	423	0	0	562	161
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	13.7	23.7	44.4
HCM LOS	B	C	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	410	41	204	545	156
LT Vol	90	0	38	0	0	0
Through Vol	0	410	3	0	545	0
RT Vol	0	0	0	204	0	156
Lane Flow Rate	93	423	42	210	562	161
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.179	0.754	0.094	0.398	0.967	0.245
Departure Headway (Hd)	6.928	6.419	8.011	6.82	6.195	5.483
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	516	562	446	526	584	651
Service Time	4.703	4.193	5.795	4.602	3.963	3.25
HCM Lane V/C Ratio	0.18	0.753	0.094	0.399	0.962	0.247
HCM Control Delay	11.2	26.4	11.6	14.1	54.3	10
HCM Lane LOS	B	D	B	B	F	A
HCM 95th-tile Q	0.6	6.6	0.3	1.9	13.3	1

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	15	558	60	15	687
Future Vol, veh/h	14	15	558	60	15	687
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	15	16	587	63	16	723

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1342	587	0	0	650	0
Stage 1	587	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	167	508	-	-	931	-
Stage 1	554	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	162	508	-	-	931	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	449	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	162	508	931	-
HCM Lane V/C Ratio	-	-	0.091	0.031	0.017	-
HCM Control Delay (s)	-	-	29.4	12.3	8.9	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	1	549	25	0	691
Future Vol, veh/h	11	1	549	25	0	691
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	590	27	0	743

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1333	590	0	0	617	0
Stage 1	590	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	169	506	-	-	958	-
Stage 1	552	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	506	-	-	958	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	468	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	179	958	-
HCM Lane V/C Ratio	-	-	0.072	-	-
HCM Control Delay (s)	-	-	26.7	0	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	9	443	14	6	186	13	13
Future Vol, veh/h	9	443	14	6	186	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	527	17	7	221	15	15

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	221	0	0	544	0	683	272
Stage 1	-	-	-	-	-	558	-
Stage 2	-	-	-	-	-	125	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1033	-	-	1014	-	381	723
Stage 1	-	-	-	-	-	534	-
Stage 2	-	-	-	-	-	884	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	1033	-	-	1014	-	374	723
Mov Cap-2 Maneuver	-	-	-	-	-	374	-
Stage 1	-	-	-	-	-	528	-
Stage 2	-	-	-	-	-	878	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0.3	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	493	1033	-	-	1014	-
HCM Lane V/C Ratio	0.063	0.01	-	-	0.007	-
HCM Control Delay (s)	12.8	8.5	-	-	8.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	34	479	68	46	649
Future Volume (veh/h)	41	34	479	68	46	649
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	42	35	494	70	47	669
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	147	131	1217	1031	87	1436
Arrive On Green	0.08	0.08	0.66	0.66	0.05	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	42	35	494	70	47	669
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	1.7	1.6	9.8	1.3	2.0	10.0
Cycle Q Clear(g_c), s	1.7	1.6	9.8	1.3	2.0	10.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	147	131	1217	1031	87	1436
V/C Ratio(X)	0.29	0.27	0.41	0.07	0.54	0.47
Avail Cap(c_a), veh/h	420	374	1217	1031	194	1436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	33.7	6.3	4.9	36.4	3.1
Incr Delay (d2), s/veh	1.1	1.1	1.0	0.1	5.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.6	3.0	0.3	1.0	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.8	34.8	7.3	5.0	41.6	4.2
LnGrp LOS	C	C	A	A	D	A
Approach Vol, veh/h	77		564			716
Approach Delay, s/veh	34.8		7.0			6.7
Approach LOS	C		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.2	57.2				66.4		11.9
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	8.6	46.2				* 61		18.6
Max Q Clear Time (g_c+I1), s	4.0	11.8				12.0		3.7
Green Ext Time (p_c), s	0.0	3.3				5.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	269	127	24	107	24	54	310	76	65	448	30
Future Volume (veh/h)	40	269	127	24	107	24	54	310	76	65	448	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	292	138	26	116	26	59	337	83	71	487	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	129	411	189	59	479	214	101	747	633	115	762	646
Arrive On Green	0.07	0.18	0.18	0.03	0.14	0.14	0.06	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1767	2343	1080	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	43	218	212	26	116	26	59	337	83	71	487	33
Grp Sat Flow(s),veh/h/ln	1767	1763	1661	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.7	8.6	8.9	1.1	2.2	1.1	2.4	9.8	1.6	2.9	15.4	0.6
Cycle Q Clear(g_c), s	1.7	8.6	8.9	1.1	2.2	1.1	2.4	9.8	1.6	2.9	15.4	0.6
Prop In Lane	1.00		0.65	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	309	291	59	479	214	101	747	633	115	762	646
V/C Ratio(X)	0.33	0.71	0.73	0.44	0.24	0.12	0.58	0.45	0.13	0.62	0.64	0.05
Avail Cap(c_a), veh/h	144	695	655	144	1390	620	144	747	633	159	762	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	28.5	28.7	34.9	28.4	27.9	33.8	16.1	6.3	33.5	17.3	4.7
Incr Delay (d2), s/veh	1.5	2.9	3.5	5.0	0.3	0.3	5.3	2.0	0.4	5.2	4.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.4	3.4	0.5	0.8	0.4	1.1	4.1	0.8	1.3	6.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	31.5	32.2	39.9	28.7	28.2	39.1	18.0	6.7	38.7	21.4	4.9
LnGrp LOS	C	C	C	D	C	C	D	B	A	D	C	A
Approach Vol, veh/h		473			168			479			591	
Approach Delay, s/veh		32.0			30.3			18.7			22.6	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	35.0	9.0	19.4	9.6	35.6	11.9	16.5
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	6.6	29.6	6.0	29.0	6.0	30.2	6.0	29.0
Max Q Clear Time (g_c+I1), s	4.9	11.8	3.1	10.9	4.4	17.4	3.7	4.2
Green Ext Time (p_c), s	0.0	2.0	0.0	2.0	0.0	2.4	0.0	0.6

Intersection Summary			
HCM 6th Ctrl Delay			24.8
HCM 6th LOS			C

OPENING YEAR CONDITIONS

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	179	2	86	0	0	0	0	358	87	301	279	0
Future Vol, veh/h	179	2	86	0	0	0	0	358	87	301	279	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	203	2	86	0	0	0	0	407	99	342	317	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.2	23.5	19.7
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	87	181	86	301	279
LT Vol	0	0	179	0	301	0
Through Vol	358	0	2	0	0	279
RT Vol	0	87	0	86	0	0
Lane Flow Rate	407	99	206	86	342	317
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.749	0.162	0.452	0.16	0.656	0.563
Departure Headway (Hd)	6.629	5.915	7.918	6.698	6.907	6.398
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	541	602	453	532	520	561
Service Time	4.406	3.691	5.695	4.474	4.68	4.17
HCM Lane V/C Ratio	0.752	0.164	0.455	0.162	0.658	0.565
HCM Control Delay	26.8	9.8	17.1	10.8	22	17.2
HCM Lane LOS	D	A	C	B	C	C
HCM 95th-tile Q	6.5	0.6	2.3	0.6	4.7	3.5

Intersection	
Intersection Delay, s/veh	64.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	52	2	373	140	388	0	0	525	272
Future Vol, veh/h	0	0	0	52	2	373	140	388	0	0	525	272
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	58	2	419	152	422	0	0	590	306
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	34.7	37.7	98.1
HCM LOS	D	E	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	388	54	373	525	272
LT Vol	140	0	52	0	0	0
Through Vol	0	388	2	0	525	0
RT Vol	0	0	0	373	0	272
Lane Flow Rate	152	422	61	419	590	306
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.339	0.881	0.141	0.834	1.217	0.569
Departure Headway (Hd)	8.392	7.875	8.729	7.511	7.427	6.705
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	464	413	486	490	535
Service Time	6.092	5.575	6.429	5.211	5.201	4.479
HCM Lane V/C Ratio	0.353	0.909	0.148	0.862	1.204	0.572
HCM Control Delay	15.3	45.8	12.9	37.8	139.6	18
HCM Lane LOS	C	E	B	E	F	C
HCM 95th-tile Q	1.5	9.4	0.5	8.2	22.7	3.5

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	23	708	51	22	741
Future Vol, veh/h	60	23	708	51	22	741
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	67	26	787	57	24	823

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1658	787	0	0	844	0
Stage 1	787	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	107	390	-	-	788	-
Stage 1	447	-	-	-	-	-
Stage 2	408	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	390	-	-	788	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	447	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	70.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	101	390	788	-
HCM Lane V/C Ratio	-	-	0.66	0.066	0.031	-
HCM Control Delay (s)	-	-	92.4	14.9	9.7	0
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	3.3	0.2	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	6	714	15	7	737
Future Vol, veh/h	26	6	714	15	7	737
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	7	785	16	8	810

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1611	785	0	0	801	0
Stage 1	785	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	114	391	-	-	818	-
Stage 1	448	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	391	-	-	818	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	420	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.1	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	129	818	-
HCM Lane V/C Ratio	-	-	0.273	0.009	-
HCM Control Delay (s)	-	-	43.1	9.4	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	703	670	0
Future Vol, veh/h	0	0	0	703	670	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	764	728	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1492	728	728	0	-	0
Stage 1	728	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	135	422	871	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	422	871	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	871	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	19	0	0	16
Future Vol, veh/h	0	0	19	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	21	0	0	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	38	21	0	0	21	0
Stage 1	21	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	972	1054	-	-	1588	-
Stage 1	999	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	972	1054	-	-	1588	-
Mov Cap-2 Maneuver	972	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1588	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3	323	80	86	406	14	16
Future Vol, veh/h	3	323	80	86	406	14	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	449	111	119	564	19	22

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	564	0	0	560	0	1033	280
Stage 1	-	-	-	-	-	513	-
Stage 2	-	-	-	-	-	520	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	626	-	-	1000	-	227	714
Stage 1	-	-	-	-	-	563	-
Stage 2	-	-	-	-	-	558	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	626	-	-	1000	-	199	714
Mov Cap-2 Maneuver	-	-	-	-	-	199	-
Stage 1	-	-	-	-	-	560	-
Stage 2	-	-	-	-	-	492	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.6	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	626	-	-	1000	-
HCM Lane V/C Ratio	0.129	0.007	-	-	0.119	-
HCM Control Delay (s)	17.8	10.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0.4	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	174	133	636	80	112	574
Future Volume (veh/h)	174	133	636	80	112	574
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	196	149	715	90	126	645
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	244	217	1068	905	159	1353
Arrive On Green	0.14	0.14	0.58	0.58	0.09	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	196	149	715	90	126	645
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	9.1	7.6	22.5	2.2	5.9	12.2
Cycle Q Clear(g_c), s	9.1	7.6	22.5	2.2	5.9	12.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	244	217	1068	905	159	1353
V/C Ratio(X)	0.80	0.69	0.67	0.10	0.79	0.48
Avail Cap(c_a), veh/h	368	328	1068	905	243	1353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.7	12.4	8.1	37.7	4.7
Incr Delay (d2), s/veh	7.4	3.8	3.3	0.2	9.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	3.0	8.4	0.7	2.9	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.7	38.5	15.7	8.3	47.5	6.0
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	345		805			771
Approach Delay, s/veh	40.9		14.9			12.7
Approach LOS	D		B			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	13.0	54.4	67.4	17.1
Change Period (Y+Rc), s	5.4	5.8	* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2	* 62	17.6
Max Q Clear Time (g_c+I1), s	7.9	24.5	14.2	11.1
Green Ext Time (p_c), s	0.1	4.7	4.7	0.6

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	166	210	89	239	51	229	297	106	33	344	57
Future Volume (veh/h)	35	166	210	89	239	51	229	297	106	33	344	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	202	256	109	291	62	279	362	129	40	420	70
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	272	339	302	137	407	182	310	860	728	70	607	514
Arrive On Green	0.15	0.19	0.19	0.08	0.12	0.12	0.18	0.46	0.46	0.04	0.33	0.33
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	43	202	256	109	291	62	279	362	129	40	420	70
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.2	10.9	16.4	6.3	8.3	3.8	16.1	13.6	3.2	2.3	20.6	2.0
Cycle Q Clear(g_c), s	2.2	10.9	16.4	6.3	8.3	3.8	16.1	13.6	3.2	2.3	20.6	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	339	302	137	407	182	310	860	728	70	607	514
V/C Ratio(X)	0.16	0.60	0.85	0.80	0.72	0.34	0.90	0.42	0.18	0.57	0.69	0.14
Avail Cap(c_a), veh/h	272	472	421	228	1195	533	348	860	728	107	607	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	38.5	40.7	47.4	44.6	42.6	42.2	18.7	6.8	49.3	30.6	9.0
Incr Delay (d2), s/veh	0.3	1.7	10.9	10.1	2.4	1.1	23.4	1.5	0.5	7.2	6.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.6	6.9	3.0	3.6	1.5	8.8	5.9	1.7	1.1	9.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	40.2	51.6	57.5	46.9	43.7	65.6	20.2	7.3	56.6	36.9	9.5
LnGrp LOS	D	D	D	E	D	D	E	C	A	E	D	A
Approach Vol, veh/h		501			462			770			530	
Approach Delay, s/veh		45.9			49.0			34.5			34.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	53.8	14.6	26.6	23.7	39.6	22.6	18.6
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4
Max Q Clear Time (g_c+I1), s	4.3	15.6	8.3	18.4	18.1	22.6	4.2	10.3
Green Ext Time (p_c), s	0.0	2.6	0.1	1.7	0.2	2.0	0.0	1.7

Intersection Summary			
HCM 6th Ctrl Delay			40.0
HCM 6th LOS			D

Intersection	
Intersection Delay, s/veh	26.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	277	1	155	0	0	0	0	288	40	349	286	0
Future Vol, veh/h	277	1	155	0	0	0	0	288	40	349	286	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	315	1	155	0	0	0	0	327	45	397	325	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	22.8	23.2	30
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	40	278	155	349	286
LT Vol	0	0	277	0	349	0
Through Vol	288	0	1	0	0	286
RT Vol	0	40	0	155	0	0
Lane Flow Rate	327	45	316	155	397	325
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.683	0.086	0.706	0.294	0.829	0.632
Departure Headway (Hd)	7.513	6.792	8.048	6.822	7.525	7.001
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	528	452	529	484	517
Service Time	5.25	4.529	5.757	4.532	5.247	4.734
HCM Lane V/C Ratio	0.68	0.085	0.699	0.293	0.82	0.629
HCM Control Delay	25	10.2	27.9	12.4	37.3	21
HCM Lane LOS	C	B	D	B	E	C
HCM 95th-tile Q	5.1	0.3	5.4	1.2	8.1	4.3

Intersection	
Intersection Delay, s/veh	83
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	39	3	258	92	470	0	0	604	182
Future Vol, veh/h	0	0	0	39	3	258	92	470	0	0	604	182
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	44	3	290	100	511	0	0	679	204
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	18.6	52.5	128.6
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	470	42	258	604	182
LT Vol	92	0	39	0	0	0
Through Vol	0	470	3	0	604	0
RT Vol	0	0	0	258	0	182
Lane Flow Rate	100	511	47	290	679	204
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.204	0.972	0.108	0.568	1.285	0.347
Departure Headway (Hd)	7.755	7.241	8.689	7.485	6.818	6.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	506	415	484	536	587
Service Time	5.455	4.941	6.389	5.185	4.58	3.863
HCM Lane V/C Ratio	0.215	1.01	0.113	0.599	1.267	0.348
HCM Control Delay	12.4	60.3	12.4	19.6	163.7	12.1
HCM Lane LOS	B	F	B	C	F	B
HCM 95th-tile Q	0.8	12.6	0.4	3.5	27.7	1.5

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	21	637	94	25	753
Future Vol, veh/h	33	21	637	94	25	753
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	23	708	104	28	837

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1601	708	0	0	812	0
Stage 1	708	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	116	433	-	-	810	-
Stage 1	486	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	108	433	-	-	810	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	372	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.7	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	108	433	810	-
HCM Lane V/C Ratio	-	-	0.34	0.054	0.034	-
HCM Control Delay (s)	-	-	54.6	13.8	9.6	0
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	0.1	-

Intersection						
Int Delay, s/veh	0.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	1	634	26	0	767
Future Vol, veh/h	11	1	634	26	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	697	29	0	843

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1540	697	0	0	726	0
Stage 1	697	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	126	439	-	-	872	-
Stage 1	492	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	126	439	-	-	872	-
Mov Cap-2 Maneuver	126	-	-	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	420	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	134	872	-
HCM Lane V/C Ratio	-	-	0.098	-	-
HCM Control Delay (s)	-	-	34.8	0	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	570	727	0
Future Vol, veh/h	0	0	0	570	727	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	620	790	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1410	790	790	0	-	0
Stage 1	790	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	152	389	826	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	152	389	826	-	-	-
Mov Cap-2 Maneuver	152	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	826	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	26	0	0	20
Future Vol, veh/h	0	0	26	0	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	28	0	0	22

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	50	28	0	0	28	0
Stage 1	28	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	957	1044	-	-	1579	-
Stage 1	992	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	957	1044	-	-	1579	-
Mov Cap-2 Maneuver	957	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	998	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1579	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection							
Int Delay, s/veh	1.3						

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	9	462	51	36	196	19	13
Future Vol, veh/h	9	462	51	36	196	19	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	13	642	71	50	272	26	18

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	272	0	0	713	0	940	357
Stage 1	-	-	-	-	-	704	-
Stage 2	-	-	-	-	-	236	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	960	-	-	876	-	260	637
Stage 1	-	-	-	-	-	449	-
Stage 2	-	-	-	-	-	778	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	960	-	-	876	-	242	637
Mov Cap-2 Maneuver	-	-	-	-	-	242	-
Stage 1	-	-	-	-	-	443	-
Stage 2	-	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.5	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	960	-	-	876	-
HCM Lane V/C Ratio	0.138	0.013	-	-	0.057	-
HCM Control Delay (s)	17.9	8.8	-	-	9.4	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	46	45	559	73	54	720	
Future Volume (veh/h)	46	45	559	73	54	720	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	52	51	628	82	61	809	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	159	141	1200	1017	98	1429	
Arrive On Green	0.09	0.09	0.65	0.65	0.06	0.77	
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856	
Grp Volume(v), veh/h	52	51	628	82	61	809	
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856	
Q Serve(g_s), s	2.2	2.4	14.4	1.6	2.7	14.2	
Cycle Q Clear(g_c), s	2.2	2.4	14.4	1.6	2.7	14.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	159	141	1200	1017	98	1429	
V/C Ratio(X)	0.33	0.36	0.52	0.08	0.62	0.57	
Avail Cap(c_a), veh/h	389	346	1200	1017	256	1429	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	34.1	34.2	7.5	5.3	36.9	3.7	
Incr Delay (d2), s/veh	1.2	1.5	1.6	0.2	6.2	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.0	1.0	4.6	0.4	1.3	3.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	35.3	35.8	9.2	5.4	43.2	5.4	
LnGrp LOS	D	D	A	A	D	A	
Approach Vol, veh/h	103		710			870	
Approach Delay, s/veh	35.6		8.7			8.0	
Approach LOS	D		A			A	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.9	57.5				67.4	12.6
Change Period (Y+Rc), s	5.4	5.8				* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62	17.6
Max Q Clear Time (g_c+I1), s	4.7	16.4				16.2	4.4
Green Ext Time (p_c), s	0.0	4.3				6.7	0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	276	159	28	111	33	81	369	79	71	491	39
Future Volume (veh/h)	53	276	159	28	111	33	81	369	79	71	491	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	65	337	194	34	135	40	99	450	96	87	599	48
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	229	417	235	64	347	155	127	883	748	109	865	733
Arrive On Green	0.13	0.19	0.19	0.04	0.10	0.10	0.07	0.48	0.48	0.06	0.47	0.47
Sat Flow, veh/h	1767	2172	1226	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	65	272	259	34	135	40	99	450	96	87	599	48
Grp Sat Flow(s),veh/h/ln	1767	1763	1635	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.4	15.0	15.5	1.9	3.7	2.4	5.6	17.1	2.5	4.9	25.9	0.9
Cycle Q Clear(g_c), s	3.4	15.0	15.5	1.9	3.7	2.4	5.6	17.1	2.5	4.9	25.9	0.9
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	338	314	64	347	155	127	883	748	109	865	733
V/C Ratio(X)	0.28	0.81	0.83	0.53	0.39	0.26	0.78	0.51	0.13	0.79	0.69	0.07
Avail Cap(c_a), veh/h	229	485	450	235	1227	547	358	883	748	109	865	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	39.3	39.5	48.1	43.0	42.4	46.4	18.4	7.4	47.1	21.4	4.3
Incr Delay (d2), s/veh	0.7	6.4	8.2	6.6	0.7	0.9	10.0	2.1	0.4	32.1	4.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.7	6.5	0.9	1.5	0.9	2.7	7.3	1.2	3.1	11.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	45.7	47.7	54.7	43.7	43.3	56.4	20.5	7.8	79.1	25.9	4.5
LnGrp LOS	D	D	D	D	D	D	E	C	A	E	C	A
Approach Vol, veh/h		596			209			645			734	
Approach Delay, s/veh		46.0			45.4			24.1			30.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	53.8	10.2	26.0	12.7	52.8	19.7	16.5
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4
Max Q Clear Time (g_c+I1), s	6.9	19.1	3.9	17.5	7.6	27.9	5.4	5.7
Green Ext Time (p_c), s	0.0	3.1	0.0	2.0	0.2	2.0	0.0	0.8

Intersection Summary		
HCM 6th Ctrl Delay		34.4
HCM 6th LOS		C

Intersection	
Intersection Delay, s/veh	24.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	187	2	86	0	0	0	0	360	87	363	286	0
Future Vol, veh/h	187	2	86	0	0	0	0	360	87	363	286	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	213	2	86	0	0	0	0	409	99	413	325	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	16.1	25.7	26.2
HCM LOS	C	D	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	87	189	86	363	286
LT Vol	0	0	187	0	363	0
Through Vol	360	0	2	0	0	286
RT Vol	0	87	0	86	0	0
Lane Flow Rate	409	99	215	86	412	325
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.775	0.168	0.482	0.164	0.802	0.586
Departure Headway (Hd)	6.817	6.102	8.083	6.86	6.996	6.486
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	583	445	519	516	553
Service Time	4.606	3.89	5.867	4.643	4.778	4.268
HCM Lane V/C Ratio	0.775	0.17	0.483	0.166	0.798	0.588
HCM Control Delay	29.5	10.1	18.2	11	32.6	18.1
HCM Lane LOS	D	B	C	B	D	C
HCM 95th-tile Q	7	0.6	2.6	0.6	7.6	3.8

Intersection	
Intersection Delay, s/veh	95.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	52	2	392	140	399	0	0	591	298
Future Vol, veh/h	0	0	0	52	2	392	140	399	0	0	591	298
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	58	2	440	152	434	0	0	664	335
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	41.7	43.6	152.1
HCM LOS	E	E	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	399	54	392	591	298
LT Vol	140	0	52	0	0	0
Through Vol	0	399	2	0	591	0
RT Vol	0	0	0	392	0	298
Lane Flow Rate	152	434	61	440	664	335
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.344	0.919	0.142	0.884	1.41	0.635
Departure Headway (Hd)	8.642	8.123	8.943	7.723	7.645	6.822
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	418	451	403	471	478	526
Service Time	6.342	5.823	6.643	5.423	5.345	4.622
HCM Lane V/C Ratio	0.364	0.962	0.151	0.934	1.389	0.637
HCM Control Delay	15.8	53.4	13.1	45.6	218.2	20.9
HCM Lane LOS	C	F	B	E	F	C
HCM 95th-tile Q	1.5	10.3	0.5	9.5	31.9	4.4

Intersection						
Int Delay, s/veh	5.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	23	738	51	22	833
Future Vol, veh/h	60	23	738	51	22	833
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	67	26	820	57	24	926

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1794	820	0	0	877	0
Stage 1	820	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	88	373	-	-	766	-
Stage 1	431	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	82	373	-	-	766	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	342	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	105.8	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	82	373	766	-
HCM Lane V/C Ratio	-	-	0.813	0.069	0.032	-
HCM Control Delay (s)	-	-	140.4	15.4	9.9	0
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	4.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	6	744	15	7	833
Future Vol, veh/h	26	6	744	15	7	833
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	7	818	16	8	915

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1749	818	0	0	834	0
Stage 1	818	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	94	374	-	-	795	-
Stage 1	432	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	92	374	-	-	795	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	432	-	-	-	-	-
Stage 2	374	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.3	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	107	795	-
HCM Lane V/C Ratio	-	-	0.329	0.01	-
HCM Control Delay (s)	-	-	54.3	9.6	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	105	0	735	667	39
Future Vol, veh/h	0	105	0	735	667	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	0	799	725	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1524	725	767	0	-	0
Stage 1	725	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	129	423	842	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	423	842	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	842	-	423	-	-
HCM Lane V/C Ratio	-	-	0.27	-	-
HCM Control Delay (s)	0	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-

Intersection						
Int Delay, s/veh	3.9					
Movement	**WBL**	**WBR**	**NBT**	**NBR**	**SBL**	**SBT**
Lane Configurations						
Traffic Vol, veh/h	0	26	19	0	4	16
Future Vol, veh/h	0	26	19	0	4	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	28	21	0	4	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	46	21	0	0	21	0
Stage 1	21	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	962	1054	-	-	1588	-
Stage 1	999	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	959	1054	-	-	1588	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Approach	**WB**		**NB**		**SB**	
HCM Control Delay, s	8.5		0		1.5	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1588	-
HCM Lane V/C Ratio	-	-	0.027	0.003	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3	323	83	88	406	21	36
Future Vol, veh/h	3	323	83	88	406	21	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	449	115	122	564	29	50

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	564	0	0	564	0	1041	282
Stage 1	-	-	-	-	-	515	-
Stage 2	-	-	-	-	-	526	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	626	-	-	997	-	224	712
Stage 1	-	-	-	-	-	562	-
Stage 2	-	-	-	-	-	554	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	626	-	-	997	-	196	712
Mov Cap-2 Maneuver	-	-	-	-	-	196	-
Stage 1	-	-	-	-	-	559	-
Stage 2	-	-	-	-	-	486	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.6	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	626	-	-	997	-
HCM Lane V/C Ratio	0.219	0.007	-	-	0.123	-
HCM Control Delay (s)	17.8	10.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.8	0	-	-	0.4	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	174	138	666	80	131	665		
Future Volume (veh/h)	174	138	666	80	131	665		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No		No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856		
Adj Flow Rate, veh/h	196	155	748	90	147	747		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	3	3	3	3		
Cap, veh/h	244	217	1044	884	182	1353		
Arrive On Green	0.14	0.14	0.56	0.56	0.10	0.73		
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856		
Grp Volume(v), veh/h	196	155	748	90	147	747		
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856		
Q Serve(g_s), s	9.1	8.0	25.0	2.2	6.9	15.4		
Cycle Q Clear(g_c), s	9.1	8.0	25.0	2.2	6.9	15.4		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	244	217	1044	884	182	1353		
V/C Ratio(X)	0.80	0.71	0.72	0.10	0.81	0.55		
Avail Cap(c_a), veh/h	368	328	1044	884	243	1353		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	35.3	34.8	13.5	8.6	37.1	5.2		
Incr Delay (d2), s/veh	7.4	4.3	4.2	0.2	13.9	1.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.2	3.2	9.6	0.7	3.5	4.4		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	42.6	39.1	17.8	8.8	51.0	6.8		
LnGrp LOS	D	D	B	A	D	A		
Approach Vol, veh/h	351		838			894		
Approach Delay, s/veh	41.1		16.8			14.1		
Approach LOS	D		B			B		
Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.1	53.3				67.4		17.1
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62		17.6
Max Q Clear Time (g_c+I1), s	8.9	27.0				17.4		11.1
Green Ext Time (p_c), s	0.1	4.8				5.9		0.6

Intersection Summary		
HCM 6th Ctrl Delay		19.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	172	216	91	241	51	263	297	106	33	346	57
Future Volume (veh/h)	41	172	216	91	241	51	263	297	106	33	346	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	210	263	111	294	62	321	362	129	40	422	70
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	81	353	315	134	813	362	351	751	637	125	514	435
Arrive On Green	0.05	0.20	0.20	0.08	0.23	0.23	0.20	0.40	0.40	0.07	0.28	0.28
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	50	210	263	111	294	62	321	362	129	40	422	70
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.7	10.4	15.4	5.9	6.7	2.3	17.1	13.9	5.1	2.1	20.4	3.2
Cycle Q Clear(g_c), s	2.7	10.4	15.4	5.9	6.7	2.3	17.1	13.9	5.1	2.1	20.4	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	353	315	134	813	362	351	751	637	125	514	435
V/C Ratio(X)	0.61	0.59	0.83	0.83	0.36	0.17	0.91	0.48	0.20	0.32	0.82	0.16
Avail Cap(c_a), veh/h	110	514	458	134	1075	480	355	751	637	129	514	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	34.9	36.9	43.8	31.0	16.5	37.7	21.1	18.5	42.4	32.5	26.3
Incr Delay (d2), s/veh	7.3	1.6	8.6	32.8	0.3	0.2	27.1	2.2	0.7	1.5	13.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.3	6.2	3.7	2.7	1.1	9.7	6.1	1.8	0.9	10.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	36.5	45.4	76.5	31.3	16.7	64.7	23.3	19.2	43.9	46.3	27.1
LnGrp LOS	D	D	D	E	C	B	E	C	B	D	D	C
Approach Vol, veh/h		523			467			812			532	
Approach Delay, s/veh		42.5			40.1			39.1			43.6	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	44.3	13.8	25.8	24.5	32.0	10.9	28.6
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	7.0	38.9	7.3	28.0	19.3	26.6	6.0	29.3
Max Q Clear Time (g_c+I1), s	4.1	15.9	7.9	17.4	19.1	22.4	4.7	8.7
Green Ext Time (p_c), s	0.0	2.4	0.0	1.8	0.0	1.0	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Intersection	
Intersection Delay, s/veh	34.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	307	1	155	0	0	0	0	295	40	388	290	0
Future Vol, veh/h	307	1	155	0	0	0	0	295	40	388	290	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	349	1	155	0	0	0	0	335	45	441	330	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	29.1	26.4	42.6
HCM LOS	D	D	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	40	308	155	388	290
LT Vol	0	0	307	0	388	0
Through Vol	295	0	1	0	0	290
RT Vol	0	40	0	155	0	0
Lane Flow Rate	335	45	350	155	441	330
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.725	0.089	0.798	0.301	0.947	0.661
Departure Headway (Hd)	7.781	7.058	8.211	6.983	7.73	7.216
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	508	445	518	472	501
Service Time	5.525	4.802	5.911	4.683	5.47	4.956
HCM Lane V/C Ratio	0.719	0.089	0.787	0.299	0.934	0.659
HCM Control Delay	28.5	10.5	36.3	12.7	57.3	23
HCM Lane LOS	D	B	E	B	F	C
HCM 95th-tile Q	5.8	0.3	7.2	1.3	11.4	4.8

Intersection	
Intersection Delay, s/veh	117.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	39	3	324	92	507	0	0	648	200
Future Vol, veh/h	0	0	0	39	3	324	92	507	0	0	648	200
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	44	3	364	100	551	0	0	728	225
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	26.3	86.5	177.8
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	507	42	324	648	200
LT Vol	92	0	39	0	0	0
Through Vol	0	507	3	0	648	0
RT Vol	0	0	0	324	0	200
Lane Flow Rate	100	551	47	364	728	225
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.214	1.103	0.109	0.722	1.437	0.4
Departure Headway (Hd)	8.252	7.735	8.947	7.738	7.365	6.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	438	474	403	470	502	546
Service Time	5.952	5.435	6.647	5.438	5.065	4.344
HCM Lane V/C Ratio	0.228	1.162	0.117	0.774	1.45	0.412
HCM Control Delay	13.2	99.8	12.7	28.1	228.5	13.7
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	0.8	17.2	0.4	5.7	34.4	1.9

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	21	740	94	25	814
Future Vol, veh/h	33	21	740	94	25	814
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	23	822	104	28	904

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1782	822	0	0	926	0
Stage 1	822	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	90	372	-	-	734	-
Stage 1	430	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	83	372	-	-	734	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	342	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.2	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	83	372	734	-
HCM Lane V/C Ratio	-	-	0.442	0.063	0.038	-
HCM Control Delay (s)	-	-	79	15.3	10.1	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0.1	-

Intersection						
Int Delay, s/veh	0.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	1	737	26	0	828
Future Vol, veh/h	11	1	737	26	0	828
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	810	29	0	910

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1720	810	0	0	839	0
Stage 1	810	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	98	378	-	-	791	-
Stage 1	436	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	98	378	-	-	791	-
Mov Cap-2 Maneuver	98	-	-	-	-	-
Stage 1	436	-	-	-	-	-
Stage 2	391	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	104	791	-
HCM Lane V/C Ratio	-	-	0.127	-	-
HCM Control Delay (s)	-	-	44.6	0	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	70	0	685	726	132
Future Vol, veh/h	0	70	0	685	726	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	76	0	745	789	143

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1534	789	932	0	-	0
Stage 1	789	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	127	389	730	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	389	730	-	-	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	730	-	389	-	-
HCM Lane V/C Ratio	-	-	0.196	-	-
HCM Control Delay (s)	0	-	16.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection						
Int Delay, s/veh	3.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	17	27	0	15	20
Future Vol, veh/h	0	17	27	0	15	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	29	0	16	22

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	83	29	0	0	29	0
Stage 1	29	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	916	1043	-	-	1578	-
Stage 1	991	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	907	1043	-	-	1578	-
Mov Cap-2 Maneuver	907	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1043	1578	-
HCM Lane V/C Ratio	-	-	0.018	0.01	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	9	462	58	43	196	23	26
Future Vol, veh/h	9	462	58	43	196	23	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	13	642	81	60	272	32	36

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	272	0	0	723	0	965	362
Stage 1	-	-	-	-	-	709	-
Stage 2	-	-	-	-	-	256	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	960	-	-	869	-	251	632
Stage 1	-	-	-	-	-	446	-
Stage 2	-	-	-	-	-	760	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	960	-	-	869	-	230	632
Mov Cap-2 Maneuver	-	-	-	-	-	230	-
Stage 1	-	-	-	-	-	440	-
Stage 2	-	-	-	-	-	708	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.7	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	960	-	-	869	-
HCM Lane V/C Ratio	0.196	0.013	-	-	0.069	-
HCM Control Delay (s)	17.9	8.8	-	-	9.4	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	46	60	662	73	62	781	
Future Volume (veh/h)	46	60	662	73	62	781	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	52	67	744	82	70	878	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	164	146	1190	1009	104	1425	
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77	
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856	
Grp Volume(v), veh/h	52	67	744	82	70	878	
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856	
Q Serve(g_s), s	2.2	3.2	19.3	1.6	3.1	16.7	
Cycle Q Clear(g_c), s	2.2	3.2	19.3	1.6	3.1	16.7	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	164	146	1190	1009	104	1425	
V/C Ratio(X)	0.32	0.46	0.63	0.08	0.67	0.62	
Avail Cap(c_a), veh/h	388	345	1190	1009	255	1425	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	34.0	34.5	8.6	5.4	37.0	4.1	
Incr Delay (d2), s/veh	1.1	2.3	2.5	0.2	7.2	2.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.0	1.3	6.3	0.4	1.5	3.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	35.1	36.7	11.1	5.6	44.2	6.1	
LnGrp LOS	D	D	B	A	D	A	
Approach Vol, veh/h	119		826			948	
Approach Delay, s/veh	36.0		10.6			8.9	
Approach LOS	D		B			A	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.1	57.3				67.4	12.8
Change Period (Y+Rc), s	5.4	5.8				* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62	17.6
Max Q Clear Time (g_c+I1), s	5.1	21.3				18.7	5.2
Green Ext Time (p_c), s	0.1	5.2				7.7	0.2

Intersection Summary		
HCM 6th Ctrl Delay		11.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	281	163	35	118	33	199	369	79	71	498	39
Future Volume (veh/h)	57	281	163	35	118	33	199	369	79	71	498	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	343	199	43	144	40	243	450	96	87	607	48
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	90	422	240	73	653	291	273	842	714	144	707	599
Arrive On Green	0.05	0.19	0.19	0.04	0.19	0.19	0.15	0.45	0.45	0.08	0.38	0.38
Sat Flow, veh/h	1767	2165	1232	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	70	278	264	43	144	40	243	450	96	87	607	48
Grp Sat Flow(s),veh/h/ln	1767	1763	1634	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.1	15.7	16.1	2.5	3.6	1.7	14.0	18.2	2.6	4.9	31.3	2.0
Cycle Q Clear(g_c), s	4.1	15.7	16.1	2.5	3.6	1.7	14.0	18.2	2.6	4.9	31.3	2.0
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	343	318	73	653	291	273	842	714	144	707	599
V/C Ratio(X)	0.78	0.81	0.83	0.59	0.22	0.14	0.89	0.53	0.13	0.61	0.86	0.08
Avail Cap(c_a), veh/h	102	492	456	102	983	439	282	842	714	153	707	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	40.0	40.2	49.0	36.0	20.4	43.1	20.5	8.4	46.2	29.6	20.6
Incr Delay (d2), s/veh	28.4	6.6	8.4	7.5	0.2	0.2	27.2	2.4	0.4	6.0	12.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.0	6.8	1.2	1.5	0.8	8.0	8.0	1.2	2.4	15.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	46.6	48.6	56.5	36.2	20.7	70.3	22.9	8.8	52.2	42.5	20.8
LnGrp LOS	E	D	D	E	D	C	E	C	A	D	D	C
Approach Vol, veh/h		612			227			789			742	
Approach Delay, s/veh		51.0			37.3			35.8			42.2	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	52.6	10.8	26.8	21.4	45.0	11.8	25.8
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	9.0	47.2	6.0	29.0	16.6	39.6	6.0	29.0
Max Q Clear Time (g_c+I1), s	6.9	20.2	4.5	18.1	16.0	33.3	6.1	5.6
Green Ext Time (p_c), s	0.0	3.0	0.0	2.1	0.0	2.1	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.9
HCM 6th LOS	D

5-YEAR HORIZON CONDITIONS

Intersection	
Intersection Delay, s/veh	25.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	193	2	95	0	0	0	0	393	96	327	306	0
Future Vol, veh/h	193	2	95	0	0	0	0	393	96	327	306	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	219	2	95	0	0	0	0	447	109	372	348	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	16.7	32.4	24.2
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	393	96	195	95	327	306
LT Vol	0	0	193	0	327	0
Through Vol	393	0	2	0	0	306
RT Vol	0	96	0	95	0	0
Lane Flow Rate	447	109	222	95	372	348
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.852	0.186	0.502	0.183	0.737	0.64
Departure Headway (Hd)	6.867	6.152	8.156	6.932	7.139	6.628
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	578	441	514	502	542
Service Time	4.662	3.946	5.946	4.72	4.931	4.42
HCM Lane V/C Ratio	0.855	0.189	0.503	0.185	0.741	0.642
HCM Control Delay	37.8	10.4	19	11.3	27.6	20.6
HCM Lane LOS	E	B	C	B	D	C
HCM 95th-tile Q	8.9	0.7	2.7	0.7	6.1	4.5

Intersection	
Intersection Delay, s/veh	96.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	57	2	407	154	424	0	0	572	296
Future Vol, veh/h	0	0	0	57	2	407	154	424	0	0	572	296
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	64	2	457	167	461	0	0	643	333
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	48.8	54.8	148.5
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	424	59	407	572	296
LT Vol	154	0	57	0	0	0
Through Vol	0	424	2	0	572	0
RT Vol	0	0	0	407	0	296
Lane Flow Rate	167	461	66	457	643	333
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.382	0.988	0.156	0.929	1.398	0.656
Departure Headway (Hd)	8.734	8.215	9.038	7.815	7.828	7.104
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	447	399	466	469	512
Service Time	6.434	5.915	6.738	5.515	5.528	4.804
HCM Lane V/C Ratio	0.402	1.031	0.165	0.981	1.371	0.65
HCM Control Delay	16.7	68.7	13.4	53.9	213.8	22.3
HCM Lane LOS	C	F	B	F	F	C
HCM 95th-tile Q	1.8	12.4	0.5	10.8	30.7	4.7

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	24	774	55	24	809
Future Vol, veh/h	63	24	774	55	24	809
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	70	27	860	61	27	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1813	860	0	0	921	0
Stage 1	860	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	86	354	-	-	737	-
Stage 1	413	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	80	354	-	-	737	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	346	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	118.8	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	80	354	737	-
HCM Lane V/C Ratio	-	-	0.875	0.075	0.036	-
HCM Control Delay (s)	-	-	157.9	16	10.1	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	4.5	0.2	0.1	-

Intersection						
Int Delay, s/veh	1.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	7	779	17	8	804
Future Vol, veh/h	28	7	779	17	8	804
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	8	856	19	9	884

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1758	856	0	0	875	0
Stage 1	856	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	93	356	-	-	767	-
Stage 1	415	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	91	356	-	-	767	-
Mov Cap-2 Maneuver	91	-	-	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	56.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	107	767	-
HCM Lane V/C Ratio	-	-	0.359	0.011	-
HCM Control Delay (s)	-	-	56.4	9.7	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0	-

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	778	742	0
Future Vol, veh/h	0	0	0	778	742	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	846	807	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1653	807	807	0	-	0
Stage 1	807	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	108	380	814	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	380	814	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	814	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	21	0	0	18
Future Vol, veh/h	0	0	21	0	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	23	0	0	20

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	43	23	0	0	23	0
Stage 1	23	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	965	1051	-	-	1586	-
Stage 1	997	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	965	1051	-	-	1586	-
Mov Cap-2 Maneuver	965	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	1000	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1586	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection							
Int Delay, s/veh	1.4						

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3	356	81	87	447	14	18
Future Vol, veh/h	3	356	81	87	447	14	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	494	113	121	621	19	25

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	621	0	0	607	0	1112	304
Stage 1	-	-	-	-	-	559	-
Stage 2	-	-	-	-	-	553	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	576	-	-	960	-	201	689
Stage 1	-	-	-	-	-	533	-
Stage 2	-	-	-	-	-	537	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	576	-	-	960	-	174	689
Mov Cap-2 Maneuver	-	-	-	-	-	174	-
Stage 1	-	-	-	-	-	529	-
Stage 2	-	-	-	-	-	469	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.5	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	300	576	-	-	960	-
HCM Lane V/C Ratio	0.148	0.007	-	-	0.126	-
HCM Control Delay (s)	19.1	11.3	-	-	9.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.4	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	192	147	694	88	129	624
Future Volume (veh/h)	192	147	694	88	129	624
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	216	165	780	99	145	701
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	263	234	1031	874	179	1336
Arrive On Green	0.15	0.15	0.56	0.56	0.10	0.72
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	216	165	780	99	145	701
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	10.1	8.5	27.6	2.6	6.9	14.5
Cycle Q Clear(g_c), s	10.1	8.5	27.6	2.6	6.9	14.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	263	234	1031	874	179	1336
V/C Ratio(X)	0.82	0.70	0.76	0.11	0.81	0.52
Avail Cap(c_a), veh/h	364	324	1031	874	240	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.6	14.6	9.0	37.6	5.4
Incr Delay (d2), s/veh	10.1	4.1	5.2	0.3	14.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.4	10.9	0.8	3.5	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	38.7	19.7	9.3	51.6	6.9
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	381		879			846
Approach Delay, s/veh	42.5		18.6			14.5
Approach LOS	D		B			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	14.1	53.3	67.4	18.1
Change Period (Y+Rc), s	5.4	5.8	* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2	* 62	17.6
Max Q Clear Time (g_c+I1), s	8.9	29.6	16.5	12.1
Green Ext Time (p_c), s	0.1	4.7	5.3	0.6

Intersection Summary	
HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	183	226	98	263	56	246	326	117	35	375	61
Future Volume (veh/h)	37	183	226	98	263	56	246	326	117	35	375	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	223	276	120	321	68	300	398	143	43	457	74
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	287	357	318	148	436	194	327	820	695	96	578	490
Arrive On Green	0.16	0.20	0.20	0.08	0.12	0.12	0.19	0.44	0.44	0.05	0.31	0.31
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	45	223	276	120	321	68	300	398	143	43	457	74
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.4	12.6	18.6	7.3	9.6	4.3	18.2	16.7	4.0	2.6	24.6	2.3
Cycle Q Clear(g_c), s	2.4	12.6	18.6	7.3	9.6	4.3	18.2	16.7	4.0	2.6	24.6	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	357	318	148	436	194	327	820	695	96	578	490
V/C Ratio(X)	0.16	0.62	0.87	0.81	0.74	0.35	0.92	0.49	0.21	0.45	0.79	0.15
Avail Cap(c_a), veh/h	287	451	402	218	1140	508	332	820	695	102	578	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	39.9	42.2	49.3	46.3	44.0	43.8	21.7	8.1	50.2	34.4	10.0
Incr Delay (d2), s/veh	0.3	1.8	15.0	13.4	2.4	1.1	28.9	2.1	0.7	3.2	10.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.3	8.1	3.6	4.1	1.7	10.4	7.4	2.1	1.2	12.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.7	41.7	57.2	62.8	48.7	45.0	72.7	23.8	8.7	53.4	45.0	10.7
LnGrp LOS	D	D	E	E	D	D	E	C	A	D	D	B
Approach Vol, veh/h		544			509			841			574	
Approach Delay, s/veh		49.4			51.5			38.7			41.2	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	53.8	15.7	28.7	25.7	39.5	24.3	20.0				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+I1), s	4.6	18.7	9.3	20.6	20.2	26.6	4.4	11.6				
Green Ext Time (p_c), s	0.0	2.9	0.1	1.6	0.0	1.7	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			44.3									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	27.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	302	1	171	0	0	0	0	316	44	383	314	0
Future Vol, veh/h	302	1	171	0	0	0	0	316	44	383	314	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	318	1	180	0	0	0	0	333	46	403	331	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	23.3	24.6	32.3
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	44	303	171	383	314
LT Vol	0	0	302	0	383	0
Through Vol	316	0	1	0	0	314
RT Vol	0	44	0	171	0	0
Lane Flow Rate	333	46	319	180	403	331
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.704	0.089	0.719	0.344	0.852	0.651
Departure Headway (Hd)	7.62	6.899	8.111	6.885	7.606	7.093
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	476	519	450	526	476	509
Service Time	5.361	4.64	5.811	4.585	5.344	4.831
HCM Lane V/C Ratio	0.7	0.089	0.709	0.342	0.847	0.65
HCM Control Delay	26.6	10.3	29	13.2	40.6	22.2
HCM Lane LOS	D	B	D	B	E	C
HCM 95th-tile Q	5.4	0.3	5.6	1.5	8.7	4.6

Intersection	
Intersection Delay, s/veh	115.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	43	3	279	101	514	0	0	662	199
Future Vol, veh/h	0	0	0	43	3	279	101	514	0	0	662	199
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	48	3	313	110	559	0	0	744	224
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	21	80.3	175.2
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	514	46	279	662	199
LT Vol	101	0	43	0	0	0
Through Vol	0	514	3	0	662	0
RT Vol	0	0	0	279	0	199
Lane Flow Rate	110	559	52	313	744	224
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.229	1.087	0.119	0.622	1.428	0.386
Departure Headway (Hd)	8.031	7.516	8.938	7.725	7.138	6.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	450	486	404	470	513	563
Service Time	5.731	5.216	6.638	5.425	4.838	4.118
HCM Lane V/C Ratio	0.244	1.15	0.129	0.666	1.45	0.398
HCM Control Delay	13.1	93.5	12.8	22.3	223.9	13.1
HCM Lane LOS	B	F	B	C	F	B
HCM 95th-tile Q	0.9	16.8	0.4	4.2	34.8	1.8

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	23	697	100	27	826
Future Vol, veh/h	35	23	697	100	27	826
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	39	26	774	111	30	918

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1752	774	0	0	885	0
Stage 1	774	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	93	397	-	-	761	-
Stage 1	453	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	86	397	-	-	761	-
Mov Cap-2 Maneuver	86	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	334	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.7	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	86	397	761	-
HCM Lane V/C Ratio	-	-	0.452	0.064	0.039	-
HCM Control Delay (s)	-	-	77.6	14.7	9.9	0
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	1	692	28	0	841
Future Vol, veh/h	12	1	692	28	0	841
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	1	760	31	0	924

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1684	760	0	0	791	0
Stage 1	760	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	103	404	-	-	825	-
Stage 1	460	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	103	404	-	-	825	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.9	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	109	825	-
HCM Lane V/C Ratio	-	-	0.131	-	-
HCM Control Delay (s)	-	-	42.9	0	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	633	806	0
Future Vol, veh/h	0	0	0	633	806	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	688	876	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1564	876	876	0	-	0
Stage 1	876	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	122	347	766	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	347	766	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	766	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	29	0	0	23
Future Vol, veh/h	0	0	29	0	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	32	0	0	25

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	57	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	948	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	948	1039	-	-	1574	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1574	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	10	509	52	37	216	20	15
Future Vol, veh/h	10	509	52	37	216	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	14	707	72	51	300	28	21

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	300	0	0	779	0	1023	390
Stage 1	-	-	-	-	-	771	-
Stage 2	-	-	-	-	-	252	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	921	-	-	827	-	230	606
Stage 1	-	-	-	-	-	414	-
Stage 2	-	-	-	-	-	764	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	921	-	-	827	-	213	606
Mov Cap-2 Maneuver	-	-	-	-	-	213	-
Stage 1	-	-	-	-	-	408	-
Stage 2	-	-	-	-	-	717	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.4	19.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	295	921	-	-	827	-
HCM Lane V/C Ratio	0.165	0.015	-	-	0.062	-
HCM Control Delay (s)	19.6	9	-	-	9.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0	-	-	0.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	49	610	80	59	789
Future Volume (veh/h)	50	49	610	80	59	789
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	55	685	90	66	887
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	162	144	1195	1012	102	1427
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	56	55	685	90	66	887
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.4	2.6	16.7	1.7	2.9	17.0
Cycle Q Clear(g_c), s	2.4	2.6	16.7	1.7	2.9	17.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	162	144	1195	1012	102	1427
V/C Ratio(X)	0.35	0.38	0.57	0.09	0.65	0.62
Avail Cap(c_a), veh/h	388	345	1195	1012	256	1427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	34.3	8.1	5.4	37.0	4.1
Incr Delay (d2), s/veh	1.3	1.7	2.0	0.2	6.7	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	5.4	0.5	1.4	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.4	35.9	10.1	5.6	43.7	6.2
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	111		775			953
Approach Delay, s/veh	35.7		9.5			8.8
Approach LOS	D		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.0	57.4				67.4		12.7
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62		17.6
Max Q Clear Time (g_c+I1), s	4.9	18.7				19.0		4.6
Green Ext Time (p_c), s	0.1	4.8				7.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	305	172	30	122	35	87	402	87	78	539	42
Future Volume (veh/h)	57	305	172	30	122	35	87	402	87	78	539	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	372	210	37	149	43	106	490	106	95	657	51
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	259	448	249	67	340	152	135	866	734	107	837	710
Arrive On Green	0.15	0.21	0.21	0.04	0.10	0.10	0.08	0.47	0.47	0.06	0.45	0.45
Sat Flow, veh/h	1767	2185	1215	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	70	299	283	37	149	43	106	490	106	95	657	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1637	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.7	16.8	17.2	2.1	4.1	2.6	6.1	19.8	2.9	5.5	31.2	1.0
Cycle Q Clear(g_c), s	3.7	16.8	17.2	2.1	4.1	2.6	6.1	19.8	2.9	5.5	31.2	1.0
Prop In Lane	1.00		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	362	336	67	340	152	135	866	734	107	837	710
V/C Ratio(X)	0.27	0.83	0.84	0.55	0.44	0.28	0.79	0.57	0.14	0.88	0.78	0.07
Avail Cap(c_a), veh/h	259	476	442	230	1203	537	351	866	734	107	837	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	39.5	39.6	49.0	44.2	43.5	47.1	20.0	8.1	48.3	24.2	4.4
Incr Delay (d2), s/veh	0.6	8.9	10.9	6.9	0.9	1.0	9.7	2.7	0.4	52.5	7.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.7	7.5	1.0	1.8	1.0	3.0	8.6	1.3	3.9	14.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	48.3	50.5	55.9	45.1	44.5	56.8	22.7	8.5	100.8	31.5	4.6
LnGrp LOS	D	D	D	E	D	D	E	C	A	F	C	A
Approach Vol, veh/h		652			229			702			803	
Approach Delay, s/veh		48.4			46.7			25.7			38.0	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	53.8	10.4	27.8	13.3	52.2	21.7	16.5				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+I1), s	7.5	21.8	4.1	19.2	8.1	33.2	5.7	6.1				
Green Ext Time (p_c), s	0.0	3.4	0.0	2.0	0.2	0.4	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			38.0									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	32.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	201	2	95	0	0	0	0	395	96	386	312	0
Future Vol, veh/h	201	2	95	0	0	0	0	395	96	386	312	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	228	2	95	0	0	0	0	449	109	439	355	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	18	37.9	35.2
HCM LOS	C	E	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	395	96	203	95	386	312
LT Vol	0	0	201	0	386	0
Through Vol	395	0	2	0	0	312
RT Vol	0	96	0	95	0	0
Lane Flow Rate	449	109	231	95	439	355
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.892	0.195	0.54	0.19	0.893	0.671
Departure Headway (Hd)	7.152	6.435	8.426	7.197	7.329	6.817
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	557	431	502	496	532
Service Time	4.888	4.171	6.126	4.897	5.064	4.552
HCM Lane V/C Ratio	0.886	0.196	0.536	0.189	0.885	0.667
HCM Control Delay	44.5	10.7	20.6	11.6	45.5	22.4
HCM Lane LOS	E	B	C	B	E	C
HCM 95th-tile Q	10	0.7	3.1	0.7	9.9	5

Intersection	
Intersection Delay, s/veh	127
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	57	2	427	154	435	0	0	637	323
Future Vol, veh/h	0	0	0	57	2	427	154	435	0	0	637	323
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	64	2	480	167	473	0	0	716	363
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	60.5	64.1	198
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	435	59	427	637	323
LT Vol	154	0	57	0	0	0
Through Vol	0	435	2	0	637	0
RT Vol	0	0	0	427	0	323
Lane Flow Rate	167	473	66	480	716	363
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.388	1.03	0.158	0.985	1.564	0.72
Departure Headway (Hd)	8.939	8.419	9.225	8.001	7.985	7.259
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	405	435	391	456	458	501
Service Time	6.639	6.119	6.925	5.701	5.685	4.959
HCM Lane V/C Ratio	0.412	1.087	0.169	1.053	1.563	0.725
HCM Control Delay	17.2	80.7	13.6	67	285	26.5
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	1.8	13.7	0.6	12.5	38.6	5.8

Intersection	
Int Delay, s/veh	8.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	24	804	55	24	901
Future Vol, veh/h	63	24	804	55	24	901
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	70	27	893	61	27	1001

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1948	893	0	0	954	0
Stage 1	893	-	-	-	-	-
Stage 2	1055	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	71	339	-	-	716	-
Stage 1	398	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 65	339	-	-	716	-
Mov Cap-2 Maneuver	~ 65	-	-	-	-	-
Stage 1	398	-	-	-	-	-
Stage 2	305	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	180.1	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	65	339	716	-
HCM Lane V/C Ratio	-	-	1.077	0.079	0.037	-
HCM Control Delay (s)	-	-	242.4	16.5	10.2	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	5.4	0.3	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	1.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	7	809	17	8	896
Future Vol, veh/h	28	7	809	17	8	896
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	8	889	19	9	985

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1892	889	0	0	908	0
Stage 1	889	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	76	341	-	-	746	-
Stage 1	400	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	341	-	-	746	-
Mov Cap-2 Maneuver	74	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	343	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	74.5	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	88	746	-
HCM Lane V/C Ratio	-	-	0.437	0.012	-
HCM Control Delay (s)	-	-	74.5	9.9	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0	-

Intersection						
Int Delay, s/veh	1.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	105	0	799	726	39
Future Vol, veh/h	0	105	0	799	726	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	0	868	789	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1657	789	831	0	-	0
Stage 1	789	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	107	389	797	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	389	797	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	797	-	389	-	-
HCM Lane V/C Ratio	-	-	0.293	-	-
HCM Control Delay (s)	0	-	18.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-

Intersection						
Int Delay, s/veh	3.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	23	0	4	19
Future Vol, veh/h	0	26	23	0	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	28	25	0	4	21

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	54	25	0	0	25	0
Stage 1	25	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	952	1048	-	-	1583	-
Stage 1	995	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	949	1048	-	-	1583	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	8.5		0		1.3	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1048	1583	-
HCM Lane V/C Ratio	-	-	0.027	0.003	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection							
Int Delay, s/veh	1.9						

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3	356	83	89	447	21	38
Future Vol, veh/h	3	356	83	89	447	21	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	494	115	124	621	29	53

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	621	0	0	609	0	1119	305
Stage 1	-	-	-	-	-	560	-
Stage 2	-	-	-	-	-	559	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	576	-	-	959	-	199	688
Stage 1	-	-	-	-	-	533	-
Stage 2	-	-	-	-	-	533	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	576	-	-	959	-	172	688
Mov Cap-2 Maneuver	-	-	-	-	-	172	-
Stage 1	-	-	-	-	-	529	-
Stage 2	-	-	-	-	-	464	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.5	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	333	576	-	-	959	-
HCM Lane V/C Ratio	0.246	0.007	-	-	0.129	-
HCM Control Delay (s)	19.3	11.3	-	-	9.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0	-	-	0.4	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	192	151	724	88	142	716
Future Volume (veh/h)	192	151	724	88	142	716
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	216	170	813	99	160	804
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	263	234	1014	860	195	1336
Arrive On Green	0.15	0.15	0.55	0.55	0.11	0.72
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	216	170	813	99	160	804
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	10.1	8.8	30.2	2.6	7.6	18.3
Cycle Q Clear(g_c), s	10.1	8.8	30.2	2.6	7.6	18.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	263	234	1014	860	195	1336
V/C Ratio(X)	0.82	0.73	0.80	0.12	0.82	0.60
Avail Cap(c_a), veh/h	364	324	1014	860	240	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.7	15.6	9.4	37.2	5.9
Incr Delay (d2), s/veh	10.1	5.0	6.7	0.3	16.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.5	12.3	0.8	4.0	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	39.7	22.3	9.7	54.0	7.9
LnGrp LOS	D	D	C	A	D	A
Approach Vol, veh/h	386		912			964
Approach Delay, s/veh	42.9		20.9			15.6
Approach LOS	D		C			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	52.6				67.4		18.1
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62		17.6
Max Q Clear Time (g_c+I1), s	9.6	32.2				20.3		12.1
Green Ext Time (p_c), s	0.1	4.5				6.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	189	232	100	266	58	280	326	117	35	377	61
Future Volume (veh/h)	44	189	232	100	266	58	280	326	117	35	377	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	54	230	283	122	324	71	341	398	143	43	460	74
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	78	364	325	139	849	379	364	850	720	71	542	459
Arrive On Green	0.04	0.21	0.21	0.08	0.24	0.24	0.21	0.46	0.46	0.04	0.29	0.29
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	54	230	283	122	324	71	341	398	143	43	460	74
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.3	13.1	19.1	7.5	8.4	3.9	20.8	16.2	3.9	2.6	25.6	3.8
Cycle Q Clear(g_c), s	3.3	13.1	19.1	7.5	8.4	3.9	20.8	16.2	3.9	2.6	25.6	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	364	325	139	849	379	364	850	720	71	542	459
V/C Ratio(X)	0.69	0.63	0.87	0.88	0.38	0.19	0.94	0.47	0.20	0.61	0.85	0.16
Avail Cap(c_a), veh/h	102	450	402	139	974	435	364	850	720	140	542	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	39.7	42.1	50.0	34.8	33.1	42.8	20.5	7.6	51.8	36.6	28.9
Incr Delay (d2), s/veh	12.6	2.0	15.8	43.1	0.3	0.2	31.2	1.9	0.6	8.2	15.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	5.5	8.4	4.8	3.4	1.4	12.0	7.1	2.0	1.3	13.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	41.6	57.9	93.1	35.1	33.3	74.1	22.4	8.2	60.0	51.9	29.6
LnGrp LOS	E	D	E	F	D	C	E	C	A	E	D	C
Approach Vol, veh/h		567			517			882			577	
Approach Delay, s/veh		51.9			48.5			40.1			49.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	55.6	15.1	29.1	28.0	37.4	11.3	32.9				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	8.7	45.9	8.6	28.0	22.6	32.0	6.3	30.3				
Max Q Clear Time (g_c+I1), s	4.6	18.2	9.5	21.1	22.8	27.6	5.3	10.4				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.6	0.0	1.2	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			46.6									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	49.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	332	1	171	0	0	0	0	324	44	422	318	0
Future Vol, veh/h	332	1	171	0	0	0	0	324	44	422	318	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	377	1	171	0	0	0	0	368	50	480	361	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	36.4	34.7	64.5
HCM LOS	E	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	44	333	171	422	318
LT Vol	0	0	332	0	422	0
Through Vol	324	0	1	0	0	318
RT Vol	0	44	0	171	0	0
Lane Flow Rate	368	50	378	171	480	361
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.815	0.101	0.873	0.336	1.07	0.755
Departure Headway (Hd)	8.131	7.407	8.427	7.196	8.034	7.519
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	487	431	503	456	484
Service Time	5.831	5.107	6.127	4.896	5.734	5.219
HCM Lane V/C Ratio	0.82	0.103	0.877	0.34	1.053	0.746
HCM Control Delay	37.9	10.9	46.8	13.5	90.6	29.9
HCM Lane LOS	E	B	E	B	F	D
HCM 95th-tile Q	7.6	0.3	8.9	1.5	15.5	6.4

Intersection	
Intersection Delay, s/veh	156.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	43	3	346	101	551	0	0	706	216
Future Vol, veh/h	0	0	0	43	3	346	101	551	0	0	706	216
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	48	3	389	110	599	0	0	793	243
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	30.3	124.2	232.7
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	551	46	346	706	216
LT Vol	101	0	43	0	0	0
Through Vol	0	551	3	0	706	0
RT Vol	0	0	0	346	0	216
Lane Flow Rate	110	599	52	389	793	243
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.24	1.224	0.119	0.769	1.6	0.442
Departure Headway (Hd)	8.51	7.992	9.192	7.974	7.609	6.886
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	461	392	459	484	527
Service Time	6.21	5.692	6.892	5.674	5.309	4.586
HCM Lane V/C Ratio	0.259	1.299	0.133	0.847	1.638	0.461
HCM Control Delay	13.9	144.4	13.1	32.6	299.3	14.9
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	0.9	22	0.4	6.6	42.2	2.2

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	23	800	100	27	887
Future Vol, veh/h	35	23	800	100	27	887
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	39	26	889	111	30	986

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1935	889	0	0	1000	0
Stage 1	889	-	-	-	-	-
Stage 2	1046	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	72	341	-	-	688	-
Stage 1	400	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	341	-	-	688	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	305	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	80.1	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	65	341	688	-
HCM Lane V/C Ratio	-	-	0.598	0.075	0.044	-
HCM Control Delay (s)	-	-	121.9	16.4	10.5	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	2.5	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	1	795	28	0	902
Future Vol, veh/h	12	1	795	28	0	902
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	1	874	31	0	991

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1865	874	0	0	905	0
Stage 1	874	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	79	348	-	-	747	-
Stage 1	407	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	79	348	-	-	747	-
Mov Cap-2 Maneuver	79	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	358	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	56.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	84	747	-
HCM Lane V/C Ratio	-	-	0.17	-	-
HCM Control Delay (s)	-	-	56.4	0	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	70	0	736	794	132
Future Vol, veh/h	0	70	0	736	794	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	76	0	800	863	143

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1663	863	1006	0	-	0
Stage 1	863	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	106	353	685	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	106	353	685	-	-	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	685	-	353	-	-
HCM Lane V/C Ratio	-	-	0.216	-	-
HCM Control Delay (s)	0	-	18	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	17	29	0	15	23
Future Vol, veh/h	0	17	29	0	15	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	32	0	16	25

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	89	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	909	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	1039	-	-	1574	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1039	1574	-
HCM Lane V/C Ratio	-	-	0.018	0.01	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	10	509	60	44	216	25	28
Future Vol, veh/h	10	509	60	44	216	25	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	14	707	83	61	300	35	39

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	300	0	0	790	0	1049	395
Stage 1	-	-	-	-	-	777	-
Stage 2	-	-	-	-	-	272	-
Critical Hdwy	6.46	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	921	-	-	819	-	221	601
Stage 1	-	-	-	-	-	411	-
Stage 2	-	-	-	-	-	746	-
Platoon blocked, %		-	-		-		
Mov Cap-1 Maneuver	921	-	-	819	-	202	601
Mov Cap-2 Maneuver	-	-	-	-	-	202	-
Stage 1	-	-	-	-	-	405	-
Stage 2	-	-	-	-	-	691	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.7	20.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	311	921	-	-	819	-
HCM Lane V/C Ratio	0.237	0.015	-	-	0.075	-
HCM Control Delay (s)	20.1	9	-	-	9.8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0	-	-	0.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	63	713	80	63	850
Future Volume (veh/h)	50	63	713	80	63	850
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	71	801	90	71	955
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	166	147	1188	1007	105	1423
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	56	71	801	90	71	955
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.4	3.4	22.0	1.8	3.2	19.9
Cycle Q Clear(g_c), s	2.4	3.4	22.0	1.8	3.2	19.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	166	147	1188	1007	105	1423
V/C Ratio(X)	0.34	0.48	0.67	0.09	0.68	0.67
Avail Cap(c_a), veh/h	387	345	1188	1007	255	1423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	34.5	9.1	5.5	37.0	4.5
Incr Delay (d2), s/veh	1.2	2.4	3.1	0.2	7.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.4	7.3	0.5	1.5	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.3	37.0	12.2	5.7	44.4	7.0
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	127		891			1026
Approach Delay, s/veh	36.2		11.6			9.6
Approach LOS	D		B			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.2	57.2				67.4		12.9
Change Period (Y+Rc), s	5.4	5.8				* 5.8		5.4
Max Green Setting (Gmax), s	11.6	44.2				* 62		17.6
Max Q Clear Time (g_c+I1), s	5.2	24.0				21.9		5.4
Green Ext Time (p_c), s	0.1	5.6				8.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	309	177	38	130	35	205	402	87	78	546	42
Future Volume (veh/h)	61	309	177	38	130	35	205	402	87	78	546	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	74	377	216	46	159	43	250	490	106	95	666	51
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	445	251	72	678	303	260	845	716	155	734	622
Arrive On Green	0.05	0.21	0.21	0.04	0.19	0.19	0.15	0.46	0.46	0.09	0.40	0.40
Sat Flow, veh/h	1767	2172	1226	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	74	305	288	46	159	43	250	490	106	95	666	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1635	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.7	18.7	19.2	2.9	4.3	1.9	15.8	22.0	4.4	5.8	38.1	2.3
Cycle Q Clear(g_c), s	4.7	18.7	19.2	2.9	4.3	1.9	15.8	22.0	4.4	5.8	38.1	2.3
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	361	335	72	678	303	260	845	716	155	734	622
V/C Ratio(X)	0.79	0.84	0.86	0.64	0.23	0.14	0.96	0.58	0.15	0.61	0.91	0.08
Avail Cap(c_a), veh/h	94	454	421	94	907	405	260	845	716	155	734	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	43.1	43.2	53.2	38.5	21.8	47.7	22.7	17.9	49.5	32.1	21.3
Incr Delay (d2), s/veh	34.5	11.3	13.6	9.1	0.2	0.2	44.8	2.9	0.4	6.9	17.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	8.8	8.6	1.4	1.8	0.9	10.0	9.8	1.6	2.8	19.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.2	54.3	56.8	62.4	38.7	22.1	92.5	25.6	18.4	56.4	49.1	21.5
LnGrp LOS	F	D	E	E	D	C	F	C	B	E	D	C
Approach Vol, veh/h		667			248			846			812	
Approach Delay, s/veh		59.1			40.2			44.5			48.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	56.7	11.1	29.6	22.0	50.0	12.5	28.2
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5
Max Green Setting (Gmax), s	9.9	51.3	6.0	29.0	16.6	44.6	6.0	29.0
Max Q Clear Time (g_c+I1), s	7.8	24.0	4.9	21.2	17.8	40.1	6.7	6.3
Green Ext Time (p_c), s	0.0	3.4	0.0	2.0	0.0	1.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	49.0
HCM 6th LOS	D

10-YEAR HORIZON CONDITIONS

Intersection	
Intersection Delay, s/veh	42.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	215	3	108	0	0	0	0	446	109	365	345	0
Future Vol, veh/h	215	3	108	0	0	0	0	446	109	365	345	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	244	3	108	0	0	0	0	507	124	415	392	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	19.5	64.1	36
HCM LOS	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	446	109	218	108	365	345
LT Vol	0	0	215	0	365	0
Through Vol	446	0	3	0	0	345
RT Vol	0	109	0	108	0	0
Lane Flow Rate	507	124	248	108	415	392
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.035	0.228	0.584	0.218	0.865	0.762
Departure Headway (Hd)	7.351	6.632	8.618	7.388	7.645	7.132
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	497	545	421	489	477	510
Service Time	5.051	4.332	6.318	5.088	5.345	4.832
HCM Lane V/C Ratio	1.02	0.228	0.589	0.221	0.87	0.769
HCM Control Delay	77	11.3	22.7	12.1	42.4	29.2
HCM Lane LOS	F	B	C	B	E	D
HCM 95th-tile Q	14.9	0.9	3.6	0.8	9	6.7

Intersection	
Intersection Delay, s/veh	138.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	65	3	459	176	477	0	0	641	333
Future Vol, veh/h	0	0	0	65	3	459	176	477	0	0	641	333
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	73	3	516	191	518	0	0	720	374
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	82.2	91.3	199.3
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	477	68	459	641	333
LT Vol	176	0	65	0	0	0
Through Vol	0	477	3	0	641	0
RT Vol	0	0	0	459	0	333
Lane Flow Rate	191	518	76	516	720	374
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.449	1.145	0.184	1.073	1.568	0.742
Departure Headway (Hd)	9.116	8.595	9.41	8.19	8.294	7.566
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	398	425	384	449	447	483
Service Time	6.816	6.295	7.11	5.89	5.994	5.266
HCM Lane V/C Ratio	0.48	1.219	0.198	1.149	1.611	0.774
HCM Control Delay	19	118	14.2	92.3	287.7	29
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	2.3	17.7	0.7	15.5	37.6	6.2

Intersection	
Intersection Delay, s/veh	57.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	340	1	195	0	0	0	0	358	50	433	356	0
Future Vol, veh/h	340	1	195	0	0	0	0	358	50	433	356	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	386	1	195	0	0	0	0	407	57	492	405	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	38.6	46.7	75.8
HCM LOS	E	E	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	50	341	195	433	356
LT Vol	0	0	340	0	433	0
Through Vol	358	0	1	0	0	356
RT Vol	0	50	0	195	0	0
Lane Flow Rate	407	57	388	195	492	405
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.905	0.115	0.894	0.385	1.11	0.855
Departure Headway (Hd)	8.304	7.58	8.567	7.333	8.122	7.605
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	439	476	426	493	448	473
Service Time	6.004	5.28	6.267	5.033	5.902	5.385
HCM Lane V/C Ratio	0.927	0.12	0.911	0.396	1.098	0.856
HCM Control Delay	51.6	11.3	50.8	14.5	104.3	41.2
HCM Lane LOS	F	B	F	B	F	E
HCM 95th-tile Q	9.8	0.4	9.4	1.8	16.9	8.7

Intersection	
Intersection Delay, s/veh	173.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	49	4	312	116	579	0	0	748	224
Future Vol, veh/h	0	0	0	49	4	312	116	579	0	0	748	224
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	55	4	351	126	629	0	0	840	252
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	25.2	135.7	255.5
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	579	53	312	748	224
LT Vol	116	0	49	0	0	0
Through Vol	0	579	4	0	748	0
RT Vol	0	0	0	312	0	224
Lane Flow Rate	126	629	60	351	840	252
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.271	1.265	0.137	0.695	1.666	0.45
Departure Headway (Hd)	8.431	7.914	9.288	8.074	7.507	6.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	429	466	388	452	496	534
Service Time	6.131	5.614	6.988	5.774	5.207	4.485
HCM Lane V/C Ratio	0.294	1.35	0.155	0.777	1.694	0.472
HCM Control Delay	14.2	160	13.5	27.2	327.6	14.9
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	1.1	24	0.5	5.2	46.4	2.3

Intersection	
Intersection Delay, s/veh	52.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	223	3	108	0	0	0	0	448	109	424	352	0
Future Vol, veh/h	223	3	108	0	0	0	0	448	109	424	352	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	253	3	108	0	0	0	0	509	124	482	400	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	20.5	67.9	54.7
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	448	109	226	108	424	352
LT Vol	0	0	223	0	424	0
Through Vol	448	0	3	0	0	352
RT Vol	0	109	0	108	0	0
Lane Flow Rate	509	124	257	108	482	400
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.048	0.23	0.607	0.222	1.017	0.787
Departure Headway (Hd)	7.523	6.804	8.733	7.502	7.711	7.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	531	416	482	472	508
Service Time	5.223	4.504	6.433	5.202	5.411	4.897
HCM Lane V/C Ratio	1.052	0.234	0.618	0.224	1.021	0.787
HCM Control Delay	81.6	11.5	24	12.3	73.8	31.6
HCM Lane LOS	F	B	C	B	F	D
HCM 95th-tile Q	15.2	0.9	3.9	0.8	13.8	7.2

Intersection	
Intersection Delay, s/veh	169.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	65	3	478	176	488	0	0	706	359
Future Vol, veh/h	0	0	0	65	3	478	176	488	0	0	706	359
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	73	3	537	191	530	0	0	793	403
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	98.2	100.5	248.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	488	68	478	706	359
LT Vol	176	0	65	0	0	0
Through Vol	0	488	3	0	706	0
RT Vol	0	0	0	478	0	359
Lane Flow Rate	191	530	76	537	793	403
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.45	1.176	0.185	1.125	1.728	0.797
Departure Headway (Hd)	9.269	8.748	9.583	8.362	8.424	7.695
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	392	419	377	440	436	472
Service Time	6.969	6.448	7.283	6.062	6.124	5.395
HCM Lane V/C Ratio	0.487	1.265	0.202	1.22	1.819	0.854
HCM Control Delay	19.3	129.8	14.4	110.1	357.6	34.3
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	2.3	18.7	0.7	17.3	45	7.3

Intersection	
Intersection Delay, s/veh	62.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	369	1	195	0	0	0	0	365	50	424	352	0
Future Vol, veh/h	369	1	195	0	0	0	0	365	50	424	352	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	419	1	195	0	0	0	0	415	57	482	400	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	50.5	52.5	76.7
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	50	370	195	424	352
LT Vol	0	0	369	0	424	0
Through Vol	365	0	1	0	0	352
RT Vol	0	50	0	195	0	0
Lane Flow Rate	415	57	420	195	482	400
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.936	0.117	0.974	0.387	1.109	0.863
Departure Headway (Hd)	8.434	7.709	8.595	7.361	8.285	7.768
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	468	425	491	438	464
Service Time	6.134	5.409	6.295	5.061	6.074	5.556
HCM Lane V/C Ratio	0.963	0.122	0.988	0.397	1.1	0.862
HCM Control Delay	58.1	11.4	67.1	14.6	104.7	43
HCM Lane LOS	F	B	F	B	F	E
HCM 95th-tile Q	10.7	0.4	11.7	1.8	16.6	8.9

Intersection	
Intersection Delay, s/veh	218.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	49	4	378	116	615	0	0	792	241
Future Vol, veh/h	0	0	0	49	4	378	116	615	0	0	792	241
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	55	4	425	126	668	0	0	890	271
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach				WB			NB				SB	
Opposing Approach							SB				NB	
Opposing Lanes				0			2				2	
Conflicting Approach Left				NB							WB	
Conflicting Lanes Left				2			0				2	
Conflicting Approach Right				SB			WB					
Conflicting Lanes Right				2			2				0	
HCM Control Delay				38.6			185.7				315.8	
HCM LOS				E			F				F	

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	615	53	378	792	241
LT Vol	116	0	49	0	0	0
Through Vol	0	615	4	0	792	0
RT Vol	0	0	0	378	0	241
Lane Flow Rate	126	668	60	425	890	271
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.282	1.403	0.138	0.844	1.843	0.508
Departure Headway (Hd)	8.882	8.362	9.517	8.298	7.977	7.251
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	407	441	379	442	463	501
Service Time	6.582	6.062	7.217	5.998	5.677	4.951
HCM Lane V/C Ratio	0.31	1.515	0.158	0.962	1.922	0.541
HCM Control Delay	15	217.9	13.7	42.1	406.7	17.2
HCM Lane LOS	B	F	B	E	F	C
HCM 95th-tile Q	1.1	29.4	0.5	8.2	53.4	2.8

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Intersection	
Intersection Delay, s/veh	98.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	260	3	135	0	0	0	0	554	137	444	427	0
Future Vol, veh/h	260	3	135	0	0	0	0	554	137	444	427	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	295	3	135	0	0	0	0	630	156	505	485	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	26.4	157.8	83.3
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	554	137	263	135	444	427
LT Vol	0	0	260	0	444	0
Through Vol	554	0	3	0	0	427
RT Vol	0	137	0	135	0	0
Lane Flow Rate	630	156	299	135	505	485
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.348	0.303	0.719	0.28	1.095	0.985
Departure Headway (Hd)	7.957	7.235	9.205	7.967	8.315	7.798
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	500	395	454	439	471
Service Time	5.657	4.935	6.905	5.667	6.015	5.498
HCM Lane V/C Ratio	1.37	0.312	0.757	0.297	1.15	1.03
HCM Control Delay	193.6	13	32.2	13.7	99.9	66
HCM Lane LOS	F	B	D	B	F	F
HCM 95th-tile Q	27.9	1.3	5.5	1.1	16.1	12.6

Intersection	
Intersection Delay, s/veh	239.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	82	3	566	221	588	0	0	784	408
Future Vol, veh/h	0	0	0	82	3	566	221	588	0	0	784	408
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	92	3	636	240	639	0	0	881	458
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	181.9	177	312.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	588	85	566	784	408
LT Vol	221	0	82	0	0	0
Through Vol	0	588	3	0	784	0
RT Vol	0	0	0	566	0	408
Lane Flow Rate	240	639	96	636	881	458
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.573	1.435	0.237	1.369	1.928	0.914
Departure Headway (Hd)	9.715	9.191	10.363	9.137	9.103	8.368
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	375	403	349	401	405	436
Service Time	7.415	6.891	8.063	6.837	6.803	6.068
HCM Lane V/C Ratio	0.64	1.586	0.275	1.586	2.175	1.05
HCM Control Delay	24.7	234.3	16.3	206.8	447.5	53.5
HCM Lane LOS	C	F	C	F	F	F
HCM 95th-tile Q	3.4	28.7	0.9	26	51.4	10

Intersection	
Intersection Delay, s/veh	130.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	417	2	245	0	0	0	0	444	63	536	443	0
Future Vol, veh/h	417	2	245	0	0	0	0	444	63	536	443	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	474	2	245	0	0	0	0	505	72	609	503	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	80.9	118.3	168.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	444	63	419	245	536	443
LT Vol	0	0	417	0	536	0
Through Vol	444	0	2	0	0	443
RT Vol	0	63	0	245	0	0
Lane Flow Rate	505	72	476	245	609	503
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.181	0.154	1.127	0.499	1.414	1.097
Departure Headway (Hd)	9.15	8.423	8.946	7.709	8.91	8.389
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	399	429	409	470	414	438
Service Time	6.85	6.123	6.646	5.409	6.61	6.089
HCM Lane V/C Ratio	1.266	0.168	1.164	0.521	1.471	1.148
HCM Control Delay	133.3	12.7	113.4	17.8	224.5	100.9
HCM Lane LOS	F	B	F	C	F	F
HCM 95th-tile Q	18.4	0.5	16.6	2.7	28.4	16.1

Intersection	
Intersection Delay, s/veh	309.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	61	5	379	145	713	0	0	927	275
Future Vol, veh/h	0	0	0	61	5	379	145	713	0	0	927	275
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	69	6	426	158	775	0	0	1042	309
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	42.6	271.1	434.9
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	713	66	379	927	275
LT Vol	145	0	61	0	0	0
Through Vol	0	713	5	0	927	0
RT Vol	0	0	0	379	0	275
Lane Flow Rate	158	775	74	426	1042	309
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.357	1.646	0.175	0.868	2.182	0.587
Departure Headway (Hd)	9.21	8.689	9.997	8.771	8.288	7.559
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	394	426	361	417	448	482
Service Time	6.91	6.389	7.697	6.471	5.988	5.259
HCM Lane V/C Ratio	0.401	1.819	0.205	1.022	2.326	0.641
HCM Control Delay	16.9	322.8	14.8	47.4	557.8	20.4
HCM Lane LOS	C	F	B	E	F	C
HCM 95th-tile Q	1.6	39.9	0.6	8.7	69.3	3.7

Intersection	
Intersection Delay, s/veh	116
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	269	3	135	0	0	0	0	556	137	503	434	0
Future Vol, veh/h	269	3	135	0	0	0	0	556	137	503	434	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	306	3	135	0	0	0	0	632	156	572	493	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	28.3	164.1	117.1
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	556	137	272	135	503	434
LT Vol	0	0	269	0	503	0
Through Vol	556	0	3	0	0	434
RT Vol	0	137	0	135	0	0
Lane Flow Rate	632	156	309	135	572	493
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.365	0.306	0.744	0.28	1.249	1.009
Departure Headway (Hd)	8.1	7.378	9.306	8.067	8.381	7.863
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	490	393	448	440	464
Service Time	5.8	5.078	7.006	5.767	6.081	5.563
HCM Lane V/C Ratio	1.389	0.318	0.786	0.301	1.3	1.063
HCM Control Delay	201.2	13.3	34.6	13.9	155.7	72.4
HCM Lane LOS	F	B	D	B	F	F
HCM 95th-tile Q	28.3	1.3	5.9	1.1	22.4	13.4

Intersection	
Intersection Delay, s/veh	275
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	82	3	585	221	598	0	0	850	434
Future Vol, veh/h	0	0	0	82	3	585	221	598	0	0	850	434
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	92	3	657	240	650	0	0	955	488
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	203.3	186.8	366.9
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	598	85	585	850	434
LT Vol	221	0	82	0	0	0
Through Vol	0	598	3	0	850	0
RT Vol	0	0	0	585	0	434
Lane Flow Rate	240	650	96	657	955	488
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.574	1.464	0.238	1.424	2.092	0.973
Departure Headway (Hd)	9.778	9.254	10.616	9.391	9.222	8.486
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	372	397	341	394	401	429
Service Time	7.478	6.954	8.316	7.091	6.922	6.186
HCM Lane V/C Ratio	0.645	1.637	0.282	1.668	2.382	1.138
HCM Control Delay	24.9	246.7	16.6	230.4	520.4	66.4
HCM Lane LOS	C	F	C	F	F	F
HCM 95th-tile Q	3.4	29.7	0.9	27.7	58.5	11.7

Intersection	
Intersection Delay, s/veh	148.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	446	2	245	0	0	0	0	451	63	575	448	0
Future Vol, veh/h	446	2	245	0	0	0	0	451	63	575	448	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	507	2	245	0	0	0	0	513	72	653	509	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	101.3	125.3	190.4
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	451	63	448	245	575	448
LT Vol	0	0	446	0	575	0
Through Vol	451	0	2	0	0	448
RT Vol	0	63	0	245	0	0
Lane Flow Rate	512	72	509	245	653	509
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.2	0.154	1.205	0.499	1.497	1.096
Departure Headway (Hd)	9.32	8.592	8.975	7.737	9.045	8.523
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	420	407	468	405	428
Service Time	7.02	6.292	6.675	5.437	6.745	6.223
HCM Lane V/C Ratio	1.296	0.171	1.251	0.524	1.612	1.189
HCM Control Delay	141	12.8	141.4	17.9	259.9	101.2
HCM Lane LOS	F	B	F	C	F	F
HCM 95th-tile Q	18.9	0.5	19.5	2.7	31.8	16

Intersection	
Intersection Delay, s/veh	354.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	61	5	445	145	750	0	0	970	301
Future Vol, veh/h	0	0	0	61	5	445	145	750	0	0	970	301
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	69	6	500	158	815	0	0	1090	338
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	73.4	327.9	485.2
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	750	66	445	970	301
LT Vol	145	0	61	0	0	0
Through Vol	0	750	5	0	970	0
RT Vol	0	0	0	445	0	301
Lane Flow Rate	158	815	74	500	1090	338
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.369	1.793	0.176	1.025	2.337	0.659
Departure Headway (Hd)	9.539	9.016	10.234	9.006	8.753	8.02
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	408	353	405	425	453
Service Time	7.239	6.716	7.934	6.706	6.453	5.72
HCM Lane V/C Ratio	0.416	1.998	0.21	1.235	2.565	0.746
HCM Control Delay	17.7	387.9	15.1	82	628	24.9
HCM Lane LOS	C	F	C	F	F	C
HCM 95th-tile Q	1.7	45.5	0.6	13	73.6	4.7

MITIGATION

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	2	95	0	0	0	0	395	96	386	312	0
Future Volume (veh/h)	201	2	95	0	0	0	0	395	96	386	312	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	228	2	108				0	449	109	439	355	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	312	3	280				0	564	478	513	1244	0
Arrive On Green	0.18	0.18	0.18				0.00	0.30	0.30	0.29	0.67	0.00
Sat Flow, veh/h	1753	15	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	230	0	108				0	449	109	439	355	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	7.3	0.0	3.6				0.0	13.2	3.1	13.9	4.6	0.0
Cycle Q Clear(g_c), s	7.3	0.0	3.6				0.0	13.2	3.1	13.9	4.6	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	314	0	280				0	564	478	513	1244	0
V/C Ratio(X)	0.73	0.00	0.39				0.00	0.80	0.23	0.86	0.29	0.00
Avail Cap(c_a), veh/h	701	0	624				0	1300	1102	1238	2741	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.0	0.0	21.5				0.0	18.9	15.4	19.8	4.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.9				0.0	2.6	0.2	4.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	1.2				0.0	5.0	0.9	5.3	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	0.0	22.4				0.0	21.6	15.7	24.1	4.1	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		338						558			794	
Approach Delay, s/veh		25.0						20.4			15.1	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	21.7	22.5		15.0		44.2			
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5			
Max Green Setting (Gmax), s	41.5	41.5		23.5		87.5			
Max Q Clear Time (g_c+I1), s	15.9	15.2		9.3		6.6			
Green Ext Time (p_c), s	1.3	2.8		1.3		2.1			

Intersection Summary			
HCM 6th Ctrl Delay			18.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	3	108	0	0	0	0	446	109	365	345	0
Future Volume (veh/h)	215	3	108	0	0	0	0	446	109	365	345	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	234	3	117				0	485	118	397	375	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	319	4	288				0	603	511	469	1236	0
Arrive On Green	0.18	0.18	0.18				0.00	0.33	0.33	0.27	0.67	0.00
Sat Flow, veh/h	1746	22	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	237	0	117				0	485	118	397	375	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	7.5	0.0	3.9				0.0	14.2	3.3	12.7	5.0	0.0
Cycle Q Clear(g_c), s	7.5	0.0	3.9				0.0	14.2	3.3	12.7	5.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	323	0	288				0	603	511	469	1236	0
V/C Ratio(X)	0.73	0.00	0.41				0.00	0.80	0.23	0.85	0.30	0.00
Avail Cap(c_a), veh/h	727	0	647				0	1355	1148	1142	2694	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.0	0.0	21.5				0.0	18.4	14.7	20.7	4.2	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.9				0.0	2.6	0.2	4.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.3				0.0	5.3	1.0	5.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	0.0	22.4				0.0	20.9	14.9	25.0	4.3	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		354						603			772	
Approach Delay, s/veh		24.9						19.8			15.0	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.3	23.9		15.4		44.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	38.5	43.5		24.5		86.5						
Max Q Clear Time (g_c+I1), s	14.7	16.2		9.5		7.0						
Green Ext Time (p_c), s	1.2	3.1		1.4		2.2						

Intersection Summary			
HCM 6th Ctrl Delay			18.7
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	3	108	0	0	0	0	448	109	424	352	0
Future Volume (veh/h)	223	3	108	0	0	0	0	448	109	424	352	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	242	3	117				0	487	118	461	383	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	317	4	285				0	591	501	527	1269	0
Arrive On Green	0.18	0.18	0.18				0.00	0.32	0.32	0.30	0.68	0.00
Sat Flow, veh/h	1747	22	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	245	0	117				0	487	118	461	383	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	8.8	0.0	4.4				0.0	16.2	3.7	16.5	5.5	0.0
Cycle Q Clear(g_c), s	8.8	0.0	4.4				0.0	16.2	3.7	16.5	5.5	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	321	0	285				0	591	501	527	1269	0
V/C Ratio(X)	0.76	0.00	0.41				0.00	0.82	0.24	0.87	0.30	0.00
Avail Cap(c_a), veh/h	622	0	553				0	1153	977	1098	2430	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	0.0	24.2				0.0	21.0	16.8	22.3	4.2	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.9				0.0	3.0	0.2	4.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	1.5				0.0	6.3	1.2	6.6	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	25.1				0.0	24.0	17.0	27.0	4.3	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		362						605			844	
Approach Delay, s/veh		28.3						22.7			16.7	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.4	25.8		16.6		50.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	41.5	41.5		23.5		87.5						
Max Q Clear Time (g_c+I1), s	18.5	18.2		10.8		7.5						
Green Ext Time (p_c), s	1.4	3.1		1.3		2.3						

Intersection Summary			
HCM 6th Ctrl Delay			21.0
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	3	135	0	0	0	0	554	137	444	427	0
Future Volume (veh/h)	260	3	135	0	0	0	0	554	137	444	427	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	285	0	147				0	602	149	483	464	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	462	0	206				0	705	597	542	1387	0
Arrive On Green	0.13	0.00	0.13				0.00	0.38	0.38	0.31	0.75	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	285	0	147				0	602	149	483	464	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	5.6	0.0	6.6				0.0	22.0	4.8	19.3	6.2	0.0
Cycle Q Clear(g_c), s	5.6	0.0	6.6				0.0	22.0	4.8	19.3	6.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	462	0	206				0	705	597	542	1387	0
V/C Ratio(X)	0.62	0.00	0.72				0.00	0.85	0.25	0.89	0.33	0.00
Avail Cap(c_a), veh/h	860	0	383				0	1204	1021	968	2333	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	30.8				0.0	21.0	15.7	24.4	3.1	0.0
Incr Delay (d2), s/veh	1.3	0.0	4.6				0.0	3.1	0.2	5.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.6				0.0	8.6	1.5	7.9	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	35.4				0.0	24.1	15.9	29.7	3.3	0.0
LnGrp LOS	C	A	D				A	C	B	C	A	A
Approach Vol, veh/h		432						751			947	
Approach Delay, s/veh		33.0						22.5			16.8	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	27.2	32.6		14.2		59.8
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	40.5	48.0		18.0		93.0
Max Q Clear Time (g_c+I1), s	21.3	24.0		8.6		8.2
Green Ext Time (p_c), s	1.4	4.1		1.0		2.9

Intersection Summary			
HCM 6th Ctrl Delay			22.1
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	3	135	0	0	0	0	556	137	503	434	0
Future Volume (veh/h)	269	3	135	0	0	0	0	556	137	503	434	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	294	0	147				0	604	149	547	472	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	446	0	199				0	691	585	600	1421	0
Arrive On Green	0.13	0.00	0.13				0.00	0.37	0.37	0.34	0.77	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	294	0	147				0	604	149	547	472	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	6.6	0.0	7.5				0.0	25.2	5.5	24.7	6.7	0.0
Cycle Q Clear(g_c), s	6.6	0.0	7.5				0.0	25.2	5.5	24.7	6.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	446	0	199				0	691	585	600	1421	0
V/C Ratio(X)	0.66	0.00	0.74				0.00	0.87	0.25	0.91	0.33	0.00
Avail Cap(c_a), veh/h	764	0	340				0	1003	850	923	2072	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.7	0.0	35.1				0.0	24.3	18.1	26.3	3.1	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.3				0.0	6.2	0.2	9.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	3.0				0.0	10.8	1.8	10.8	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	40.4				0.0	30.5	18.4	35.4	3.2	0.0
LnGrp LOS	D	A	D				A	C	B	D	A	A
Approach Vol, veh/h		441						753			1019	
Approach Delay, s/veh		37.7						28.1			20.5	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	32.8	35.5		15.0		68.3						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	43.5	45.0		18.0		93.0						
Max Q Clear Time (g_c+I1), s	26.7	27.2		9.5		8.7						
Green Ext Time (p_c), s	1.6	3.8		1.0		2.9						

Intersection Summary			
HCM 6th Ctrl Delay			26.5
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	1	171	0	0	0	0	324	44	422	318	0
Future Volume (veh/h)	332	1	171	0	0	0	0	324	44	422	318	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	349	1	180				0	341	46	444	335	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	451	1	402				0	434	368	515	1110	0
Arrive On Green	0.26	0.26	0.26				0.00	0.23	0.23	0.29	0.60	0.00
Sat Flow, veh/h	1762	5	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	350	0	180				0	341	46	444	335	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	11.3	0.0	5.9				0.0	10.6	1.4	14.7	5.5	0.0
Cycle Q Clear(g_c), s	11.3	0.0	5.9				0.0	10.6	1.4	14.7	5.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	452	0	402				0	434	368	515	1110	0
V/C Ratio(X)	0.77	0.00	0.45				0.00	0.79	0.13	0.86	0.30	0.00
Avail Cap(c_a), veh/h	959	0	853				0	977	828	1160	2330	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.3	0.0	19.3				0.0	22.2	18.7	20.7	6.1	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.8				0.0	3.2	0.2	4.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.0				0.0	4.3	0.5	5.7	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	20.1				0.0	25.4	18.8	25.1	6.2	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		530						387			779	
Approach Delay, s/veh		22.8						24.6			17.0	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	22.5	18.9		20.3		41.4						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	40.5	32.5		33.5		77.5						
Max Q Clear Time (g_c+I1), s	16.7	12.6		13.3		7.5						
Green Ext Time (p_c), s	1.3	1.8		2.5		1.9						

Intersection Summary			
HCM 6th Ctrl Delay			20.5
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1	195	0	0	0	0	358	50	433	356	0
Future Volume (veh/h)	340	1	195	0	0	0	0	358	50	433	356	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	370	1	212				0	389	54	471	387	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	457	1	408				0	470	399	532	1144	0
Arrive On Green	0.26	0.26	0.26				0.00	0.25	0.25	0.30	0.62	0.00
Sat Flow, veh/h	1763	5	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	371	0	212				0	389	54	471	387	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	14.3	0.0	8.4				0.0	14.3	1.9	18.4	7.3	0.0
Cycle Q Clear(g_c), s	14.3	0.0	8.4				0.0	14.3	1.9	18.4	7.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	458	0	408				0	470	399	532	1144	0
V/C Ratio(X)	0.81	0.00	0.52				0.00	0.83	0.14	0.89	0.34	0.00
Avail Cap(c_a), veh/h	793	0	706				0	858	727	988	2011	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.1	0.0	23.0				0.0	25.5	20.9	24.1	6.7	0.0
Incr Delay (d2), s/veh	3.5	0.0	1.0				0.0	3.8	0.2	5.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	2.9				0.0	6.0	0.6	7.5	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	24.0				0.0	29.3	21.1	29.3	6.9	0.0
LnGrp LOS	C	A	C				A	C	C	C	A	A
Approach Vol, veh/h		583						443			858	
Approach Delay, s/veh		26.9						28.3			19.2	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.3	22.9		23.3		49.1						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	40.5	33.5		32.5		78.5						
Max Q Clear Time (g_c+I1), s	20.4	16.3		16.3		9.3						
Green Ext Time (p_c), s	1.4	2.0		2.5		2.3						

Intersection Summary			
HCM 6th Ctrl Delay			23.7
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	1	195	0	0	0	0	365	50	472	361	0
Future Volume (veh/h)	369	1	195	0	0	0	0	365	50	472	361	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	401	1	212				0	397	54	513	392	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	475	1	423				0	464	394	565	1157	0
Arrive On Green	0.27	0.27	0.27				0.00	0.25	0.25	0.32	0.62	0.00
Sat Flow, veh/h	1763	4	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	402	0	212				0	397	54	513	392	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	18.0	0.0	9.5				0.0	17.1	2.2	23.3	8.5	0.0
Cycle Q Clear(g_c), s	18.0	0.0	9.5				0.0	17.1	2.2	23.3	8.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	476	0	423				0	464	394	565	1157	0
V/C Ratio(X)	0.84	0.00	0.50				0.00	0.85	0.14	0.91	0.34	0.00
Avail Cap(c_a), veh/h	706	0	628				0	719	610	854	1715	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	25.9				0.0	30.0	24.4	27.4	7.5	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.9				0.0	6.2	0.2	9.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	3.4				0.0	7.7	0.8	10.4	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	26.8				0.0	36.2	24.6	37.0	7.7	0.0
LnGrp LOS	D	A	C				A	D	C	D	A	A
Approach Vol, veh/h		614						451			905	
Approach Delay, s/veh		32.2						34.8			24.3	
Approach LOS		C						C			C	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.3	25.5		27.1		56.8						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	40.5	32.5		33.5		77.5						
Max Q Clear Time (g_c+I1), s	25.3	19.1		20.0		10.5						
Green Ext Time (p_c), s	1.4	1.9		2.5		2.3						
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	417	2	245	0	0	0	0	444	63	536	443	0
Future Volume (veh/h)	417	2	245	0	0	0	0	444	63	536	443	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	454	0	266				0	483	68	583	482	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	703	0	313				0	549	465	632	1303	0
Arrive On Green	0.20	0.00	0.20				0.00	0.30	0.30	0.36	0.70	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	454	0	266				0	483	68	583	482	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	10.8	0.0	14.9				0.0	22.6	2.9	28.8	9.5	0.0
Cycle Q Clear(g_c), s	10.8	0.0	14.9				0.0	22.6	2.9	28.8	9.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	703	0	313				0	549	465	632	1303	0
V/C Ratio(X)	0.65	0.00	0.85				0.00	0.88	0.15	0.92	0.37	0.00
Avail Cap(c_a), veh/h	841	0	374				0	765	649	915	1818	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.6	0.0	35.2				0.0	30.6	23.6	28.1	5.5	0.0
Incr Delay (d2), s/veh	1.3	0.0	14.7				0.0	8.8	0.1	11.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	6.6				0.0	10.5	1.0	13.0	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	0.0	49.9				0.0	39.3	23.8	39.2	5.6	0.0
LnGrp LOS	C	A	D				A	D	C	D	A	A
Approach Vol, veh/h		720						551			1065	
Approach Delay, s/veh		40.4						37.4			24.0	
Approach LOS		D						D			C	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	37.1	31.4		22.6		68.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	47.2	37.6		21.7		89.3						
Max Q Clear Time (g_c+I1), s	30.8	24.6		16.9		11.5						
Green Ext Time (p_c), s	1.7	2.4		1.3		3.0						
Intersection Summary												
HCM 6th Ctrl Delay			32.2									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	446	2	245	0	0	0	0	451	63	575	448	0
Future Volume (veh/h)	446	2	245	0	0	0	0	451	63	575	448	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	486	0	266				0	490	68	625	487	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	684	0	304				0	546	463	667	1330	0
Arrive On Green	0.19	0.00	0.19				0.00	0.29	0.29	0.38	0.72	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	486	0	266				0	490	68	625	487	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	12.9	0.0	16.4				0.0	25.4	3.2	34.1	10.1	0.0
Cycle Q Clear(g_c), s	12.9	0.0	16.4				0.0	25.4	3.2	34.1	10.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	684	0	304				0	546	463	667	1330	0
V/C Ratio(X)	0.71	0.00	0.87				0.00	0.90	0.15	0.94	0.37	0.00
Avail Cap(c_a), veh/h	759	0	338				0	695	589	838	1658	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.8	0.0	39.2				0.0	33.9	26.1	30.0	5.4	0.0
Incr Delay (d2), s/veh	2.8	0.0	20.3				0.0	12.2	0.1	15.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	7.7				0.0	12.4	1.1	16.2	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	59.5				0.0	46.1	26.2	45.6	5.6	0.0
LnGrp LOS	D	A	E				A	D	C	D	A	A
Approach Vol, veh/h		752						558			1112	
Approach Delay, s/veh		47.2						43.7			28.1	
Approach LOS		D						D			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	42.3	34.0		23.9		76.3						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	47.5	37.5		21.5		89.5						
Max Q Clear Time (g_c+I1), s	36.1	27.4		18.4		12.1						
Green Ext Time (p_c), s	1.7	2.1		0.9		3.1						

Intersection Summary			
HCM 6th Ctrl Delay			37.6
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	2	373	140	388	0	0	525	272
Future Volume (veh/h)	0	0	0	52	2	373	140	388	0	0	525	272
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				58	2	419	157	436	0	0	590	306
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				498	17	457	200	1059	0	0	721	611
Arrive On Green				0.29	0.29	0.29	0.11	0.57	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1711	59	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				60	0	419	157	436	0	0	590	306
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.6	0.0	16.7	5.6	8.6	0.0	0.0	18.5	9.6
Cycle Q Clear(g_c), s				1.6	0.0	16.7	5.6	8.6	0.0	0.0	18.5	9.6
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				515	0	457	200	1059	0	0	721	611
V/C Ratio(X)				0.12	0.00	0.92	0.79	0.41	0.00	0.00	0.82	0.50
Avail Cap(c_a), veh/h				531	0	472	367	1756	0	0	1242	1053
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				16.9	0.0	22.3	28.1	7.8	0.0	0.0	17.8	15.1
Incr Delay (d2), s/veh				0.1	0.0	22.3	6.7	0.3	0.0	0.0	2.4	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.0	8.1	2.5	2.3	0.0	0.0	6.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.0	0.0	44.5	34.8	8.1	0.0	0.0	20.2	15.7
LnGrp LOS				B	A	D	C	A	A	A	C	B
Approach Vol, veh/h					479			593			896	
Approach Delay, s/veh					41.1			15.2			18.7	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.6			11.8	29.7		23.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		61.5			13.5	43.5		19.5				
Max Q Clear Time (g_c+I1), s		10.6			7.6	20.5		18.7				
Green Ext Time (p_c), s		2.5			0.2	4.7		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			23.1									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	2	392	140	399	0	0	591	298
Future Volume (veh/h)	0	0	0	52	2	392	140	399	0	0	591	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				58	2	440	157	448	0	0	664	335
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				517	18	475	196	1089	0	0	780	661
Arrive On Green				0.30	0.30	0.30	0.11	0.59	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1711	59	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				60	0	440	157	448	0	0	664	335
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	22.0	7.0	10.7	0.0	0.0	26.2	12.7
Cycle Q Clear(g_c), s				2.0	0.0	22.0	7.0	10.7	0.0	0.0	26.2	12.7
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				535	0	475	196	1089	0	0	780	661
V/C Ratio(X)				0.11	0.00	0.93	0.80	0.41	0.00	0.00	0.85	0.51
Avail Cap(c_a), veh/h				578	0	513	403	1932	0	0	1406	1191
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.5	0.0	27.4	35.2	9.1	0.0	0.0	21.2	17.3
Incr Delay (d2), s/veh				0.1	0.0	22.1	7.3	0.2	0.0	0.0	2.7	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	10.4	3.2	3.3	0.0	0.0	10.4	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.5	0.0	49.5	42.5	9.4	0.0	0.0	24.0	17.9
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					500			605			999	
Approach Delay, s/veh					46.1			18.0			21.9	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.1			13.5	38.6		29.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.5			18.5	61.5		26.5				
Max Q Clear Time (g_c+I1), s		12.7			9.0	28.2		24.0				
Green Ext Time (p_c), s		2.6			0.2	5.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			26.5									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	57	2	407	154	424	0	0	572	296
Future Volume (veh/h)	0	0	0	57	2	407	154	424	0	0	572	296
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				64	2	457	173	476	0	0	643	333
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				534	17	490	213	1078	0	0	754	639
Arrive On Green				0.31	0.31	0.31	0.12	0.58	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1716	54	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				66	0	457	173	476	0	0	643	333
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.2	0.0	23.5	8.0	12.1	0.0	0.0	26.3	13.3
Cycle Q Clear(g_c), s				2.2	0.0	23.5	8.0	12.1	0.0	0.0	26.3	13.3
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				551	0	490	213	1078	0	0	754	639
V/C Ratio(X)				0.12	0.00	0.93	0.81	0.44	0.00	0.00	0.85	0.52
Avail Cap(c_a), veh/h				583	0	518	413	1856	0	0	1323	1121
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.6	0.0	27.9	35.8	9.9	0.0	0.0	22.5	18.7
Incr Delay (d2), s/veh				0.1	0.0	23.5	7.3	0.3	0.0	0.0	2.9	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.9	0.0	11.2	3.6	3.9	0.0	0.0	10.7	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.7	0.0	51.4	43.0	10.2	0.0	0.0	25.4	19.3
LnGrp LOS				C	A	D	D	B	A	A	C	B
Approach Vol, veh/h					523			649			976	
Approach Delay, s/veh					47.5			18.9			23.3	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		53.0			14.6	38.4		30.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		83.5			19.5	59.5		27.5				
Max Q Clear Time (g_c+I1), s		14.1			10.0	28.3		25.5				
Green Ext Time (p_c), s		2.8			0.3	5.6		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			27.9									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	57	2	427	154	435	0	0	637	323
Future Volume (veh/h)	0	0	0	57	2	427	154	435	0	0	637	323
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				64	2	480	173	489	0	0	716	363
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				499	16	457	210	1133	0	0	822	696
Arrive On Green				0.29	0.29	0.29	0.12	0.61	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1716	54	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				66	0	480	173	489	0	0	716	363
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.5	0.0	26.5	8.7	12.7	0.0	0.0	31.9	15.2
Cycle Q Clear(g_c), s				2.5	0.0	26.5	8.7	12.7	0.0	0.0	31.9	15.2
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				514	0	457	210	1133	0	0	822	696
V/C Ratio(X)				0.13	0.00	1.05	0.83	0.43	0.00	0.00	0.87	0.52
Avail Cap(c_a), veh/h				514	0	457	339	1719	0	0	1272	1078
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.8	0.0	32.3	39.3	9.4	0.0	0.0	23.1	18.4
Incr Delay (d2), s/veh				0.1	0.0	56.0	8.5	0.3	0.0	0.0	4.3	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.0	0.0	16.4	4.1	4.1	0.0	0.0	13.3	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.9	0.0	88.3	47.8	9.6	0.0	0.0	27.4	19.0
LnGrp LOS				C	A	F	D	A	A	A	C	B
Approach Vol, veh/h					546			662			1079	
Approach Delay, s/veh					80.5			19.6			24.6	
Approach LOS					F			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.2			15.3	44.9		31.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.5			17.5	62.5		26.5				
Max Q Clear Time (g_c+I1), s		14.7			10.7	33.9		28.5				
Green Ext Time (p_c), s		2.9			0.2	6.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			36.5									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	3	459	176	477	0	0	641	333
Future Volume (veh/h)	0	0	0	65	3	459	176	477	0	0	641	333
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				71	3	499	191	518	0	0	697	362
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				502	21	465	228	1127	0	0	798	677
Arrive On Green				0.30	0.30	0.30	0.13	0.61	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1699	72	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				74	0	499	191	518	0	0	697	362
Grp Sat Flow(s),veh/h/ln				1771	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.9	0.0	27.5	9.8	14.1	0.0	0.0	31.9	15.8
Cycle Q Clear(g_c), s				2.9	0.0	27.5	9.8	14.1	0.0	0.0	31.9	15.8
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				523	0	465	228	1127	0	0	798	677
V/C Ratio(X)				0.14	0.00	1.07	0.84	0.46	0.00	0.00	0.87	0.53
Avail Cap(c_a), veh/h				523	0	465	351	1666	0	0	1207	1023
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.1	0.0	32.8	39.6	9.9	0.0	0.0	24.2	19.6
Incr Delay (d2), s/veh				0.1	0.0	62.8	10.2	0.3	0.0	0.0	4.8	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	17.8	4.7	4.6	0.0	0.0	13.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.2	0.0	95.5	49.8	10.2	0.0	0.0	29.0	20.3
LnGrp LOS				C	A	F	D	B	A	A	C	C
Approach Vol, veh/h					573			709			1059	
Approach Delay, s/veh					86.3			20.9			26.0	
Approach LOS					F			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			16.5	44.5		32.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		83.5			18.5	60.5		27.5				
Max Q Clear Time (g_c+I1), s		16.1			11.8	33.9		29.5				
Green Ext Time (p_c), s		3.2			0.3	6.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			39.2									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
2: Shirk Road & SR 198 WB Ramps

05/23/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	3	478	176	488	0	0	706	359
Future Volume (veh/h)	0	0	0	65	3	478	176	488	0	0	706	359
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				71	3	520	191	530	0	0	767	390
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				362	15	590	234	1249	0	0	898	761
Arrive On Green				0.21	0.21	0.21	0.13	0.67	0.00	0.00	0.48	0.48
Sat Flow, veh/h				1699	72	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				74	0	520	191	530	0	0	767	390
Grp Sat Flow(s),veh/h/ln				1771	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.7	0.0	14.4	8.3	10.4	0.0	0.0	28.8	13.5
Cycle Q Clear(g_c), s				2.7	0.0	14.4	8.3	10.4	0.0	0.0	28.8	13.5
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				378	0	590	234	1249	0	0	898	761
V/C Ratio(X)				0.20	0.00	0.88	0.82	0.42	0.00	0.00	0.85	0.51
Avail Cap(c_a), veh/h				404	0	632	457	2174	0	0	1589	1347
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.6	0.0	30.2	33.4	5.9	0.0	0.0	18.0	14.0
Incr Delay (d2), s/veh				0.3	0.0	13.1	6.8	0.2	0.0	0.0	2.4	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	5.5	3.7	2.6	0.0	0.0	10.8	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.9	0.0	43.3	40.2	6.2	0.0	0.0	20.5	14.6
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					594			721			1157	
Approach Delay, s/veh					41.1			15.2			18.5	
Approach LOS					D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		57.9			15.0	42.9		21.4
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		92.9			20.5	67.9		18.1
Max Q Clear Time (g_c+I1), s		12.4			10.3	30.8		16.4
Green Ext Time (p_c), s		3.3			0.3	7.5		0.5

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	82	3	566	221	588	0	0	784	408
Future Volume (veh/h)	0	0	0	82	3	566	221	588	0	0	784	408
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				89	3	615	240	639	0	0	852	443
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				320	11	517	277	1336	0	0	959	812
Arrive On Green				0.19	0.19	0.19	0.16	0.72	0.00	0.00	0.52	0.52
Sat Flow, veh/h				1712	58	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				92	0	615	240	639	0	0	852	443
Grp Sat Flow(s),veh/h/ln				1770	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				4.3	0.0	18.0	12.8	14.2	0.0	0.0	39.6	18.3
Cycle Q Clear(g_c), s				4.3	0.0	18.0	12.8	14.2	0.0	0.0	39.6	18.3
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				330	0	517	277	1336	0	0	959	812
V/C Ratio(X)				0.28	0.00	1.19	0.87	0.48	0.00	0.00	0.89	0.55
Avail Cap(c_a), veh/h				330	0	517	394	1790	0	0	1289	1093
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.6	0.0	39.2	39.7	5.8	0.0	0.0	20.8	15.7
Incr Delay (d2), s/veh				0.5	0.0	103.6	13.4	0.3	0.0	0.0	6.2	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	13.2	6.2	3.7	0.0	0.0	16.5	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.1	0.0	142.8	53.1	6.0	0.0	0.0	27.1	16.3
LnGrp LOS				C	A	F	D	A	A	A	C	B
Approach Vol, veh/h					707			879			1295	
Approach Delay, s/veh					128.7			18.9			23.4	
Approach LOS					F			B			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.9			19.6	54.3		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			21.5	67.0		18.0				
Max Q Clear Time (g_c+I1), s		16.2			14.8	41.6		20.0				
Green Ext Time (p_c), s		4.2			0.4	8.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			47.8
HCM 6th LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	82	3	585	221	598	0	0	850	434
Future Volume (veh/h)	0	0	0	82	3	585	221	598	0	0	850	434
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				89	3	636	240	650	0	0	924	472
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				352	12	569	249	1289	0	0	934	791
Arrive On Green				0.21	0.21	0.21	0.14	0.69	0.00	0.00	0.50	0.50
Sat Flow, veh/h				1712	58	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				92	0	636	240	650	0	0	924	472
Grp Sat Flow(s),veh/h/ln				1770	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.9	0.0	18.5	12.1	14.8	0.0	0.0	44.3	19.2
Cycle Q Clear(g_c), s				3.9	0.0	18.5	12.1	14.8	0.0	0.0	44.3	19.2
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				364	0	569	249	1289	0	0	934	791
V/C Ratio(X)				0.25	0.00	1.12	0.96	0.50	0.00	0.00	0.99	0.60
Avail Cap(c_a), veh/h				364	0	569	249	1289	0	0	934	791
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.0	0.0	35.8	38.4	6.5	0.0	0.0	22.1	15.9
Incr Delay (d2), s/veh				0.4	0.0	74.5	46.4	0.3	0.0	0.0	26.7	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	11.7	8.1	4.0	0.0	0.0	23.2	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.3	0.0	110.2	84.9	6.8	0.0	0.0	48.9	17.1
LnGrp LOS				C	A	F	F	A	A	A	D	B
Approach Vol, veh/h					728			890			1396	
Approach Delay, s/veh					100.1			27.8			38.1	
Approach LOS					F			C			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.0			17.2	49.8		23.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		62.5			12.7	45.3		18.5				
Max Q Clear Time (g_c+I1), s		16.8			14.1	46.3		20.5				
Green Ext Time (p_c), s		4.3			0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			50.1
HCM 6th LOS			D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	39	3	258	92	470	0	0	604	182
Future Volume (veh/h)	0	0	0	39	3	258	92	470	0	0	604	182
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	3	266	95	485	0	0	623	188
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				352	26	335	132	1111	0	0	798	676
Arrive On Green				0.21	0.21	0.21	0.07	0.60	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				43	0	266	95	485	0	0	623	188
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				0.9	0.0	7.7	2.5	6.8	0.0	0.0	13.8	3.7
Cycle Q Clear(g_c), s				0.9	0.0	7.7	2.5	6.8	0.0	0.0	13.8	3.7
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				378	0	335	132	1111	0	0	798	676
V/C Ratio(X)				0.11	0.00	0.79	0.72	0.44	0.00	0.00	0.78	0.28
Avail Cap(c_a), veh/h				685	0	607	387	2421	0	0	1840	1560
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.2	0.0	17.8	21.7	5.2	0.0	0.0	11.7	8.8
Incr Delay (d2), s/veh				0.1	0.0	4.3	7.1	0.3	0.0	0.0	1.7	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	2.6	1.1	1.1	0.0	0.0	4.2	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.3	0.0	22.1	28.7	5.5	0.0	0.0	13.4	9.1
LnGrp LOS				B	A	C	C	A	A	A	B	A
Approach Vol, veh/h					309			580			811	
Approach Delay, s/veh					21.1			9.3			12.4	
Approach LOS					C			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		33.2			8.1	25.1		14.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		62.5			10.5	47.5		18.5				
Max Q Clear Time (g_c+I1), s		8.8			4.5	15.8		9.7				
Green Ext Time (p_c), s		2.9			0.1	4.8		0.7				

Intersection Summary			
HCM 6th Ctrl Delay			12.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	39	3	324	92	507	0	0	648	200
Future Volume (veh/h)	0	0	0	39	3	324	92	507	0	0	648	200
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	3	334	95	523	0	0	668	206
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				418	31	399	124	1096	0	0	822	697
Arrive On Green				0.25	0.25	0.25	0.07	0.59	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				43	0	334	95	523	0	0	668	206
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.1	0.0	11.6	3.1	9.3	0.0	0.0	18.1	4.9
Cycle Q Clear(g_c), s				1.1	0.0	11.6	3.1	9.3	0.0	0.0	18.1	4.9
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				450	0	399	124	1096	0	0	822	697
V/C Ratio(X)				0.10	0.00	0.84	0.77	0.48	0.00	0.00	0.81	0.30
Avail Cap(c_a), veh/h				782	0	693	412	2743	0	0	2165	1835
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				16.5	0.0	20.5	26.4	6.7	0.0	0.0	14.0	10.3
Incr Delay (d2), s/veh				0.1	0.0	4.7	9.6	0.3	0.0	0.0	2.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	4.1	1.4	2.1	0.0	0.0	6.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.6	0.0	25.2	36.0	7.1	0.0	0.0	16.0	10.6
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h					377			618			874	
Approach Delay, s/veh					24.2			11.5			14.7	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		38.7			8.5	30.1		19.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		85.5			13.5	67.5		25.5				
Max Q Clear Time (g_c+I1), s		11.3			5.1	20.1		13.6				
Green Ext Time (p_c), s		3.2			0.1	5.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	43	3	279	101	514	0	0	662	199
Future Volume (veh/h)	0	0	0	43	3	279	101	514	0	0	662	199
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				44	3	288	104	530	0	0	682	205
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				374	25	354	136	1137	0	0	844	715
Arrive On Green				0.23	0.23	0.23	0.08	0.61	0.00	0.00	0.45	0.45
Sat Flow, veh/h				1659	113	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				47	0	288	104	530	0	0	682	205
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.2	0.0	9.6	3.2	8.6	0.0	0.0	17.6	4.5
Cycle Q Clear(g_c), s				1.2	0.0	9.6	3.2	8.6	0.0	0.0	17.6	4.5
Prop In Lane				0.94		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				399	0	354	136	1137	0	0	844	715
V/C Ratio(X)				0.12	0.00	0.81	0.77	0.47	0.00	0.00	0.81	0.29
Avail Cap(c_a), veh/h				750	0	666	461	2924	0	0	2289	1940
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				17.1	0.0	20.4	25.1	5.8	0.0	0.0	13.0	9.5
Incr Delay (d2), s/veh				0.1	0.0	4.6	8.7	0.3	0.0	0.0	1.9	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	3.4	1.5	1.7	0.0	0.0	5.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.3	0.0	25.0	33.8	6.1	0.0	0.0	14.9	9.7
LnGrp LOS				B	A	C	C	A	A	A	B	A
Approach Vol, veh/h					335			634			887	
Approach Delay, s/veh					23.9			10.7			13.7	
Approach LOS					C			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		38.5			8.8	29.8		17.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		87.5			14.5	68.5		23.5				
Max Q Clear Time (g_c+I1), s		10.6			5.2	19.6		11.6				
Green Ext Time (p_c), s		3.3			0.1	5.7		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			14.5
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	43	3	346	101	551	0	0	706	216
Future Volume (veh/h)	0	0	0	43	3	346	101	551	0	0	706	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				44	3	357	104	568	0	0	728	223
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				433	30	410	135	1127	0	0	864	732
Arrive On Green				0.26	0.26	0.26	0.08	0.61	0.00	0.00	0.47	0.47
Sat Flow, veh/h				1659	113	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				47	0	357	104	568	0	0	728	223
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.4	0.0	14.9	4.0	11.9	0.0	0.0	23.6	6.0
Cycle Q Clear(g_c), s				1.4	0.0	14.9	4.0	11.9	0.0	0.0	23.6	6.0
Prop In Lane				0.94		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				463	0	410	135	1127	0	0	864	732
V/C Ratio(X)				0.10	0.00	0.87	0.77	0.50	0.00	0.00	0.84	0.30
Avail Cap(c_a), veh/h				676	0	599	354	2301	0	0	1808	1532
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.2	0.0	24.2	31.0	7.6	0.0	0.0	16.1	11.4
Incr Delay (d2), s/veh				0.1	0.0	9.3	8.9	0.3	0.0	0.0	2.3	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.5	0.0	5.9	1.9	3.1	0.0	0.0	8.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				19.3	0.0	33.4	39.9	8.0	0.0	0.0	18.4	11.6
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h					404			672			951	
Approach Delay, s/veh					31.8			12.9			16.8	
Approach LOS					C			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.1			9.7	36.4		22.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.9			13.7	66.7		26.1				
Max Q Clear Time (g_c+I1), s		13.9			6.0	25.6		16.9				
Green Ext Time (p_c), s		3.6			0.1	6.2		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			18.5
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	49	4	312	116	579	0	0	748	224
Future Volume (veh/h)	0	0	0	49	4	312	116	579	0	0	748	224
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				53	4	339	126	629	0	0	813	243
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				394	30	376	160	1205	0	0	934	791
Arrive On Green				0.24	0.24	0.24	0.09	0.65	0.00	0.00	0.50	0.50
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				57	0	339	126	629	0	0	813	243
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	16.9	5.6	14.5	0.0	0.0	31.3	7.3
Cycle Q Clear(g_c), s				2.0	0.0	16.9	5.6	14.5	0.0	0.0	31.3	7.3
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				424	0	376	160	1205	0	0	934	791
V/C Ratio(X)				0.13	0.00	0.90	0.79	0.52	0.00	0.00	0.87	0.31
Avail Cap(c_a), veh/h				472	0	419	317	2057	0	0	1621	1373
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.2	0.0	29.8	35.9	7.5	0.0	0.0	17.7	11.8
Incr Delay (d2), s/veh				0.1	0.0	21.0	8.2	0.4	0.0	0.0	2.7	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	8.0	2.6	4.0	0.0	0.0	11.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.3	0.0	50.8	44.2	7.8	0.0	0.0	20.4	12.0
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					396			755			1056	
Approach Delay, s/veh					47.0			13.9			18.5	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.9			11.8	45.1		23.8				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		89.5			14.5	70.5		21.5				
Max Q Clear Time (g_c+I1), s		16.5			7.6	33.3		18.9				
Green Ext Time (p_c), s		4.1			0.1	7.3		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			22.0
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	49	4	378	116	615	0	0	792	241
Future Volume (veh/h)	0	0	0	49	4	378	116	615	0	0	792	241
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				53	4	411	126	668	0	0	861	262
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				311	23	522	161	1280	0	0	998	846
Arrive On Green				0.19	0.19	0.19	0.09	0.69	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1649	124	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				57	0	411	126	668	0	0	861	262
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	10.5	5.2	12.9	0.0	0.0	29.6	6.8
Cycle Q Clear(g_c), s				2.0	0.0	10.5	5.2	12.9	0.0	0.0	29.6	6.8
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				334	0	522	161	1280	0	0	998	846
V/C Ratio(X)				0.17	0.00	0.79	0.78	0.52	0.00	0.00	0.86	0.31
Avail Cap(c_a), veh/h				564	0	880	299	2197	0	0	1770	1500
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.1	0.0	28.6	32.9	5.6	0.0	0.0	14.7	9.5
Incr Delay (d2), s/veh				0.2	0.0	2.7	8.1	0.3	0.0	0.0	2.4	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	3.4	2.4	2.8	0.0	0.0	10.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.4	0.0	31.3	40.9	5.9	0.0	0.0	17.1	9.7
LnGrp LOS				C	A	C	D	A	A	A	B	A
Approach Vol, veh/h					468			794			1123	
Approach Delay, s/veh					30.6			11.5			15.4	
Approach LOS					C			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.5			11.2	44.3		18.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		87.5			12.5	70.5		23.5				
Max Q Clear Time (g_c+I1), s		14.9			7.2	31.6		12.5				
Green Ext Time (p_c), s		4.5			0.1	8.2		1.5				

Intersection Summary			
HCM 6th Ctrl Delay			17.0
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	5	379	145	713	0	0	927	275
Future Volume (veh/h)	0	0	0	61	5	379	145	713	0	0	927	275
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				66	5	412	158	775	0	0	1008	299
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				276	21	464	189	1381	0	0	1102	934
Arrive On Green				0.17	0.17	0.17	0.11	0.74	0.00	0.00	0.59	0.59
Sat Flow, veh/h				1648	125	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				71	0	412	158	775	0	0	1008	299
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.6	0.0	14.9	9.0	18.8	0.0	0.0	49.5	9.8
Cycle Q Clear(g_c), s				3.6	0.0	14.9	9.0	18.8	0.0	0.0	49.5	9.8
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				297	0	464	189	1381	0	0	1102	934
V/C Ratio(X)				0.24	0.00	0.89	0.84	0.56	0.00	0.00	0.92	0.32
Avail Cap(c_a), veh/h				312	0	487	233	1685	0	0	1359	1152
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.0	0.0	41.7	44.8	5.7	0.0	0.0	18.5	10.4
Incr Delay (d2), s/veh				0.4	0.0	17.4	19.2	0.4	0.0	0.0	8.6	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	0.0	6.0	4.8	4.8	0.0	0.0	20.3	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				37.4	0.0	59.1	64.0	6.1	0.0	0.0	27.1	10.6
LnGrp LOS				D	A	E	E	A	A	A	C	B
Approach Vol, veh/h					483			933			1307	
Approach Delay, s/veh					55.9			15.9			23.3	
Approach LOS					E			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		80.7			15.4	65.3		21.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			13.5	75.0		18.0				
Max Q Clear Time (g_c+I1), s		20.8			11.0	51.5		16.9				
Green Ext Time (p_c), s		5.7			0.1	9.3		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			26.5									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	5	445	145	750	0	0	970	301
Future Volume (veh/h)	0	0	0	61	5	445	145	750	0	0	970	301
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				66	5	484	158	815	0	0	1054	327
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				269	20	451	186	1402	0	0	1131	958
Arrive On Green				0.16	0.16	0.16	0.11	0.76	0.00	0.00	0.61	0.61
Sat Flow, veh/h				1648	125	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				71	0	484	158	815	0	0	1054	327
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.9	0.0	18.0	9.7	21.1	0.0	0.0	56.7	11.3
Cycle Q Clear(g_c), s				3.9	0.0	18.0	9.7	21.1	0.0	0.0	56.7	11.3
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				289	0	451	186	1402	0	0	1131	958
V/C Ratio(X)				0.25	0.00	1.07	0.85	0.58	0.00	0.00	0.93	0.34
Avail Cap(c_a), veh/h				289	0	451	200	1562	0	0	1277	1082
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.3	0.0	46.2	48.5	5.9	0.0	0.0	19.5	10.6
Incr Delay (d2), s/veh				0.4	0.0	63.4	26.2	0.4	0.0	0.0	11.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	9.9	5.5	5.5	0.0	0.0	24.2	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.8	0.0	109.6	74.8	6.3	0.0	0.0	31.0	10.8
LnGrp LOS				D	A	F	E	A	A	A	C	B
Approach Vol, veh/h					555			973			1381	
Approach Delay, s/veh					100.8			17.4			26.2	
Approach LOS					F			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		88.0			16.1	71.8		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			12.5	76.0		18.0				
Max Q Clear Time (g_c+I1), s		23.1			11.7	58.7		20.0				
Green Ext Time (p_c), s		6.3			0.0	8.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.5									
HCM 6th LOS			D									

APPENDIX C

Collision Data

SWITRS Query & Map

Result Summary

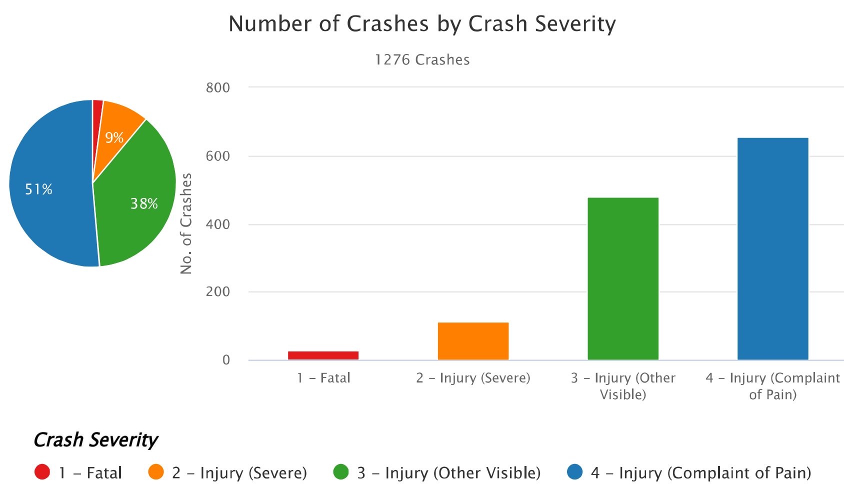
Date	01/01/2018 - 12/31/2020
County	Tulare
City	Visalia

Change Filters | Download Raw Data

Total Crashes	1,276	Total Victims	28 Killed & 1,797 Injured	State Highway	303 (23.7%)
Ped Crashes	79 (6.2%)	Bike Crashes	83 (6.5%)	Motorcycle Crashes	69 (5.4%)

Overall

By Crash Severity



Crash Severity	Count	%
1 - Fatal	27	2.12%
2 - Injury (Severe)	114	8.93%
3 - Injury (Other Visible)	480	37.62%
4 - Injury (Complaint of Pain)	655	51.33%

By Crash Type

By Day of Week and Time

By Primary Crash Factor (PCF) Violation

SWITRS Query & Map

Result Summary

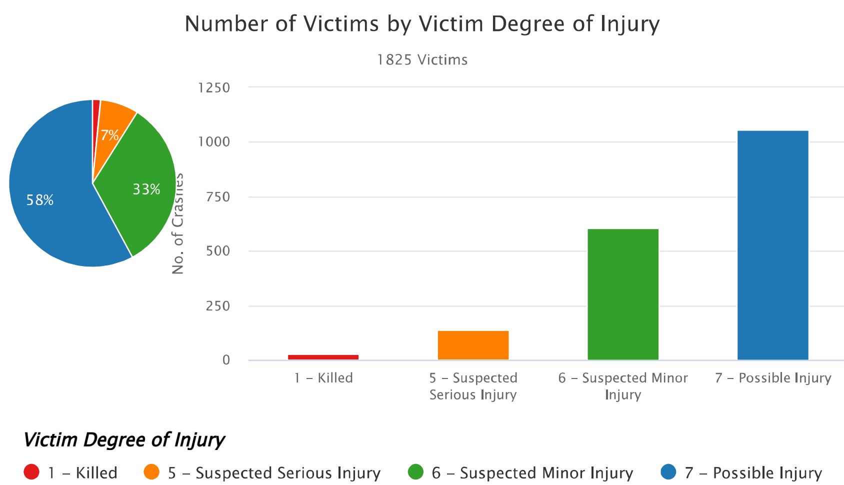
Date	01/01/2018 - 12/31/2020
County	Tulare
City	Visalia

Change Filters | Download Raw Data

Total Crashes	1,276	**Total Victims**	28 Killed & 1,797 Injured	**State Highway**	303 (23.7%)
Ped Crashes	79 (6.2%)	**Bike Crashes**	83 (6.5%)	**Motorcycle Crashes**	69 (5.4%)

Victim Summary

By Victim Degree of Injury



Victim Degree of Injury	Count	%
1 - Killed	28	1.53%
5 - Suspected Serious Injury	135	7.40%
6 - Suspected Minor Injury	606	33.21%
7 - Possible Injury	1056	57.86%

By Victim Role

By Victim Safety Equipment 1

By Victim Gender and Age

BerkeleySafeTREC

Crash Details for: Case ID 8584860

Crash Information

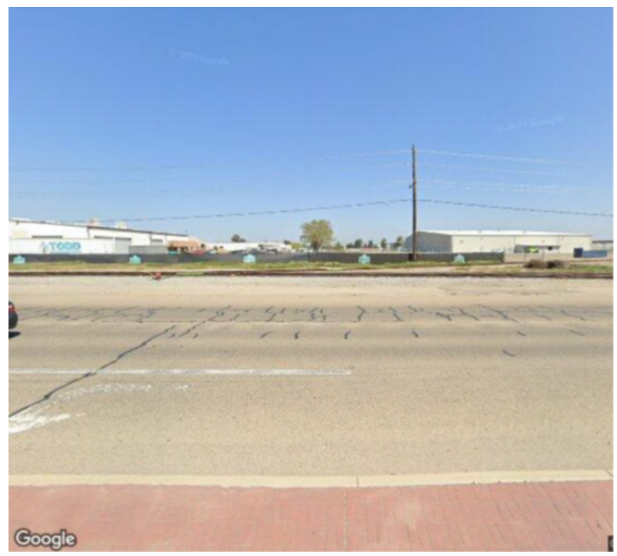
County	Tulare
City	Visalia
Date & Time (M/D/Y)	02/23/2018 10:38
Location (Intersection)	Goshen Av & Clancy St
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.341946, -119.375939

Type of Crash	D - Broadside
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	09 - Automobile Right of Way
Weather	B - Cloudy
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	Yes

Map View

Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	G - Truck or Truck Tractor with Trailer	Yes	North	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	M - Male	19	6 - Suspected Minor Injury

Crash Details for: Case ID 8658434

Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	06/28/2018 09:19
Location (Intersection)	Shirk & School
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3318901, -119.3676682

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View

Street View

Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	A - Stopped

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	50	7 - Possible Injury

Crash Details for: Case ID 8659692

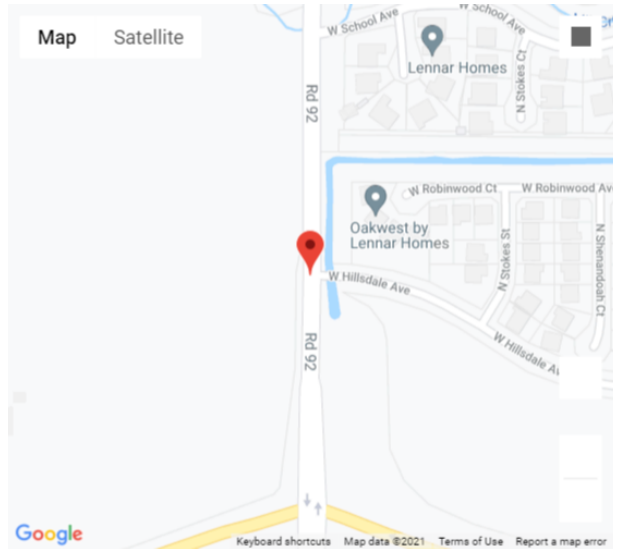
Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	05/06/2018 11:33
Location (Intersection)	N Shirk St & W Hillsdale Av
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3299341, -119.3676692

Type of Crash	B - Sideswipe
Motor Vehicle Involved With	G - Bicycle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	08 - Improper Turning
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	Yes
Motorcycle Accident	No	Truck Accident	No

Map View



Street View

Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	4 - Bicyclist	L - Bicycle	No	South	E - Making Left Turn

Victims: 5

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	25	0 - No Injury
1	2 - Passenger	F - Female	7	0 - No Injury
1	2 - Passenger	F - Female	5	0 - No Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	2	0 - No Injury
2	4 - Bicyclist	M - Male	15	7 - Possible Injury

Crash Details for: Case ID 8854402

Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	04/10/2019 08:30
Location (Intersection)	W Goshen Av & Shirk
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3420181, -119.3677521

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View

Street View

Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	A - Stopped

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	12	7 - Possible Injury
2	2 - Passenger	F - Female	8	0 - No Injury

Berkeley SafeTREC

Crash Details for: Case ID 8857574

Crash Information

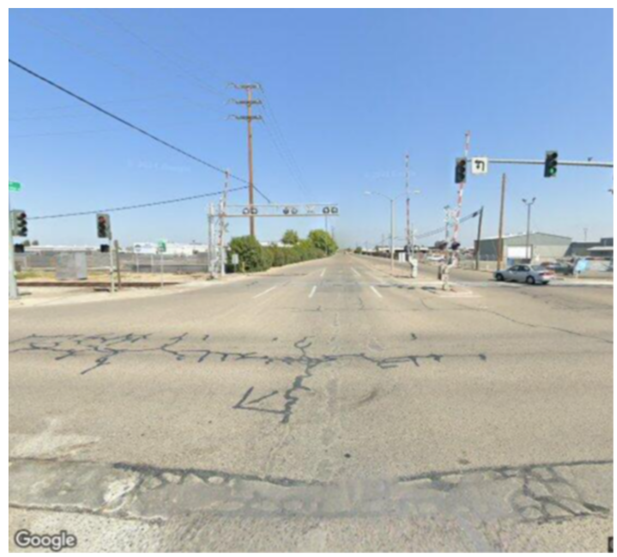
County	Tulare
City	Visalia
Date & Time (M/D/Y)	04/23/2019 11:23
Location (Intersection)	W Goshen Av & N Clancy
Dist. & Dir. from Intersection	36.00 ft West
State Highway	No
Geocoded Location	36.3418579, -119.367897

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	**Bicycle Accident**	No
Motorcycle Accident	No	**Truck Accident**	No

Map View

Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	E - Pickup or Panel Truck with Trailer	No	East	F - Making U-Turn

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	30	6 - Suspected Minor Injury

Crash Details for: Case ID 8873900

Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	05/10/2019 12:10
Location (Intersection)	Goshen Av & Shirk St
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3420181, -119.3677521

Type of Crash	D - Broadside
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	12 - Traffic Signals and Signs
Weather	B - Cloudy
Alcohol Involved	No

Pedestrian Accident	No	**Bicycle Accident**	No
Motorcycle Accident	No	**Truck Accident**	Yes

Map View

Street View

Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	F - Truck or Truck Tractor	No	South	B - Proceeding Straight

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	65	7 - Possible Injury
2	1 - Driver	M - Male	45	7 - Possible Injury

Crash Details for: Case ID 9204005

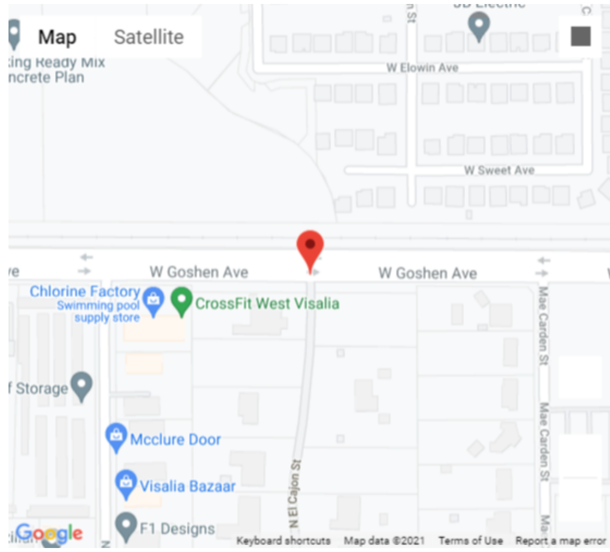
Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	12/02/2020 12:30
Location (Intersection)	Goshen Av & El Cajon
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3418388, -119.3620605

Type of Crash	D - Broadside
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	**Bicycle Accident**	No
Motorcycle Accident	No	**Truck Accident**	No

Map View



Street View

Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	- - Not Stated	No	East	D - Making Right Turn

Victims: 1

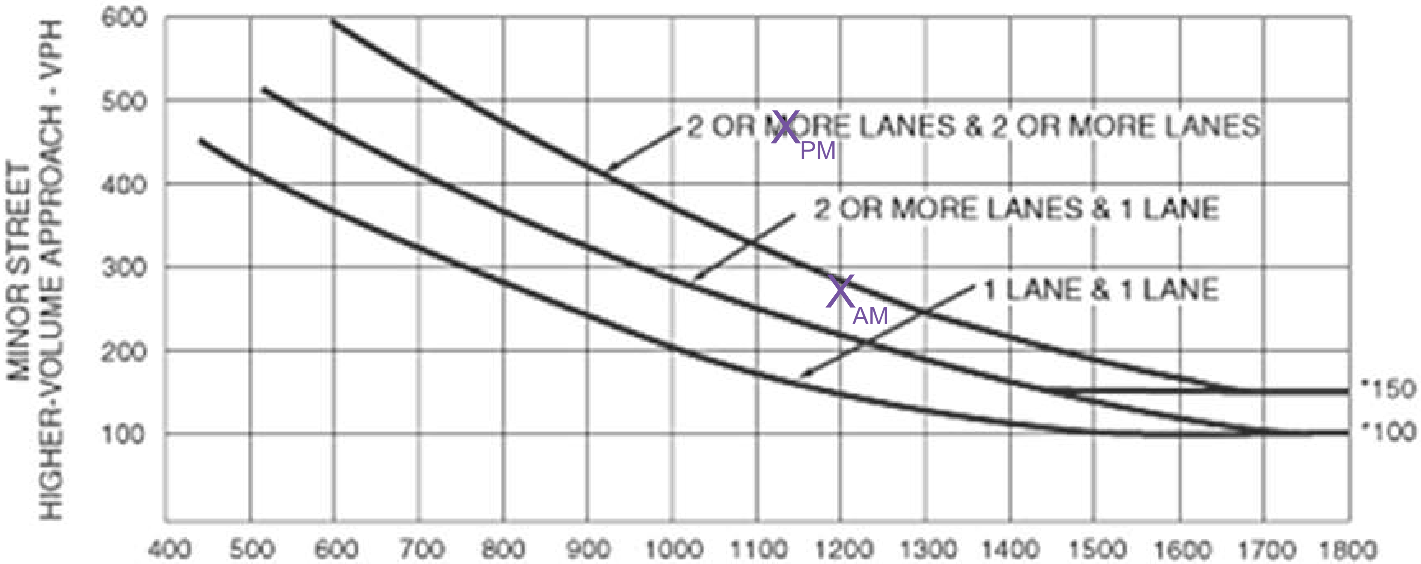
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	27	6 - Suspected Minor Injury

APPENDIX D

Signal Warrant Analysis

Shirk Road / SR 198 EB Ramps

Figure 4C-3. Warrant 3, Peak Hour



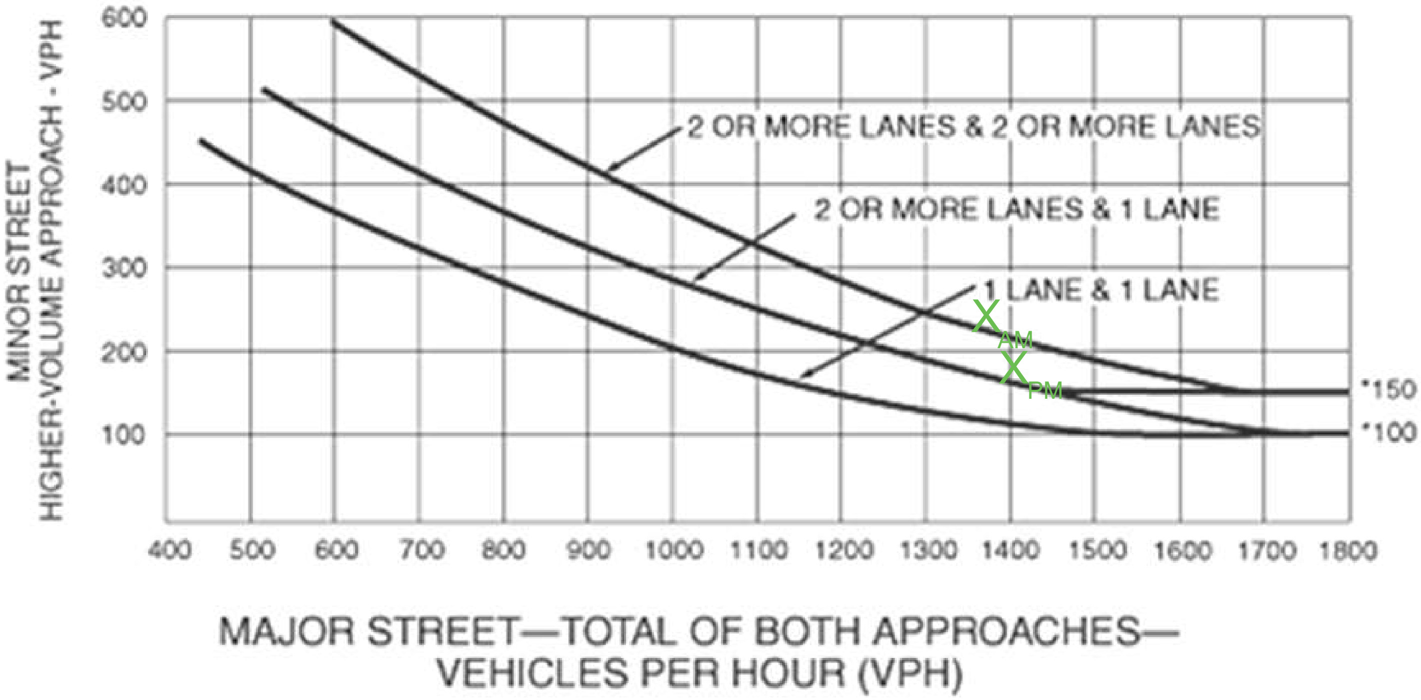
MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND
X_{AM} X_{PM} 5-Year Horizon Plus Project

Shirk Road / SR 198 WB Ramps

Figure 4C-3. Warrant 3, Peak Hour

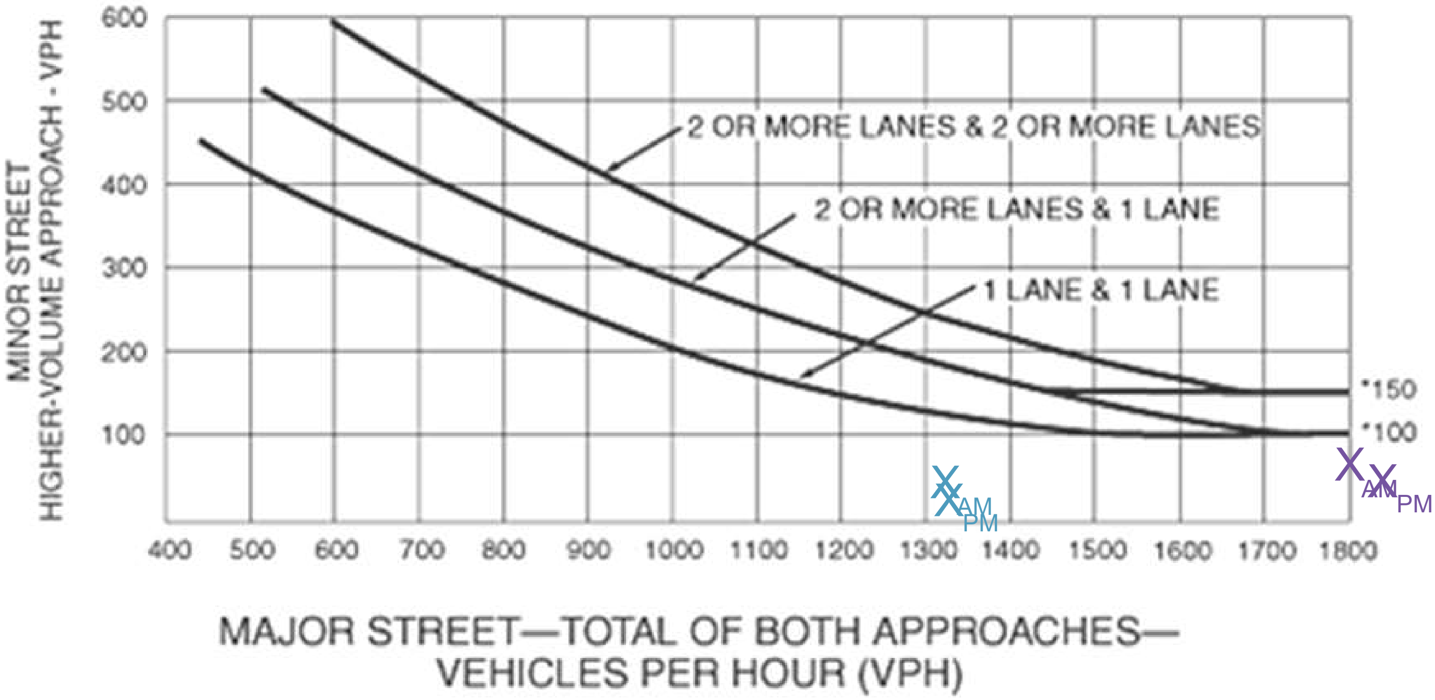


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND
X_{AM} X_{PM} Opening Year Without Project

Shirk Road / Hillsdale Avenue

Figure 4C-3. Warrant 3, Peak Hour

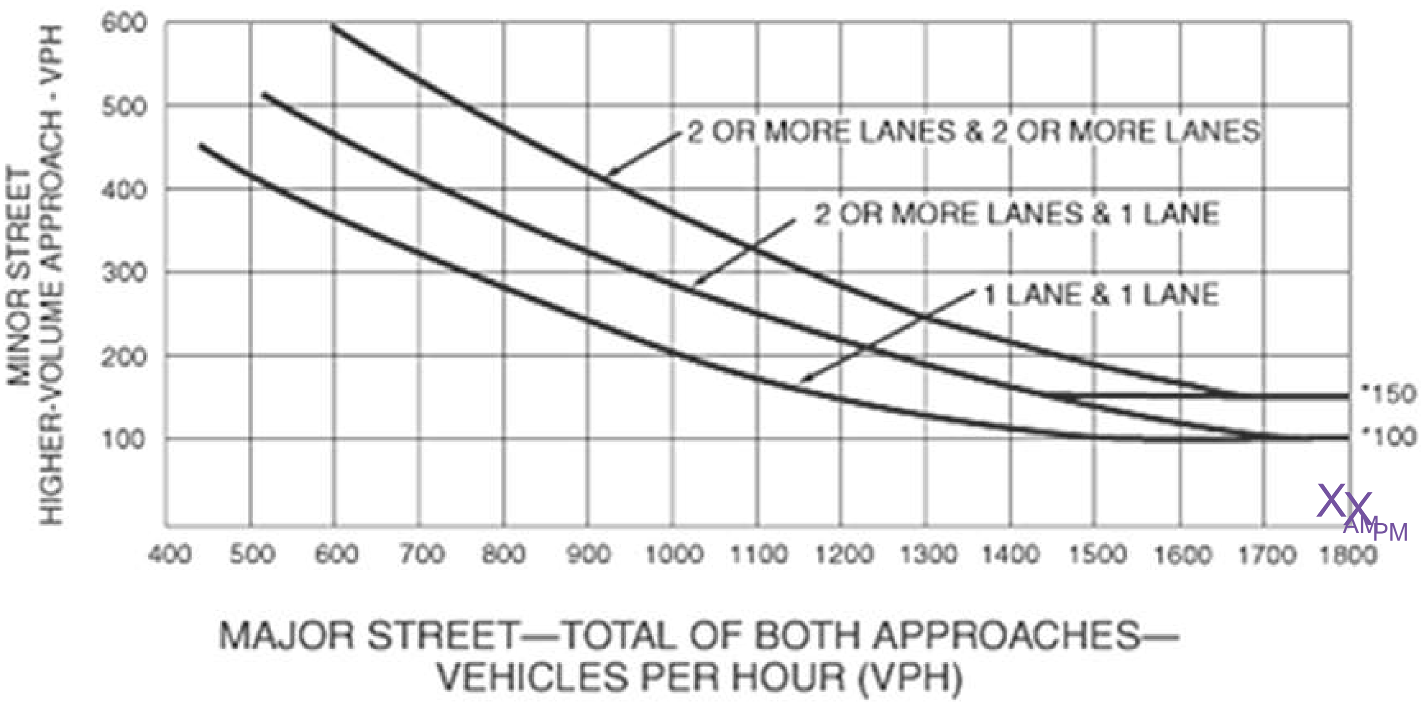


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND
X_{AM} X_{PM} Existing
X_{AM} X_{PM} 5-Year Horizon Plus Project

Shirk Road / School Avenue

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND

X_{AM} X_{PM} 5-Year Horizon Plus Project

APPENDIX E

Vehicle Miles Traveled Model Run

From: **Kasia A Poleszczuk** <KPoleszczuk@tularecag.ca.gov>
Date: Mon, Nov 1, 2021 at 4:59 PM
Subject: RE: VMT Model run for Iron Ridge Development
To: jstine@vrpatechnologies.com <jstine@vrpatechnologies.com>
Cc: Derek M Winning <DWinning@tularecag.ca.gov>, Roberto Brady <rbrady@tularecag.ca.gov>

Hi Jeff,

Below are results for vmt run for the Iron Ridge.

		VMT/per capita	**VMT/per employee**	**VMT/per service population**
TCAG Region		11.7	7.9	28.4
Visalia	16%	9.8	6.7	23.9
Iron Ridge		**8.07**		

Let me know if you have any questions,

Thanks

Kasia

City of Visalia

315 E. Acequia Ave., Visalia, CA 93291

Site Plan Review

July 21, 2021

Site Plan Review No. 21-017-C:

Pursuant to Zoning Ordinance Chapter 17.28 the Site Plan Review process has found that your application complies with the general plan, municipal code, policies, and improvement standards of the city. A copy of each Departments/Divisions comments that were discussed with you at the Site Plan Review meeting are attached to this document.

Please note that Engineering Comments are not included in this packet at this time. If you need a copy of their comments, please contact Adrian Rubalcaba at (559) 713-4271 or via e-mail at Adrian.Rubalcaba@visalia.city.

Based upon Zoning Ordinance Section 17.28.070, this is your Site Plan Review determination. However, your project requires discretionary action as stated on the attached Site Plan Review comments. You may now proceed with filing discretionary applications to the Planning Division.

This is your Site Plan Review Permit; your Site Plan Review became effective **May 05, 2021**. A site plan review permit shall lapse and become null and void one year following the date of approval unless, prior to the expiration of one year, a building permit is issued by the building official and construction is commenced and diligently pursued toward completion.

If you have any questions regarding this action, please call the Community Development Department at (559) 713-4359.

Respectfully,

Paul Bernal
City Planner
315 E. Acequia Ave.
Visalia, CA 93291

Attachment(s):

- Site Plan Review Comments

MEETING DATE 5/5/2021
SITE PLAN NO. 2021-017-C
PARCEL MAP NO.
SUBDIVISION
LOT LINE ADJUSTMENT NO.

Enclosed for your review are the comments and decisions of the Site Plan Review committee. Please review all comments since they may impact your project.

☐ **RESUBMIT** Major changes to your plans are required. Prior to accepting construction drawings for building permit, your project must return to the Site Plan Review Committee for review of the revised plans.

☐ During site plan design/policy concerns were identified, schedule a meeting with

☐ Planning ☐ Engineering prior to resubmittal plans for Site Plan Review.

☐ Solid Waste ☐ Parks and Recreation ☐ Fire Dept.

☒ **REVISE AND PROCEED** (see below)

☐ A revised plan addressing the Committee comments and revisions must be submitted for Off-Agenda Review and approval prior to submitting for building permits or discretionary actions.

☐ Submit plans for a building permit between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday.

☒ Your plans must be reviewed by:

☒ CITY COUNCIL - General Plan Amendment, Change of Zone
☐ REDEVELOPMENT
☒ PLANNING COMMISSION
☐ PARK/RECREATION
☒ Tentative Subdivision Map, General Plan Amendment, Change of Zone.
☐ HISTORIC PRESERVATION
☐ OTHER –

☒ <u>**ADDITIONAL COMMENTS:**</u>

If you have any questions or comments, please call the Site Plan Review Hotline at (559) 713-4440
Site Plan Review Committee

RECYCLED PAPER

SITE PLAN REVIEW COMMENTS

Cristobal Carrillo, Planning Division (559) 713-4443
Date: May 5, 2021

SITE PLAN NO:	2021-017 - C
PROJECT:	Iron Ridge
DESCRIPTION:	TO DEVELOP 238 LOT RESIDENTIAL SUDIVISION
APPLICANT:	ERNIE ESCOBEDO
PROP. OWNER:	TULARE COUNTY PROPERTIES, INC., ROAD 88 LLC
LOCATION TITLE:	945 N. SHIRK ST.
APN TITLE:	081-030-036 & 081-030-046
GENERAL PLAN:	RVLD (Residential Very Low Density) RLD (Residential Low Density)
ZONING:	R-1-5 & R-1-20

Planning Division Recommendation:

☒ Revise and Proceed
☐ Resubmit

Rule 9510 – This project may be subject to the Rule 9510 requirements of the San Joaquin Valley Air Pollution Control District – see District website for information.

Project Requirements

- Tentative Subdivision Map
- General Plan Amendment
- Change of Zone
- Traffic Impact/Vehicle Miles Traveled Analysis
- Noise Study
- Cultural Resources Study
- Project is subject to Air District Rule 9510
- Initial Study / Mitigated Negative Declaration
- Tribal Consultation under AB 52
- Additional Information as Needed

PROJECT SPECIFIC INFORMATION: May 5, 2021

1. The project proposal has been reduced in scope to only encompass APN: 081-030-046. The original proposal for a 238-lot subdivision has been changed to a 41-lot subdivision. Per comments made at the May 5, 2021 Site Plan Review Committee meeting, the applicant still intends to develop a 238-lot subdivision on APNs: 081-030-036 & 081-030-046. However, the applicant will first attempt to complete processes for the parcel currently within City Limits, so that development may occur while land use processes for the parcel outside City Limits move forward.
2. Note that staff recommends that the applicant not take the approach identified in Comment No. 1. It is recommended that the applicant wait until the Tier II Urban Development Boundary is opened, allowing for processing of the entire 238-lot subdivision as one unified submittal. Breaking up the project into separate submittals will result in repayment of processing fees and added time delays due to AB 52 and CEQA public notification requirements.
3. Staff will have difficulty recommending support of the land use changes proposed for the area designated R-1-20/Residential Very Low Density should the proposal be split in two parts. Support of land use change hinges on the implementation of a linear park space that would provide ample separation between the industrial uses to the north and proposed residences to the south. It should also be noted that at present only one of the two parcels involved in the proposal have been acquired for development. APN: 081-030-036 remains under separate ownership. As such, the City would lack any assurance that the remaining 197-lot subdivision on APN: 081-030-036 would ultimately develop in the fashion proposed at the February 17, 2021 Site Plan Review meeting.

4. If the applicant wishes to proceed with the proposal submitted May 5, 2021, the following will be required:
5. A Tentative Subdivision Map shall be required.
6. A General Plan Amendment and Change of Zone shall be required.
7. Submittal of a phasing plan shall be required.
8. Submittal of a detailed site plan shall be required, to include lot dimensions, street cross sections, building setbacks, and land use designation boundaries.
9. The submittal shall include building elevations and additional landscaping/amenity detail for the proposed linear park.
10. The submittal shall include fencing/block wall locations and details, in particular along the northern property boundary and along Shirk Avenue.
11. Outlot A shall wrap around the northern boundary of Lot 23. A block wall shall also be placed along the northern boundary of Lot 23.
12. A Noise Study shall be provided.
13. A Cultural Study shall be provided. Records searches through the California Historical Resources Information System and Native American Heritage Commission databases shall be conducted in conjunction with the study;
14. A Traffic Impact Study and Vehicle Miles Traveled analysis shall be provided;
15. Lots 6, 18, and 18 shall be revised to contain a minimum 40 feet of frontage along a public street.
16. The site plan shall include a notation stating that the existing Southern California Edison easement will be removed.
17. A CEQA Initial Study and environmental determination (likely a Mitigated Negative Declaration) will be undertaken for this project. The study shall be conducted by City staff.
18. Tribal consultation as required by AB 52 shall be conducted for the project. Note that tribal consultation comment periods are 90 days in length when a project involves a General Plan Amendment.
19. Meet all other Codes and Ordinances.

PROJECT SPECIFIC INFORMATION: April 7, 2021

1. The project site is located outside of Visalia City Limits, within Growth Tier Boundary II. Development of the proposal cannot occur on the project site until General Plan thresholds are met and processes are conducted to open development into Tier II. The items listed below will be required for development of the proposal upon the opening of Tier II:

a. Annexation of the project site into the Visalia City Limits;
b. A Tentative Subdivision Map;
c. A General Plan Amendment;
d. A Change of Zone;
e. A detailed site plan with lot dimensions, street cross sections, building setbacks, fencing/block wall locations and details, and land use designation boundaries;
f. The submittal shall also include building elevations, a development plan showing placement of units on the lots, and additional landscaping/amenity detail for the proposed linear park;
g. A Noise Study shall be provided;
h. A Cultural Study shall be provided. Records searches through the California Historical Resources Information System and Native American Heritage Commission databases shall be conducted in conjunction with the study;
i. A Traffic Impact Study and Vehicle Miles Traveled analysis shall be provided;
j. A Landscape and Lighting District cost analysis shall be provided;
k. The applicant shall provide building setbacks and height information for the lots along Road 88. Note that the rear yard setback requirement for lots within the R-1-5 Zone is 25 feet. Single-story residences can encroach five feet into the 25-foot rear yard setback, so long as a minimum 1,500 sq. ft. of rear yard open space is maintained;
l. Provide a Phasing Plan if applicable;
m. A CEQA Initial Study and environmental determination (likely a Mitigated Negative Declaration). This

shall be conducted by City staff;
n. Tribal consultation as required by AB 52 shall be conducted for the project.
o. Meet all other Codes and Ordinances.

PROJECT SPECIFIC INFORMATION: February 17, 2021
1. APN: 081-030-036 is in Tier II and the City has not yet reached the permit threshold or opened the residential land use to the Tier II Growth Boundary.
2. The proposal is not supported as there is no policy allowing the exchange of Residential Very Low Density (R-1-20) lands to Residential Low Density (R-1-5).
3. The applicant will need to provide analysis showing how their proposal is a better solution to the proven use of R-1-20 zoning / Residential Very Low Density buffer to industrial lands.
4. Annexation
5. Tentative Subdivision Map
6. Environmental may require a minimum Initial Study / Neg Dec.
7. Development plan may be required, showing building footprints and compliance with development standards of the R-1-5 zone.
8. Comply with all codes and ordinances.

Landscaping and Lighting Act District:

1. A landscaping and lighting act district, or similar instrument, may be required for the maintenance of common areas or infrastructure such as street lights and similar infrastructure.
2. Annexation to an existing district may be required.
3. That a Landscaping and Lighting Act Assessment District be formed, prior to recordation of the final map, for the maintenance of the landscaping and fences and/or walls along the public street frontages and open space areas of the subdivision. The Landscaping and Lighting Act Assessment District shall also include the operational and maintenance cost for the street lights both internal to the subdivision and along streets abutting the subdivision. The Landscape and Lighting Act District shall also include provisions for the City to collect payments from the subdivider to cover the estimated cost to operate and maintain the improvements of the District prior to assessments occurring on the property tax roll.

17.32.080 Maintenance of landscaped areas.

A landscaped area provided in compliance with the regulations prescribed in this title or as a condition of a use permit or variance shall be planted with materials suitable for screening or ornamenting the site, whichever is appropriate, and plant materials shall be maintained and replaced as needed, to screen or ornament the site. (Prior code § 7484)

Site Area in non-residential zones – ZO Section **17.30.015-A** - Site areas less than 5 acres may be approved/created upon approval of an acceptable master plan by the Site Plan Review Committee.

R-1-5 Single Family Residential Zone [17.12]

Maximum Building Height: 35 Feet

Minimum Setbacks:	Building	Landscaping
➢ Front	15 Feet	15 Feet
➢ Front Garage (garage w/door to street)	22 Feet	22 Feet
➢ Side	5 Feet	5 Feet
➢ Street side on corner lot (long side of lot)	10 Feet	10 Feet
➢ Street side on corner to garage door	22 Feet	22 Feet
➢ Rear	25 Feet*	25 Feet

Minimum Site Area: 5,000 square feet

Accessory Structures:

Maximum Height: 12 feet (as measured from average grade next to the structure)
Maximum Coverage: 20% of required Rear Yard (last 25 feet by the width)
Reverse Corner Lots: No structure in the 15 feet of adjacent lot's front yard area, see Zoning Ordinance Section 17.12.100 for complete standards and requirements.

Parking:

1. Provide parking spaces based Zoning Ordinance Section 17.34.020
2. 30% of the required parking stalls may be compact and shall be evenly distributed in the lot.
3. Provide handicapped space(s).
4. An 80 sq. ft. minimum landscape well is required every 10 contiguous parking.
5. A planter is required every other row. (5-9 feet in width containing trees on twenty (20) foot centers.
6. No repair work or vehicle servicing allowed in a parking area.
7. It is highly recommended that bicycle rack(s) be provided on site plan.
8. No parking shall be permitted in a required front/rear/side yard.
9. Design/locate parking lot lighting to deflect any glare away from abutting residential areas.
10. Parking lot to be screened from view by a 3-foot tall solid wall or shrubs when located adjacent to a public street or when across from residential property.
11. Front carport area to have a 3 to 6-foot tall screening wall.
12. Provide shopping cart storage areas on site plan.
13. Provide transit facilities on site plan.
14. Provide shared parking/access agreements
15. Provide off-street loading facility.
16. The project should provide preferential parking spaces for carpools and vanpools to decrease the number of single occupant vehicle work trips. The preferential treatment could include covered parking spaces or close-in parking spaces, or designated free parking, or a guaranteed space for the vehicle.
17. Provide a "No Parking" (dead-head) stall at the end of the parking row (for rows over 6 stalls deep with no outlet) to allow vehicles to turn around rather than backing out if no stalls are available.

Fencing and Screening:

1. Provide screening for roof mounted equipment (Zoning Ordinance Section 17.30.130.F).
2. Provide second-story screening for all windows that may intrude into adjacent residential properties. Details and cross-sections will be required to be reviewed and approved prior to issuance of building permits (Zoning Ordinance Section 17.30.130.F).
3. Provide screened trash enclosure with solid screening gates (Zoning Ordinance Section 17.30.130.F).
4. Provide solid screening of all outdoor storage areas. Outdoor storage to be screened from public view with solid material (Zoning Ordinance Section 17.30.130.F).
5. Outdoor retail sales prohibited.
6. Cross Sections need to be provided for site Plan Review if there is greater than an 18-inch difference between the elevation of the subject site and the adjacent properties, and the sections would be required for the public hearing process also.
7. All outdoor storage areas are to be identified on the site plan and they are to be shown with screening (fencing). No materials may be stored above the storage area fence heights (Zoning Ordinance Section 17.30.130.F).
8. If there is an anticipated grade difference of more than 12-inches between this site and the adjacent sites, a cross section of the difference and the walls must be provided as a part of the Subdivision and/or CUP application package.
9. NOTE: The maximum height of block walls and fences is 7-feet in the appropriate areas; this height is measured on the tallest side of the fence. If the height difference is such that the fence on the

inside of the project site is not of sufficient height, the fence height should be discussed with Planning Staff prior to the filing of applications to determine if an Exception to fence/wall height should also be submitted.

Landscaping:

1. The City has adopted the State Water Efficient Landscape Ordinance. The ordinance applies to projects installing 2,500 square feet or more of landscaping. It requires that landscaping and irrigation plans be certified by a qualified entity (i.e., Landscape Architect) as meeting the State water conservation requirements. The City's implementation of this new State law will be accomplished by self-certification of the final landscape and irrigation plans by a California licensed landscape architect or other qualified entity with sections signed by appropriately licensed or certified persons as required by the ordinance. **NOTE: Prior to a final for the project, a signed Certificate of Compliance for the MWELO standards is required indicating that the landscaping has been installed to MWELO standards.**
2. Provide street trees at an average of 20-feet on center along street frontages. All trees to be 15-gallon minimum size (Zoning Ordinance Section 17.30.015-2).
3. In the P(R-M) multi-family residential zone, all multiple family developments shall have landscaping including plants, and ground cover to be consistent with surrounding landscaping in the vicinity. Landscape plans to be approved by city staff prior to installation and occupancy of use and such landscaping to be permanently maintained. (Zoning Ordinance Section 17.16.180)
4. All landscape areas to be protected with 6-inch concrete curbs (Zoning Ordinance Section 17.30.130.F).
5. All parking lots to be designed to provide a tree canopy to provide shade in the hot seasons and sunlight in the winter months.
6. Provide a detailed landscape and irrigation plan as a part of the building permit package (Zoning Ordinance Section 17.34.040).
7. An 80 sq. ft. minimum landscape well is required every 10 contiguous parking stalls (Zoning Ordinance Section 17.30.130.C).
8. Provide a detailed landscape and irrigation plan for review prior to issuance of building permits. Please review Zoning Ordinance section 17.30.130-C for current landscaping and irrigation requirements.
9. Provide a conceptual landscape plan for resubmittal or planning commission review.
10. Locate existing oak trees on site and provide protection for all oak trees greater than 2" diameter (see Oak Tree Preservation Ordinance).
11. Maintenance of landscaped areas. - A landscaped area provided in compliance with the regulations prescribed in this title or as a condition of a use permit or variance shall be planted with materials suitable for screening or ornamenting the site, whichever is appropriate, and plant materials shall be maintained and replaced as needed, to screen or ornament the site. (Prior code § 7484)

Lighting:

1. All lighting is to be designed and installed so as to prevent any significant direct or indirect light or glare from falling upon any adjacent residential property. This will need to be demonstrated in the building plans and prior to final on the site.
2. Parking lot and drive aisle lighting adjacent to residential units or designated property should consider the use of 15-foot-high light poles, with the light element to be completely recessed into the can. A reduction in the height of the light pole will assist in the reduction/elimination of direct and indirect light and glare which may adversely impact adjacent residential areas.
3. Building and security lights need to be shielded so that the light element is not visible from the adjacent residential properties, if any new lights are added or existing lights relocated.
4. NOTE: Failure to meet these lighting standards in the field will result in no occupancy for the building until the standards are met.

5. In no case shall more than 0.5 lumens be exceeded at any property line, and in cases where the adjacent residential unit is very close to the property line, 0.5 lumens may not be acceptable.

NOTE: Staff recommendations contained in this document are not to be considered support for a particular action or project unless otherwise stated in the comments. The comments found on this document pertain to the site plan submitted for review on the above referenced date. Any changes made to the plan submitted must be submitted for additional review.

Signature ______________________

SPR21011
IRON RIDGE
945N SHIRK ST

City of Visalia

Building: Site Plan Review Comments

NOTE: These are general comments and DO NOT constitute a complete plan check for your specific project
Please refer to the applicable California Code & local ordinance for additional requirements.

- ☐ A building permit will be required. ***For information call (559) 713-4444***
- ☐ Submit 1 digital set of professionally prepared plans and 1 set of calculations. (Small Tenant Improvements)
- ☐ Submit 1 digital set of plans prepared by an architect or engineer. Must comply with 2016 California Building Cod Sec. 2308 for conventional light-frame construction or submit 1 digital set of engineered calculations.
- ☐ Indicate abandoned wells, septic systems and excavations on construction plans.

You are responsible to ensure compliance with the following checked items:

- ☐ Meet State and Federal requirements for accessibility for persons with disabilities.
- ☐ A path of travel, parking and common area must comply with requirements for access for persons with disabilities.
- ☐ All accessible units required to be adaptable for persons with disabilities.
- ☐ Maintain sound transmission control between units minimum of 50 STC.
- ☐ Maintain fire-resistive requirements at property lines.
- ☐ A demolition permit & deposit is required. ***For information call (559) 713-4444***
- ☐ Obtain required permits from San Joaquin Valley Air Pollution Board. ***For information call (661) 392-5500***
- ☐ Plans must be approved by the Tulare County Health Department. ***For information call (559) 624-8011***
- ☒ Project is located in flood zone AE * ☐ Hazardous materials report. DWELLINGS SHALL HAVE FINISH FLOOR ONE FOOT ABOVE THE B.F.E.
- ☐ Arrange for an on-site inspection. (Fee for inspection $157.00) ***For information call (559) 713-4444***
- ☐ School Development fees. Commercial $0.66 per square foot & Self-Storage $.23 per sf. Residential $4.16 per square foot.
- ☐ Park Development fee $__________, per unit collected with building permits.
- ☐ Additional address may be required for each structure located on the site. ***For information call (559) 713-4320***
- ☐ Acceptable as submitted
- ☐ No comments at this time

Additional comments: ______________________________

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VAL GARCIA 5/5/21
Signature

	Site Plan Comments Visalia Fire Department Corbin Reed, Fire Marshal 420 N. Burke Visalia CA 93292 559-713-4272 office prevention.division@visalia.city	Date Item # Site Plan # APN:	May 5, 2021 1 21017 081030036 & 46

- The Site Plan Review comments are issued as **general overview** of your project. With further details, additional requirements will be enforced at the Plan Review stage. Please refer to the 2019 California Fire Code (CFC), 2019 California Building Codes (CBC) and City of Visalia Municipal Codes.

- Construction and demolition sites prior to and during construction shall comply with the attached **Access & Water Guidelines.**

- **All streets** shall meet the City of Visalia's Design & Improvement Standards for streets to ensure that fire apparatus can make access to all structures in the event of an emergency.

- This item is a **resubmittal**. Please see comments from previous submittals.

- **Special comments**: two points of Fire Department Access required prior to beginning construction of more than 30 homes.

Corbin Reed
Fire Marshal

City of Visalia
420 N. Burke Visalia, California 932912

Fire Department
Telephone (559) 713-4266 Fax: (559) 713-4808

Visalia Fire Department Access and Water Guidelines for Residential Construction

Effective July 1, 2019

Model Homes & Non-Model Homes
Model and Non-Model homes may be constructed once **all** of the following conditions have been met:

1. All portions of proposed residential construction shall be located and accessible within 150 feet of an existing, paved, city street.

2. **Exceptions:** If any portion of a model home or a non-model is located greater than 150 feet from an existing city street, a fire apparatus access road shall be installed and maintained unobstructed at all times. The fire access road, including curb and gutter, shall be installed per City Specifications and City Standard P-1 excluding the Asphalt Concrete layer, but in no circumstance shall have a structural section less than required under City Standard P-25 based on R-Value of existing subgrade unless otherwise specified on approved plans. Compaction tests, including testing of the aggregate base layer, shall be performed under City inspection and reports shall be submitted to the Public Works Inspector prior to City acceptance for the road to be used for fire access. The fire access roads shall be usable and maintained in place until permanent paved access has been provided meeting City standards and specifications.

3. All required fire hydrants shall be installed in the approved locations per the stamped and approved plans and shall be fully operational.

   Exception: If fire hydrant installation has not been completed an onsite elevated water tank shall be provided. The minimum size of provided water tank shall be 10,000 gallons, and shall be designated as "Fire Department use only". Tanks shall be located within 300 feet travel distance of each structure being developed. Tanks shall remain in place until all fire hydrant installation has been completed and all hydrants are fully operational. Travel distance shall be measured by an approved fire apparatus access route.

   Connection provided on water tanks shall be a four and one half inch National Hose thread male fitting and shall be gravity fed, with connection point located between 18 and 36 inches above ground level.

***If at any time the conditions of these guidelines are not being met the Fire Marshal/Fire Chief or his/her designee have the authority to issue a "Stop Work Order" until corrections have been made.**

*** This information is intended to be a guideline. The Fire Marshal and/or Fire Chief shall have the discretion to modify requirements at any time as set forth under CFC Appendix D. The applicability of this guideline will be evaluated on February 1, 2020 by the Fire Marshal or Fire Chief.**

Not @ meeting

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 5-4-21
Item: 1 Re-Sub
Site Plan: SPR-21017
Name: Agent McEwen

SITE PLAN REVIEW COMMENTS

☐ No Comment at this time

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date – August 17, 2001

Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:

☐ Territorial Reinforcement: Define property lines (private/public space).

☐ Access Controlled / Restricted etc.:

☐ Lighting Concerns:

☒ Traffic Concerns:
Concerns w/ traffic in an already congested area.

☐ Surveillance Issues:

☐ Line of Sight Issues:

☒ Other Concerns:
To much traffic near a school

SITE PLAN REVIEW COMMENTS

CITY OF VISALIA TRAFFIC SAFETY DIVISION

May 5, 2021

ITEM NO: 1	Resubmit
SITE PLAN NO:	SPR21017
PROJECT TITLE:	Iron Ridge
DESCRIPTION:	To Develop a 238 lot Residential Subdivision (R-1-20/R-1-5)
APPLICANT:	Ernie Escobedo
OWNER:	TULARE COUNTY PROPERTIES INC ROAD 88 LLC
APN:	081030036 081030046
LOCATION:	945 N SHIRK ST

THE TRAFFIC DIVISION WILL PROHIBIT ON-STREET PARKING AS DEEMED NECESSARY

☐ No Comments

☒ See Previous Site Plan Comments

☒ Install Street Light(s) per City Standards.

☒ Install Street Name Blades at ***intersection*** Locations at time of development.

☒ Install Stop Signs at ***local roads intersecting arterial/collector*** Locations at time of development.

☐ Construct parking per City Standards PK-1 through PK-4.

☒ Construct drive approach per City Standards.

☒ Traffic Impact Analysis required (CUP)

- ☐ Provide more traffic information such as . Depending on development size, characteristics, etc., a TIA may be required.

☐ Additional traffic information required (Non Discretionary)

- ☐ Trip Generation - Provide documentation as to concurrence with General Plan.
- ☐ Site Specific - Evaluate access points and provide documentation of conformance with COV standards. If noncomplying, provide explanation.
- ☐ Traffic Impact Fee (TIF) Program - Identify improvments needed in concurrence with TIF.

Additional Comments:

- VMT analysis may be required.
- Shirk is an arterial status roadway. Access restricted to right in and right out only when center median is installed for the ultimate.
- TIA to address site access locations off Shirk Road.

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Leslie Blair

Leslie Blair

21-017CRR

Susan Currier

From: Joel Hooyer
Sent: Tuesday, May 4, 2021 7:54 AM
To: Cristobal Carrillo; Josh Dan; Susan Currier
Cc: Jeremy Rogers; Alvin Dias
Subject: May 5, 2021 Site Plan Review
Attachments: May 5, 2021 Site Plan Review.pdf

See attached and following for the May 5, 2021, Site Plan Review comments

SPR 21017 - No Valley oaks are on the submitted plans.
-Landscape and Lighting District on submitted plan.
-Linear Park & Buffer on submitted plan.
- (1) one Picnic/Pocket Park on submitted plan.
- (1) one Tot Lot/Pocket Park on submitted plan.
-Trail is indicated on submitted plan.
-Landscape Easement is on submitted plan.

Note* If this newly proposed development is to become a Park, LLD, Trail or any other dedicated land to be maintained by the City of Visalia all lots shall be accessed appropriately to accommodate such intended maintenance and all the landscaping plans will need to be approved by Urban Forestry.

SPR 21051 - No Valley oaks are on the submitted plans.

SPR 21072 – One Valley oak on the submitted plan.

Note* The plan has noted that the Valley oak tree is to remain and be protected appropriately during construction and operations.

SPR 21077 - No Valley oaks are on the submitted plans.
SPR 21078 - No Valley oaks are on the submitted plans.
SPR 21079 - No Valley oaks are on the submitted plans.
SPR 21080 - No Valley oaks are on the submitted plans.
SPR 21082 - No Valley oaks are on the submitted plans.

DEPARTMENT OF TRANSPORTATION
DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE
P.O. BOX 12616
FRESNO, CA 93778-2616
PHONE (559) 445-5421
FAX (559) 488-4088
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

May 4, 2021
5/5/21

06-TUL198-5.675
SPR #21017
IRON RIDGE SUBDIVISION
GTS #06-TUL-2021-02188
2ND RESPONSE

SENT VIA EMAIL

Ms. Susan Currier, Sr. Administrative Assistant
City of Visalia – Community Development – Site Plan Review
315 E. Acequia Ave
Visalia, CA 93291

Dear Ms. Currier:

Thank you for the opportunity to review Site Plan Review (SPR) #21017 for the proposal to develop a 238-lot residential subdivision on 50 acres. The Project site is located between Road 88 and Road 92 (Shirk Road), and approximately 0.7 miles north of the State Route (SR) 198 and Shirk Road interchange, in the City of Visalia in Tulare County.

The California Department of Transportation (Caltrans) provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. Based on the information provided in the Site Plan Review dated April 1, 2021, the proposed development will generate an estimated 236 trips in the PM peak hours.

2. This development will have an impact to the SR 198 and Shirk Road interchange at its vicinity.

3. The 2035 City of Visalia General Plan proposes significant development along the Shirk Road Corridor near the SR 198 at Shirk Road interchange.

4. The existing geometric configuration of the SR 198 at Shirk Road interchange is a tight-diamond, which was originally designed to handle low-volume traffic.

5. The eastbound and westbound ramp intersections at the SR 198 at Shirk Road interchange are currently controlled by "Stop" signs on all approaches. Both intersections are currently operating at or near capacity and would need significant upgrades and improvements with the continuous development in the area.

6. If the City of Visalia requires an Environmental Impact Report (EIR), Caltrans recommends the EIR to include the Traffic Impact Study to evaluate the impact of the residential development to the SR 198 interchange at Shirk Road.

7. As a point of information, the City of Visalia and Caltrans have proposed a short-term improvement project at this interchange by signalizing the two ramp intersections.

8. Caltrans recommends that the Project proponent contribute towards the City of Visalia's Development Impact Fee Program to provide funding for the proposed future improvements, particularly the improvements for this interchange and along the Shirk Road Corridor.

If you have any further questions, contact Scott Lau at (559) 445-5763 or scott.lau@dot.ca.gov.

Sincerely,

Lorena Mendibles

LORENA MENDIBLES, Chief
Transportation Planning - South

CITY OF VISALIA
SOLID WASTE DIVISION
336 N. BEN MADDOX
VISALIA CA. 93291
713 - 4532
COMMERCIAL BIN SERVICE

21017

May 5, 2021

	No comments.
XX	See comments below
	Revisions required prior to submitting final plans. See comments below.
	Resubmittal required. See comments below.
	Customer responsible for all cardboard and other bulky recyclables to be broken down before disposing of in recycle containers
	ALL refuse enclosures must be R-3 OR R-4
	Customer must provide combination or keys for access to locked gates/bins
	Type of refuse service not indicated.
	Location of bin enclosure not acceptable. See comments below.
	Bin enclosure not to city standards double.
	Inadequate number of bins to provide sufficient service. See comments below.
	Drive approach too narrow for refuse trucks access. See comments below.
	Area not adequate for allowing refuse truck turning radius of : Commercial 50 ft. outside 36 ft. inside; Residential 35 ft. outside, 20 ft. inside.
XX	Paved areas should be engineered to withstand a 55,000 lb. refuse truck.
	Bin enclosure gates are required
	Hammerhead turnaround must be built per city standards.
	Cul - de - sac must be built per city standards.
	Bin enclosures are for city refuse containers only. Grease drums or any other items are not allowed to be stored inside bin enclosures.
	Area in front of refuse enclosure must be marked off indicating no parking
	Enclosure will have to be designed and located for a STAB service (DIRECT ACCESS) with no less than 38' clear space in front of the bin, included the front concrete pad.
	Customer will be required to roll container out to curb for service.
	Must be a concrete slab in front of enclosure as per city standards, the width of the enclosure by ten(10) feet, minimum of six(6) inches in depth.
	Roll off compactor's must have a clearance of 3 feet from any wall on both sides and there must be a minimum of 53 feet clearance in front of the compactor to allow the truck enough room to provide service.
XX	City ordinance 8.28.120-130 (effective 07/19/18) requires contractor to contract with City for removal of construction debris unless transported in equipment owned by contractor or unless contracting with a franchise permittee for removal of debris utilizing roll-off boxes.
Comment	Residential (3 can) solid waste services to be assigned per address.

Jason Serpa, Solid Waste Manager, 559-713-4533
Edward Zuniga, Solid Waste Supervisor, 559-713-4338

Nathan Garza, Solid Waste,559-713-4532

SUBDIVISION & PARCEL MAP REQUIREMENTS
ENGINEERING DIVISION

☒**Adrian Rubalcaba**	**713-4271**
☐**Diego Corvera**	**713-4209**

ITEM NO: 1 DATE: MAY 5, 2021

SITE PLAN NO.:	**21-017 3RD RESUBMITTAL**
PROJECT TITLE:	**IRON RIDGE**
DESCRIPTION:	**TO DEVELOP A 238 LOT RESIDENTIAL SUBDIVISION (R120 / R15)**
APPLICANT:	**ERNIE ESCOBEDO**
PROP. OWNER:	**TULARE COUNTY PROPERTIES INC**
LOCATION:	**945 N SHIRK ST**
APN:	**081-030-046, 036**

SITE PLAN REVIEW COMMENTS

☒REQUIREMENTS (Indicated by checked boxes)

☒Submit improvements plans detailing all proposed work; ☒Subdivision Agreement will detail fees & bonding requirements

☒Bonds, certificate of insurance, cash payment of fees/inspection, and approved map & plan required prior to approval of Final Map.

☒The Final Map & Improvements shall conform to the Subdivision Map Act, the City's Subdivision Ordinance and Standard Improvements.

☒A preconstruction conference is required prior to the start of any construction.

☒Right-of-way dedication required. A title report is required for verification of ownership. ☒by map ☐by deed

☒City Encroachment Permit Required which shall include an approved traffic control plan.

☐CalTrans Encroachment Permit Required. ☐CalTrans comments required prior to tentative parcel map approval. CalTrans contacts: David Deel (Planning) 488-4088

☒Landscape & Lighting District/Home Owners Association required prior to approval of Final Map. Landscape & Lighting District will maintain common area landscaping, street lights, street trees and local streets as applicable. Submit completed Landscape and Lighting District application and filing fee a min. of 75 days before approval of Final Map.

☒Landscape & irrigation improvement plans to be submitted for each phase. Landscape plans will need to comply with the City's street tree ordinance. The locations of street trees near intersections will need to comply with Plate SD-1 of the City improvement standards. A street tree and landscape master plan for all phases of the subdivision will need to be submitted with the initial phase to assist City staff in the formation of the landscape and lighting assessment district.

☒Dedicate landscape lots to the City that are to be maintained by the Landscape & Lighting District.

☐Northeast Specific Plan Area: Application for annexation into Northeast District required 75 days prior to Final Map approval.

☐Written comments required from ditch company. Contacts: James Silva 747-1177 for Modoc, Persian, Watson, Oakes, Flemming, Evans Ditch and Peoples Ditches; Paul Hendrix 686-3425 for Tulare Irrigation Canal, Packwood and Cameron Creeks; Bruce George 747-5601 for Mill Creek and St. John's River.

☐Final Map & Improvements shall conform to the City's Waterways Policy. ☐Access required on ditch bank, 12' minimum. ☐Provide wide riparian dedication from top of bank.

☒Sanitary Sewer master plan for the entire development shall be submitted for approval prior to approval of any portion of the system. The sewer system will need to be extended to the boundaries of the development where future connection and extension is anticipated. The sewer system will need to be sized to serve any future developments that are anticipated to connect to the system.

☒Grading & Drainage plan required. If the project is phased, then a master plan is required for the entire project area that shall include pipe network sizing and grades and street grades. ☒ Prepared by registered civil engineer or project architect. ☒ All elevations shall be based on the City's benchmark network. Storm run-off from the project shall be handled as follows: a) ☐ directed to the City's existing storm drainage system; b) ☐ directed to a permanent on-site basin; or c) ☐ directed to a temporary on-site basin is required until a connection with adequate capacity is available to the City's storm drainage system. On-site basin:

: maximum side slopes, perimeter fencing required, provide access ramp to bottom for maintenance. ***SEE ADDITIONAL COMMENTS.***

☒Show Valley Oak trees with drip lines and adjacent grade elevations. ☐ Protect Valley Oak trees during construction in accordance with City requirements. ☒A permit is required to remove Valley Oak trees. Contact Public Works Admin at (559)713-4428 for a Valley Oak tree evaluation or permit to remove. ☒ Valley Oak tree evaluations by a certified arborist are required to be submitted to the City in conjunction with the tentative map application. ☒ A pre-construction conference is required.

☒Show adjacent property grade elevations on improvement plans. A retaining wall will be required for grade differences greater than 0.5 feet at the property line.

☒Relocate existing utility poles and/or facilities. ***Required for ultimate street widening.***

☒Underground all existing overhead utilities within the project limits. Existing overhead electrical lines over 50kV shall be exempt from undergrounding. ***Required for ultimate street widening.***

☒Provide "R" value tests: ***1*** each at ***300' Intervals***

☒Traffic indexes per city standards: ***Refer to City pavement stds.***

☒All public streets within the project limits and across the project frontage shall be improved to their full width, subject to available right of way, in accordance with City policies, standards and specifications. ***Shirk and Clancy.***

☒All lots shall have separate drive approaches constructed to City Standards.

☒Install street striping as required by the City Engineer.

☒Install sidewalk: ***5' - 7'*** ft. wide, with ***5'*** ft. wide parkway on ***SHIRK, CLANCY, AND LOCALS***

☒Cluster mailbox supports required at 1 per 2 lots, or use postal unit (contact the Postmaster at 732-8073).

☐Subject to existing Reimbursement Agreement to reimburse prior developer:

☒Abandon existing wells per City of Visalia Code. A building permit is required.

☒Remove existing irrigation lines & dispose off-site. ☒Remove existing leach fields and septic tanks.

☒ Fugitive dust will be controlled in accordance with the applicable rules of San Joaquin Valley Air District's Regulation VIII. Copies of any required permits will be provided to the City.

☒ If the project requires discretionary approval from the City, it may be subject to the San Joaquin Valley Air District's Rule 9510 Indirect Source Review per the rule's applicability criteria. A copy of the approved AIA application will be provided to the City.

☒If the project meets the one acre of disturbance criteria of the State's Storm Water Program, then coverage under General Permit Order 2009-0009-DWQ is required and a Storm Water Pollution Prevention Plan (SWPPP) is needed. A copy of the approved permit and the SWPPP will be provided to the City.

☒Comply with prior comments ☐Resubmit with additional information ☒Redesign required

Additional Comments:

1. Proposed subdivision will incur development impact fees.

2. Proposed tentative subdivision map only includes the portion of land within City limits. Previous site plans included a larger subdivision of land between Clancy and Shirk. Comments have been adjusted to pertain to this proposed phase for opening day improvements.

3. Shirk Street shall be improved to its ultimate design configuration. Shirk is a 110' arterial roadway. The cross section shown on Site Plan is incorrect, refer to City arterial design stds. Redesign and adjust accordingly.

4. There may be access restriction to Shirk due to the arterial median design constraints. The median control will likely restrict access to right in/right out of Shirk, a left in may be feasible. Refer to further comments by Traffic Safety Division.

5. Additional coordination with Public Works Dept. is required for sanitary sewer and storm drainage design and main extensions. Project will be required to extend all utilities across parcel frontages, including any master planned mains. Per PW Dept., a City CIP is slated to install a 48" sewer main and a 30" storm drain along Shirk. Timing of these improvements will dictate subdivision feasibility, although the construction of the sewer main is tentatively scheduled for fall of 2021. Should the storm main not be installed prior to project development, a temporary storage basin onsite will need to be established

and infrastructure designed for both onsite retention and future elimination of basin and connection to City SD trunk line.

6. The current City storm water infrastructure does not have capacity to serve this project.

7. The City is currently updating its Storm and Sewer Master Plans, project requirements are subject to change.

8. Subdivision proposes a vast amount of open landscaped space. This will have an adverse effect on the Landscape and Lighting District maintenance costs borne soley on the residents. It is recommended the subdivider analyze the future district annual assessments.

9. Required street improvements to Shirk to include, but may not be limited to, pavement, curb and gutter, sidewalk, parkway landscaping, street trees, street lights, utility relocations and undergrounding, median improvement, roadway transitions, striping, signage, and utility extensions.

10. Subdivision master sewer and storm drain plan will be required with initial phase.

11. Subdivision to install street lighting per City arterial and local street stds. Provide electrical design plan with voltage drop calculations with civil submittal. A service meter pedestal will be required to be installed.

12. Landscape and Lighting District to be formed. Submit landscape improvement plan with civil submittal. Further coordinate with City Engineer.

13. There are existing SCE easements as indicated on tentative map that will need to be abandoned or relocated prior to map and civil plan approval.

14. There is a block wall to be erected along northside of Outlot B, however an SCE easement exists and can be a potential conflict. Applicant to coordinate with SCE for blockwall placement and approval or relocate/underground if required by SCE.

15. Ensure local street connection to Shirk provides adequate right-of-way to accommodate the required 30' radius ramp return.

16. Lot 23 will need to be adjusted as the outlot shall wrap around local street frontage. The landscape outlot along north side of Lot 23 can be decreased to min. 5' width.

SUMMARY OF APPLICABLE DEVELOPMENT IMPACT FEES

Site Plan No: **21-017 3rd RESUBMITTAL**
Date: **5/5/2021**

Summary of applicable Development Impact Fees to be collected at the time of final/parcel map recordation:

(Preliminary estimate only! Final fees will be based on approved subdivision map & improvements plans and the fee schedule in effect at the time of recordation.)

(Fee Schedule Date:**8/21/2021**)
(Project type for fee rates:**TSM**)

☐ Existing uses may qualify for credits on Development Impact Fees.

FEE ITEM	FEE RATE
☒ Trunk Line Capacity Fee	**see fee schedule.**
☒ Sewer Front Foot Fee	
☒ Storm Drainage Acquisition Fee	
☒ Park Acquisition Fee	
☐ Northeast Acquisition Fee Total Storm Drainage Block Walls Parkway Landscaping Bike Paths	
☒ Waterways Acquisition Fee	

Additional Development Impact Fees will be collected at the time of issuance of building permits.

City Reimbursement:

1.) No reimbursement shall be made except as provided in a written reimbursement agreement between the City and the developer entered into prior to commencement of construction of the subject planned facilities.
2.) Reimbursement is available for the development of arterial/collector streets as shown in the City's Circulation Element and funded in the City's transportation impact fee program. The developer will be reimbursed for construction costs and right of way dedications as outlined in Municipal Code Section 16.44. Reimbursement unit costs will be subject to those unit costs utilized as the basis for the transportation impact fee.
3.) Reimbursement is available for the construction of storm drain trunk lines and sanitary sewer trunk lines shown in the City's Storm Water Master Plan and Sanitary Sewer System Master Plan. The developer will be reimbursed for construction costs associated with the installation of these trunk lines.

Adrian Rubalcaba

SITE PLAN REVIEW COMMENTS

Rafael Garcia, Planning Division (559) 713-4031
Date: March 16, 2022

SITE PLAN NO:	2021-229-D
PROJECT:	Iron Ridge II
DESCRIPTION:	TO DEVELOP 199 LOT RESIDENTIAL SUDIVISION
APPLICANT:	ERNIE ESCOBEDO
PROP. OWNER:	ROAD 88 LLC
LOCATION:	BETWEEN SHIRK AND ROAD 88, SOUTH OF GOSHEN
APN:	081-030-036
GENERAL PLAN:	RVLD (Residential Very Low Density) RLD (Residential Low Density)
ZONING:	X – outside of the city limits

Planning Division Recommendation:

☒ Revise and Proceed
☐ Resubmit

Reference Previous Comments from Site Plan Review No. 2021-017

Project Requirements

- Tentative Subdivision Map
- General Plan Amendment (to eliminate RVLD designation)
- Change of Zone
- Traffic Impact/Vehicle Miles Traveled Analysis
- Noise Study
- Cultural Resources Study
- Project is subject to Air District Rule 9510
- Initial Study / Mitigated Negative Declaration
- Tribal Consultation under AB 52
- Additional Information as Needed

PROJECT SPECIFIC INFORMATION: March 16, 2022

1. Raised intersection required at Helen and Sauver Drive for traffic calming purposes.
2. The buffer along the north boundary (within the RVLD land use area) must be maintained. Residences shall not be allowed to encroach into said area.
3. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
4. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the westerly and northern site boundary.
7. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
9. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: February 23, 2022

1. The buffer along the north boundary (within the RVLD land use area) must be maintained. Residences shall not be allowed to encroach into said area.
2. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
3. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
4. **Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.**
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the <u>westerly</u> and <u>northern</u> site boundary.
7. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
9. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: February 2, 2022

1. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
2. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
3. Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.
4. Lot widths shall be a minimum of 50 feet for all interior lots.
5. A block wall with landscaping will be required along the <u>westerly</u> and <u>northern</u> site boundary.
6. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
7. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
8. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: January 5, 2021

1. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
      ii. Phasing Plan and operational statement.
      iii. Detailed site plan with lot dimensions and street cross sections
2. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.

c. Traffic Impact Analysis / VMT may be required.

3. The applicant shall provide a site plan that accurately depicts the boundary of the entire site area.
4. Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the westerly and northern property frontage.
7. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. Meet all other Codes and Ordinances.

Notes:

1. **The applicant shall contact the San Joaquin Valley Air Pollution Control District to verify whether additional permits are required to conduct the proposed use.**

2. **Prior to completion of a final building inspection for a project, a signed MWELO Certificate of Compliance shall be submitted indicating that all landscaping has been installed to MWELO standards.**

Sections of the Municipal Code to review:

Title 16 Subdivisions

17.12 Single-Family Residential Zone

17.32.080 Maintenance of landscaped areas.

17.34 Off-street parking and loading facilities
17.34.020(A)(1) Single-family dwelling

17.36 Fences Walls and Hedges
17.36.030 Single-family residential zones

NOTE: Staff recommendations contained in this document are not to be considered support for a particular action or project unless otherwise stated in the comments. The comments found on this document pertain to the site plan submitted for review on the above referenced date. Any changes made to the plan submitted must be submitted for additional review.

Signature RG ________________________________

SITE PLAN No. 2021-229-D

SUBDIVISION & PARCEL MAP REQUIREMENTS
ENGINEERING DIVISION

☐ **Ather Razaq 713-4268**
☒ **Adrian Rubalcaba 713-4271**

ITEM NO: 1 DATE: MARCH 16, 2022

SITE PLAN NO.:	**21-229 3RD RESUBMITTAL**
PROJECT TITLE:	**IRON RIDGE II**
DESCRIPTION:	**TO DEVELOP A 199 LOT RESIDENTIAL SUBDIVISION (R-1-20 / X)**
APPLICANT:	**ERNIE ESCOBEDO**
PROP. OWNER:	**ROAD 88 LLC**
LOCATION:	**SOUTH EAST OF CLANCY AND GOSHEN**
APN:	**081-030-036**

SITE PLAN REVIEW COMMENTS

☒REQUIREMENTS (Indicated by checked boxes)

☒Submit improvements plans detailing all proposed work; ☒Subdivision Agreement will detail fees & bonding requirements

☒Bonds, certificate of insurance, cash payment of fees/inspection, and approved map & plan required prior to approval of Final Map.

☒The Final Map & Improvements shall conform to the Subdivision Map Act, the City's Subdivision Ordinance and Standard Improvements.

☒A preconstruction conference is required prior to the start of any construction.

☒Right-of-way dedication required. A title report is required for verification of ownership. ☒by map ☐by deed ***CLANCY AND LOCAL STREETS***

☒City Encroachment Permit Required which shall include an approved traffic control plan.

☐CalTrans Encroachment Permit Required. ☐CalTrans comments required prior to tentative parcel map approval. CalTrans contacts: David Deel (Planning) 488-4088

☒Landscape & Lighting District/Home Owners Association required prior to approval of Final Map. Landscape & Lighting District will maintain common area landscaping, street lights, street trees and local streets as applicable. Submit completed Landscape and Lighting District application and filing fee a min. of 75 days before approval of Final Map. ***LLD TO BE FORMED. SEE ADDL COMMENTS.***

☒Landscape & irrigation improvement plans to be submitted for each phase. Landscape plans will need to comply with the City's street tree ordinance. The locations of street trees near intersections will need to comply with Plate SD-1 of the City improvement standards. A street tree and landscape master plan for all phases of the subdivision will need to be submitted with the initial phase to assist City staff in the formation of the landscape and lighting assessment district.

☒Dedicate landscape lots to the City that are to be maintained by the Landscape & Lighting District.

☐Northeast Specific Plan Area: Application for annexation into Northeast District required 75 days prior to Final Map approval.

☐Written comments required from ditch company. Contacts: James Silva 747-1177 for Modoc, Persian, Watson, Oakes, Flemming, Evans Ditch and Peoples Ditches; Paul Hendrix 686-3425 for Tulare Irrigation Canal, Packwood and Cameron Creeks; Bruce George 747-5601 for Mill Creek and St. John's River.

☐Final Map & Improvements shall conform to the City's Waterways Policy. ☐Access required on ditch bank, 12' minimum. ☐Provide wide riparian dedication from top of bank.

☒Sanitary Sewer master plan for the entire development shall be submitted for approval prior to approval of any portion of the system. The sewer system will need to be extended to the boundaries of the development where future connection and extension is anticipated. The sewer system will need to be sized to serve any future developments that are anticipated to connect to the system.

☒Grading & Drainage plan required. If the project is phased, then a master plan is required for the entire project area that shall include pipe network sizing and grades and street grades. ☒ Prepared by registered civil engineer or project architect. ☒ All elevations shall be based on the City's benchmark network. Storm run-off from the project shall be handled as follows: a) ☐ directed to the City's existing storm drainage system; b) ☐ directed to a permanent on-site basin; or c) ☒ directed to a temporary on-site basin is required until a connection with adequate capacity is available to the City's storm drainage system. On-site basin:

: maximum side slopes, perimeter fencing required, provide access ramp to bottom for maintenance. ***SEE ADDITIONAL COMMENTS.***

☒Show Valley Oak trees with drip lines and adjacent grade elevations. ☐ Protect Valley Oak trees during construction in accordance with City requirements. ☒A permit is required to remove Valley Oak trees. Contact Public Works Admin at (559)713-4428 for a Valley Oak tree evaluation or permit to remove. ☒ Valley Oak tree evaluations by a certified arborist are required to be submitted to the City in conjunction with the tentative map application. ☒ A pre-construction conference is required.

☒Show adjacent property grade elevations on improvement plans. A retaining wall will be required for grade differences greater than 0.5 feet at the property line.

☒Relocate existing utility poles and/or facilities. ***REQUIRED W/ DEVELOPMENT***

☒Underground all existing overhead utilities within the project limits. Existing overhead electrical lines over 50kV shall be exempt from undergrounding. ***REQUIRED W/ DEVELOPMENT***

☒Provide "R" value tests: ***1*** each at ***300' INTERVALS***

☒Traffic indexes per city standards: ***REFER TO CITY PAVEMENT STANDARDS***

☒All public streets within the project limits and across the project frontage shall be improved to their full width, subject to available right of way, in accordance with City policies, standards and specifications. ***CLANCY, SEE ADDITIONAL COMMENTS***

☒All lots shall have separate drive approaches constructed to City Standards.

☒Install street striping as required by the City Engineer. ***TO BE DETERMINED AT CIVIL PLAN REVIEW.***

☒Install sidewalk: ***5-6'*** ft. wide, with ***5'*** ft. wide parkway on ***CLANCY, AND LOCALS***

☒Cluster mailbox supports required at 1 per 2 lots, or use postal unit (contact the Postmaster at 732-8073).

☐Subject to existing Reimbursement Agreement to reimburse prior developer:

☒Abandon existing wells per City of Visalia Code. A building permit is required.

☒Remove existing irrigation lines & dispose off-site. ☒Remove existing leach fields and septic tanks.

☒ Fugitive dust will be controlled in accordance with the applicable rules of San Joaquin Valley Air District's Regulation VIII. Copies of any required permits will be provided to the City.

☒ If the project requires discretionary approval from the City, it may be subject to the San Joaquin Valley Air District's Rule 9510 Indirect Source Review per the rule's applicability criteria. A copy of the approved AIA application will be provided to the City.

☒If the project meets the one acre of disturbance criteria of the State's Storm Water Program, then coverage under General Permit Order 2009-0009-DWQ is required and a Storm Water Pollution Prevention Plan (SWPPP) is needed. A copy of the approved permit and the SWPPP will be provided to the City.

☒Comply with prior comments ☐Resubmit with additional information ☒Redesign required

Additional Comments:

1. Proposed subdivision will incur development impact fees.

2. Site plan submittal included two additional sheets that appear to be from a previous submittal, both are titled "Vesting". It is City staff's assumption this was in error and that the two newest revised sheets, for the parcel map and subdivision map that are not labeled "Vesting", are the intended site plan items and comments provided herein are directed towards those sheets only.

3. Road 88 (Clancy) is identified as a collector street and shall be improved to City 84' collector design standards. Provide typical subdivision frontage design w/ a landscape lot and block wall. Cross section appears adequate providing for a 5' parkway, 6' sidewalk, and 10' landscape lot to block wall. City Engineer may elect to defer center median improvements. Improvements to be completed with Phase 1.

4. Interior street cross section is shown to comply with City local street design standards.

5. Additional coordination with City Engineer is required for sanitary sewer and storm drainage design and main extensions. Project will be required to extend all utilities across parcel frontages, including any master planned mainlines. The City is currently updating its Storm and Sewer Master Plans, project requirements are subject to change. Clancy storm drain master plan alignment indicates a 24" storm drain per the City's master plan, additional extension may be required - to be determined.

6. In the interim, a temporary storm drainage basin will be required to be installed to store project run-off until said time that the City's master trunk line and regional basin for the area are constructed. Project to install necessary infrastructure for future connection to storm trunk main and abandonment of temp basin. Tentative map indicates the area and size of the required temp basin. City requires non-buildable easements over the lots affected and that the maintenance and future abandonment are responsibility of the Subdivider. As the temp basin can remain for a number of years until City regional infrastructure is installed, the street frontages of the basin will need to be constructed as part of Phase 2 completion. Per City basin and local street standards, improvements shall include, but may not be limited to, a 5' parkway (landscaped with street trees), 5' sidewalk, curb ramps, and street lighting. The parkway service and maintenance will be responsibility of the developer along basin frontage. Include with tentative subdivision map layout a cross section of the basin, including the adjacent roadways, indicating required level of improvements.

7. Subdivision proposes a vast amount of open landscaped space. This will have an adverse effect on the Landscape and Lighting District maintenance costs borne solely on the residents. It is recommended the subdivider analyze the estimated district annual assessments to disclose to future residents of the high cost per year assessed with their annual property taxes.

8. A master sewer and storm drain plan will be required with subdivisions initial phase.

9. Additional street improvements will be necessary north on Clancy St. to provide means of traffic circulation and emergency access. Per City records, there appears to be adequate street right-of-way width to provide two-lanes of travel, north of the subdivision. Subdivider will be required to install additional pavement and transitions to existing roadway north on Clancy (extent of pavement to the north to be determined by City Engineer based on existing pavement conditions). Improvements shall be installed with Phase 1.

10. Subdivision to install street lighting per City collector and local street stds. Provide electrical design plan with voltage drop calculations with civil submittal. A service meter pedestal will be required to be installed.

11. Submit landscape improvement plan with civil submittal. Landscape plan to comply with MWELO regulations.

12. The block wall along Clancy shall wrap around the corner lots (1 & 200) with a 5 ft wide out lot. An easement for this area which will not be supported. The 5-foot shall be incorporated into the designated outlot(s).

13. A block wall is required along northside of Outlot C however the existing SCE easement will be a potential conflict. Applicant is to coordinate with SCE for blockwall placement and approval or relocate/underground overhead if required by SCE. Site plan provides a cross section of this area of the Iron Ridge property line (block wall), easement, and the "hiatus" property. The section appears adequate, if acceptabe by SCE, however by design the hiatus area is shown to be "not a part" of the subdivision. Additional legal instruments may be necessary or required by City Surveyor as part of final map acceptance to record.

14. Proposed design of the street abutting south property line (Bernard Ave), with respect to the SCE easement and utility poles, will require that the power poles be undergrounded per typical development standards. Additionally, the required landscaped parkway & street trees along this road will not be maintained by any of the adjacent residents and therefore will be required to be incorporated into the LLD. Further coordinate with SCE for underground design plan. It is anticipated SCE will install within typical PUE dedications on the map. As shown, the existing SCE easement along south side of Bernard Ave is located within future City right-of-way. This easement will need to be abandoned as part of underground design. SCE facilities are typically installed outside the right-of-way within dedicated PUE. The south side of Bernard Ave does not provide for an additional 6-foot PUE therefore SCE will need to reroute onsite. Coordinate with City Engineer.

15. The curb return ramps at local street connection to Clancy shall comply with City 30' radius return standards.

16. Tentative parcel map shall conform to the underlying subdivision layout and is subject to change given the provided comments/requirements herein.

17. Overhead utilities at north of project will need to be relocated or undergrounded at Clancy and Shirk intersections. Project is required to widen both collector and arterial roads and although the overhead may be able to remain in-place along the landscape outlot C, any poles in conflict with road widening and right-of-way will need to be addressed accordingly. To be further determined by City Engineer at time of civil design.

18. Traffic Dept. requires raised intersections, as a form of "traffic calming" measures, where traffic high speed factors are identified as a potential hazards . An acceptable raised intersection design will need to be further coordinated with Public Works/ City Engineer at time of civil review.

SUMMARY OF APPLICABLE DEVELOPMENT IMPACT FEES

Site Plan No: **21-229 3rd RESUBMITTAL**
Date: **3/16/2022**

Summary of applicable Development Impact Fees to be collected at the time of final/parcel map recordation:

(Preliminary estimate only! Final fees will be based on approved subdivision map & improvements plans and the fee schedule in effect at the time of recordation.)

(Fee Schedule Date:**1/1/2022**)
(Project type for fee rates:**TSM**)

☐ Existing uses may qualify for credits on Development Impact Fees.

FEE ITEM	FEE RATE
☒ Trunk Line Capacity Fee	**$836/UNIT**
☒ Sewer Front Foot Fee	**$46/LF X (TBD)**
☒ Storm Drainage Acquisition Fee	**$3,321/AC**
☒ Park Acquisition Fee	**$1,645/UNIT**
☐ Northeast Acquisition Fee Total Storm Drainage Block Walls Parkway Landscaping Bike Paths	
☒ Waterways Acquisition Fee	**$2,711/AC**

Additional Development Impact Fees will be collected at the time of issuance of building permits.

City Reimbursement:

1.) No reimbursement shall be made except as provided in a written reimbursement agreement between the City and the developer entered into prior to commencement of construction of the subject planned facilities.
2.) Reimbursement is available for the development of arterial/collector streets as shown in the City's Circulation Element and funded in the City's transportation impact fee program. The developer will be reimbursed for construction costs and right of way dedications as outlined in Municipal Code Section 16.44. Reimbursement unit costs will be subject to those unit costs utilized as the basis for the transportation impact fee.
3.) Reimbursement is available for the construction of storm drain trunk lines and sanitary sewer trunk lines shown in the City's Storm Water Master Plan and Sanitary Sewer System Master Plan. The developer will be reimbursed for construction costs associated with the installation of these trunk lines.

Adrian Rubalcaba

SITE PLAN REVIEW COMMENTS

CITY OF VISALIA TRAFFIC SAFETY DIVISION

March 16, 2022

ITEM NO: 1	Resubmit
SITE PLAN NO:	SPR21229
PROJECT TITLE:	Iron Ridge II
DESCRIPTION:	To Develop a 199 Lot Subdivision (R-1-20 / X)
APPLICANT:	Ernie Escobedo
OWNER:	ROAD 88 LLC
APN:	081030036
LOCATION:	Between Shirk Road and Road88, South of W. Goshen Ave

THE TRAFFIC DIVISION WILL PROHIBIT ON-STREET PARKING AS DEEMED NECESSARY

☐ No Comments

☒ See Previous Site Plan Comments

☒ Install Street Light(s) per City Standards at time of development.

☒ Install Street Name Blades at ***intersection*** Locations.

☒ Install Stop Signs on ***local roads that intersect an arterial/collector status roadway*** at time of development.

☐ Construct parking per City Standards PK-1 through PK-4.

☒ Construct drive approach per City Standards at time of development.

☒ Traffic Impact Analysis required (CUP)

- ☐ Provide more traffic information such as . Depending on development size, characteristics, etc., a TIA may be required.

☐ Additional traffic information required (Non Discretionary)

- ☐ Trip Generation - Provide documentation as to concurrence with General Plan.
- ☐ Site Specific - Evaluate access points and provide documentation of conformance with COV standards. If noncomplying, provide explanation.
- ☐ Traffic Impact Fee (TIF) Program - Identify improvments needed in concurrence with TIF.

Additional Comments:

- VMT Analysis may be required.
- Intersection of Helen Ave and Sauver to be designed as a raised intersection. Drainage needs to be addressed.
- TIA to address site circulation.

Leslie Blair

Leslie Blair

21-229RRR

- Future median access restrictions on Road 88 and Shirk Ave. TIA to address site access locations off of Road 88 (Clancey) and Shirk Road for overall development.
- Streetnames required to be submitted for review and approval.
- Questions, contact Traffic Engineering 559-713-4633.

Leslie Blair

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 1
Site Plan: SPR21229
Name: Henry Martinez

Site Plan Review Comments

☐ No Comment at this time.

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001.

☐ Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:

☐ Territorial Reinforcement: Define property lines (private/public space).

☐ Access Controlled/ Restricted etc.

☑ lighting Concerns:
Ample street lighting to deter property crimes.

☐ Traffic Concerns:

☐ Surveillance Issues:

☑ Line of Sight Issues:
Low Shrubs to deter transients from setting up camps.

☑ Other Concerns:
Provide basin access point for PD and EMS until phase 3 is completed.

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 2
Site Plan: SPR22021
Name: Henry Martinez

Site Plan Review Comments

- [x] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
  Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
  Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [ ] lighting Concerns:
- [ ] Traffic Concerns:
- [ ] Surveillance Issues:
- [ ] Line of Sight Issues:
- [ ] Other Concerns:

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 3
Site Plan: SPR22023
Name: Henry Martinez

Site Plan Review Comments

☑ No Comment at this time.

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001.

☐ Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:
____

☐ Territorial Reinforcement: Define property lines (private/public space).
____

☐ Access Controlled/ Restricted etc.
____

☐ lighting Concerns:
____

☐ Traffic Concerns:
____

☐ Surveillance Issues:
____

☐ Line of Sight Issues:
____

☐ Other Concerns:
____

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 4
Site Plan: SPR22024
Name: Henry Martinez

Site Plan Review Comments

- [x] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [ ] lighting Concerns:
- [ ] Traffic Concerns:
- [ ] Surveillance Issues:
- [ ] Line of Sight Issues:
- [ ] Other Concerns:

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 5
Site Plan: SPR22047
Name: Henry Martinez

Site Plan Review Comments

- [ ] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
  Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
  Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [x] lighting Concerns:
  Ample exterior lighting to deter property crimes.
- [ ] Traffic Concerns:
- [x] Surveillance Issues:
  Requesting surveillance cameras outdoor, indoor, and at the shooting lanes.
- [x] Line of Sight Issues:
  Low Shrubs to deter transients from setting up camp.
- [x] Other Concerns:
  Concerns with transients setting camps in trash enclosure.

California Department of Transportation

DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE | P.O. BOX 12616 | FRESNO, CA 93778-2616
(559) 981-1041 | FAX (559) 488-4195 | TTY 711
www.dot.ca.gov

May 18, 2022

TUL-198-5.675
TIS (4)
SPR 21-017 IRON RIDGE SUBDIVISION #1
SPR 21-229 IRON RIDGE SUBDIVISION #2
GTS: 33643

SENT VIA EMAIL

Mr. Brandon Smith, Principal Planner
City of Visalia
Community Development Department
315 East Acequia Avenue
Visalia, CA 93291

Dear Mr. Smith:

Caltrans has completed review of the Transportation Impact Statement (TIS) for the Iron Ridge Subdivision #1 & #2 (Project). The Project proposes to develop a total of 238 single family dwelling units on approximately 50 acres. The project site is situated between Road 88 and Shirk Road (Road 92), approximately 0.7 miles north of the State Rote (SR) 198/Shirk Avenue interchange in the City of Visalia in Tulare County.

Caltrans provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

Transportation Impact Study:

1. On page 13, paragraph 2.4.2 - Queuing Analysis, The TIS states "Queuing analysis was completed… TIA, dated March 2021": Please clarify if the queue lengths on Table 2-2 are calculated by Synchro model or by the City of Visalia's method?

2. Please clarify if the queue length listed on Table 2-2 is from the 95% queue in Synchro.

3. Please be advised that Caltrans has its own method of calculating demand for turn lanes on the State Highway System which is shown in Index 405.2 of the Highway Design Manual (HDM).

4. On page 32, paragraph 3.8.2 - Queuing Analysis: Can potential mitigation be

identified in the TIS for a turning lane which has a queue demand that exceeds the existing storage?

5. On page 35, paragraph 4.1.1 - Intersections, for the SR 198 westbound (WB) ramp at Shirk Street, the existing southbound right-turn to the on-ramp appears very short (flared right turn pocket): Please clarify if the TIS indicates a need to extend this right-turn pocket to accommodate the demand?

6. On page 35, paragraph 4.1.1 – Intersections, for the SR 198 westbound (WB) ramp at Shirk Street, under the 2nd bullet point: change "Widen the eastbound approach to 1 left turn lane, ….", to "Widen the westbound approach to ….".

7. Additionally, this 2nd bullet point does not match the proposed sketch on Figure 4-1 (page 37) for the WB ramp. Figure 4-1 shows the WB ramp is widened to a dual right-turn lane.

8. Please provide the Synchro files or Synchro outputs/printouts that includes 95% queue lengths at the ramp intersections as well as intersection of Shirk Street and Hillsdale Avenue for all runs scenarios.

Subdivision:

9. Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the project and related development in this area of the City or County. The assessment should include the following:

   a. Pedestrian walkways should link this proposal to an internal project area walkway, transit facilities, as well as other walkways in the surrounding area.

   b. The Project might also consider coordinating connections to local and regional bicycle pathways to further encourage the use of bicycles for commuter and recreational purposes.

   c. If transit is not available within ¼-mile of the site, transit should be extended to provide services to what will be a high activity center.

10. Caltrans recommends the Project implement "smart growth" principles regarding parking solutions, providing alternative transportation choices to residents and employees. Alternative transportation choices may include but are not limited to parking for carpools/vanpools, car-share and/or ride-share programs.

11. Active Transportation Plans and Smart Growth efforts support the state's 2050 Climate goals. Caltrans supports reducing Vehicle Miles Traveled (VMT) and Green House Gas (GHG) emissions in ways that increase the likelihood people will use and benefit from a multimodal transportation network.

12. Based on Caltrans VMT-Focused Transportation Impact Study Guide, dated May 20, 2020, and effective as of July 1, 2020, Caltrans seeks to reduce single occupancy vehicle trips, provide a safe transportation system, reduce per capita Vehicle Miles Traveled (VMT), increase accessibility to destinations via cycling, walking, carpooling, transit and reduce greenhouse gas (GHG) emissions. Caltrans recommends that the project proponent continue to work with the City or County to further implement improvements to reduce vehicles miles traveled and offer a variety of transportation modes for its employees.

If you have any other questions, please call **David Deel,** Associate Transportation Planner at (559) 981-1041.

Sincerely,

Lorena Mendibles

Ms. Lorena Mandibles, Branch Chief,
Transportation Planning – South

SUBDIVISION & PARCEL MAP REQUIREMENTS
ENGINEERING DIVISION

☐**Ather Razaq**	**713-4268**
☒**Adrian Rubalcaba**	**713-4271**

ITEM NO: 1 **DATE:** MARCH 16, 2022

SITE PLAN NO.:	**21-229 3RD RESUBMITTAL**
PROJECT TITLE:	**IRON RIDGE II**
DESCRIPTION:	**TO DEVELOP A 199 LOT RESIDENTIAL SUBDIVISION (R-1-20 / X)**
APPLICANT:	**ERNIE ESCOBEDO**
PROP. OWNER:	**ROAD 88 LLC**
LOCATION:	**SOUTH EAST OF CLANCY AND GOSHEN**
APN:	**081-030-036**

SITE PLAN REVIEW COMMENTS

☒REQUIREMENTS (Indicated by checked boxes)

☒Submit improvements plans detailing all proposed work; ☒Subdivision Agreement will detail fees & bonding requirements

☒Bonds, certificate of insurance, cash payment of fees/inspection, and approved map & plan required prior to approval of Final Map.

☒The Final Map & Improvements shall conform to the Subdivision Map Act, the City's Subdivision Ordinance and Standard Improvements.

☒A preconstruction conference is required prior to the start of any construction.

☒Right-of-way dedication required. A title report is required for verification of ownership. ☒by map ☐by deed ***CLANCY AND LOCAL STREETS***

☒City Encroachment Permit Required which shall include an approved traffic control plan.

☐CalTrans Encroachment Permit Required. ☐CalTrans comments required prior to tentative parcel map approval. CalTrans contacts: David Deel (Planning) 488-4088

☒Landscape & Lighting District/Home Owners Association required prior to approval of Final Map. Landscape & Lighting District will maintain common area landscaping, street lights, street trees and local streets as applicable. Submit completed Landscape and Lighting District application and filing fee a min. of 75 days before approval of Final Map. ***LLD TO BE FORMED. SEE ADDL COMMENTS.***

☒Landscape & irrigation improvement plans to be submitted for each phase. Landscape plans will need to comply with the City's street tree ordinance. The locations of street trees near intersections will need to comply with Plate SD-1 of the City improvement standards. A street tree and landscape master plan for all phases of the subdivision will need to be submitted with the initial phase to assist City staff in the formation of the landscape and lighting assessment district.

☒Dedicate landscape lots to the City that are to be maintained by the Landscape & Lighting District.

☐Northeast Specific Plan Area: Application for annexation into Northeast District required 75 days prior to Final Map approval.

☐Written comments required from ditch company. Contacts: James Silva 747-1177 for Modoc, Persian, Watson, Oakes, Flemming, Evans Ditch and Peoples Ditches; Paul Hendrix 686-3425 for Tulare Irrigation Canal, Packwood and Cameron Creeks; Bruce George 747-5601 for Mill Creek and St. John's River.

☐Final Map & Improvements shall conform to the City's Waterways Policy. ☐Access required on ditch bank, 12' minimum. ☐Provide wide riparian dedication from top of bank.

☒Sanitary Sewer master plan for the entire development shall be submitted for approval prior to approval of any portion of the system. The sewer system will need to be extended to the boundaries of the development where future connection and extension is anticipated. The sewer system will need to be sized to serve any future developments that are anticipated to connect to the system.

☒Grading & Drainage plan required. If the project is phased, then a master plan is required for the entire project area that shall include pipe network sizing and grades and street grades. ☒ Prepared by registered civil engineer or project architect. ☒ All elevations shall be based on the City's benchmark network. Storm run-off from the project shall be handled as follows: a) ☐ directed to the City's existing storm drainage system; b) ☐ directed to a permanent on-site basin; or c) ☒ directed to a temporary on-site basin is required until a connection with adequate capacity is available to the City's storm drainage system. On-site basin:

: maximum side slopes, perimeter fencing required, provide access ramp to bottom for maintenance. ***SEE ADDITIONAL COMMENTS.***

☒Show Valley Oak trees with drip lines and adjacent grade elevations. ☐ Protect Valley Oak trees during construction in accordance with City requirements. ☒A permit is required to remove Valley Oak trees. Contact Public Works Admin at (559)713-4428 for a Valley Oak tree evaluation or permit to remove. ☒ Valley Oak tree evaluations by a certified arborist are required to be submitted to the City in conjunction with the tentative map application. ☒ A pre-construction conference is required.

☒Show adjacent property grade elevations on improvement plans. A retaining wall will be required for grade differences greater than 0.5 feet at the property line.

☒Relocate existing utility poles and/or facilities. ***REQUIRED W/ DEVELOPMENT***

☒Underground all existing overhead utilities within the project limits. Existing overhead electrical lines over 50kV shall be exempt from undergrounding. ***REQUIRED W/ DEVELOPMENT***

☒Provide "R" value tests: ***1*** each at ***300' INTERVALS***

☒Traffic indexes per city standards: ***REFER TO CITY PAVEMENT STANDARDS***

☒All public streets within the project limits and across the project frontage shall be improved to their full width, subject to available right of way, in accordance with City policies, standards and specifications. ***CLANCY, SEE ADDITIONAL COMMENTS***

☒All lots shall have separate drive approaches constructed to City Standards.

☒Install street striping as required by the City Engineer. ***TO BE DETERMINED AT CIVIL PLAN REVIEW.***

☒Install sidewalk: ***5-6'*** ft. wide, with ***5'*** ft. wide parkway on ***CLANCY, AND LOCALS***

☒Cluster mailbox supports required at 1 per 2 lots, or use postal unit (contact the Postmaster at 732-8073).

☐Subject to existing Reimbursement Agreement to reimburse prior developer:

☒Abandon existing wells per City of Visalia Code. A building permit is required.

☒Remove existing irrigation lines & dispose off-site. ☒Remove existing leach fields and septic tanks.

☒ Fugitive dust will be controlled in accordance with the applicable rules of San Joaquin Valley Air District's Regulation VIII. Copies of any required permits will be provided to the City.

☒ If the project requires discretionary approval from the City, it may be subject to the San Joaquin Valley Air District's Rule 9510 Indirect Source Review per the rule's applicability criteria. A copy of the approved AIA application will be provided to the City.

☒If the project meets the one acre of disturbance criteria of the State's Storm Water Program, then coverage under General Permit Order 2009-0009-DWQ is required and a Storm Water Pollution Prevention Plan (SWPPP) is needed. A copy of the approved permit and the SWPPP will be provided to the City.

☒Comply with prior comments ☐Resubmit with additional information ☒Redesign required

<u>Additional Comments:</u>

1. Proposed subdivision will incur development impact fees.

2. Site plan submittal included two additional sheets that appear to be from a previous submittal, both are titled "Vesting". It is City staff's assumption this was in error and that the two newest revised sheets, for the parcel map and subdivision map that are not labeled "Vesting", are the intended site plan items and comments provided herein are directed towards those sheets only.

3. Road 88 (Clancy) is identified as a collector street and shall be improved to City 84' collector design standards. Provide typical subdivision frontage design w/ a landscape lot and block wall. Cross section appears adequate providing for a 5' parkway, 6' sidewalk, and 10' landscape lot to block wall. City Engineer may elect to defer center median improvements. Improvements to be completed with Phase 1.

4. Interior street cross section is shown to comply with City local street design standards.

5. Additional coordination with City Engineer is required for sanitary sewer and storm drainage design and main extensions. Project will be required to extend all utilities across parcel frontages, including any master planned mainlines. The City is currently updating its Storm and Sewer Master Plans, project requirements are subject to change. Clancy storm drain master plan alignment indicates a 24" storm drain per the City's master plan, additional extension may be required - to be determined.

6. In the interim, a temporary storm drainage basin will be required to be installed to store project run-off until said time that the City's master trunk line and regional basin for the area are constructed. Project to install necessary infrastructure for future connection to storm trunk main and abandonment of temp basin. Tentative map indicates the area and size of the required temp basin. City requires non-buildable easements over the lots affected and that the maintenance and future abandonment are responsibility of the Subdivider. As the temp basin can remain for a number of years until City regional infrastructure is installed, the street frontages of the basin will need to be constructed as part of Phase 2 completion. Per City basin and local street standards, improvements shall include, but may not be limited to, a 5' parkway (landscaped with street trees), 5' sidewalk, curb ramps, and street lighting. The parkway service and maintenance will be responsibility of the developer along basin frontage. Include with tentative subdivision map layout a cross section of the basin, including the adjacent roadways, indicating required level of improvements.

7. Subdivision proposes a vast amount of open landscaped space. This will have an adverse effect on the Landscape and Lighting District maintenance costs borne solely on the residents. It is recommended the subdivider analyze the estimated district annual assessments to disclose to future residents of the high cost per year assessed with their annual property taxes.

8. A master sewer and storm drain plan will be required with subdivisions initial phase.

9. Additional street improvements will be necessary north on Clancy St. to provide means of traffic circulation and emergency access. Per City records, there appears to be adequate street right-of-way width to provide two-lanes of travel, north of the subdivision. Subdivider will be required to install additional pavement and transitions to existing roadway north on Clancy (extent of pavement to the north to be determined by City Engineer based on existing pavement conditions). Improvements shall be installed with Phase 1.

10. Subdivision to install street lighting per City collector and local street stds. Provide electrical design plan with voltage drop calculations with civil submittal. A service meter pedestal will be required to be installed.

11. Submit landscape improvement plan with civil submittal. Landscape plan to comply with MWELO regulations.

12. The block wall along Clancy shall wrap around the corner lots (1 & 200) with a 5 ft wide out lot. An easement for this area which will not be supported. The 5-foot shall be incorporated into the designated outlot(s).

13. A block wall is required along northside of Outlot C however the existing SCE easement will be a potential conflict. Applicant is to coordinate with SCE for blockwall placement and approval or relocate/underground overhead if required by SCE. Site plan provides a cross section of this area of the Iron Ridge property line (block wall), easement, and the "hiatus" property. The section appears adequate, if acceptabe by SCE, however by design the hiatus area is shown to be "not a part" of the subdivision. Additional legal instruments may be necessary or required by City Surveyor as part of final map acceptance to record.

14. Proposed design of the street abutting south property line (Bernard Ave), with respect to the SCE easement and utility poles, will require that the power poles be undergrounded per typical development standards. Additionally, the required landscaped parkway & street trees along this road will not be maintained by any of the adjacent residents and therefore will be required to be incorporated into the LLD. Further coordinate with SCE for underground design plan. It is anticipated SCE will install within typical PUE dedications on the map. As shown, the existing SCE easement along south side of Bernard Ave is located within future City right-of-way. This easement will need to be abandoned as part of underground design. SCE facilities are typically installed outside the right-of-way within dedicated PUE. The south side of Bernard Ave does not provide for an additional 6-foot PUE therefore SCE will need to reroute onsite. Coordinate with City Engineer.

15. The curb return ramps at local street connection to Clancy shall comply with City 30' radius return standards.

16. Tentative parcel map shall conform to the underlying subdivision layout and is subject to change given the provided comments/requirements herein.

17. Overhead utilities at north of project will need to be relocated or undergrounded at Clancy and Shirk intersections. Project is required to widen both collector and arterial roads and although the overhead may be able to remain in-place along the landscape outlot C, any poles in conflict with road widening and right-of-way will need to be addressed accordingly. To be further determined by City Engineer at time of civil design.

18. Traffic Dept. requires raised intersections, as a form of "traffic calming" measures, where traffic high speed factors are identified as a potential hazards . An acceptable raised intersection design will need to be further coordinated with Public Works/ City Engineer at time of civil review.

SUMMARY OF APPLICABLE DEVELOPMENT IMPACT FEES

Site Plan No: **21-229 3rd RESUBMITTAL**
Date: **3/16/2022**

Summary of applicable Development Impact Fees to be collected at the time of final/parcel map recordation:

(Preliminary estimate only! Final fees will be based on approved subdivision map & improvements plans and the fee schedule in effect at the time of recordation.)

(Fee Schedule Date:**1/1/2022**)
(Project type for fee rates:**TSM**)

☐ Existing uses may qualify for credits on Development Impact Fees.

FEE ITEM	FEE RATE
☒ Trunk Line Capacity Fee	**$836/UNIT**
☒ Sewer Front Foot Fee	**$46/LF X (TBD)**
☒ Storm Drainage Acquisition Fee	**$3,321/AC**
☒ Park Acquisition Fee	**$1,645/UNIT**
☐ Northeast Acquisition Fee Total Storm Drainage Block Walls Parkway Landscaping Bike Paths	
☒ Waterways Acquisition Fee	**$2,711/AC**

Additional Development Impact Fees will be collected at the time of issuance of building permits.

City Reimbursement:

1.) No reimbursement shall be made except as provided in a written reimbursement agreement between the City and the developer entered into prior to commencement of construction of the subject planned facilities.
2.) Reimbursement is available for the development of arterial/collector streets as shown in the City's Circulation Element and funded in the City's transportation impact fee program. The developer will be reimbursed for construction costs and right of way dedications as outlined in Municipal Code Section 16.44. Reimbursement unit costs will be subject to those unit costs utilized as the basis for the transportation impact fee.
3.) Reimbursement is available for the construction of storm drain trunk lines and sanitary sewer trunk lines shown in the City's Storm Water Master Plan and Sanitary Sewer System Master Plan. The developer will be reimbursed for construction costs associated with the installation of these trunk lines.

Adrian Rubalcaba

SITE PLAN REVIEW COMMENTS

Rafael Garcia, Planning Division (559) 713-4031
Date: March 16, 2022

SITE PLAN NO:	2021-229-D
PROJECT:	Iron Ridge II
DESCRIPTION:	TO DEVELOP 199 LOT RESIDENTIAL SUDIVISION
APPLICANT:	ERNIE ESCOBEDO
PROP. OWNER:	ROAD 88 LLC
LOCATION:	BETWEEN SHIRK AND ROAD 88, SOUTH OF GOSHEN
APN:	081-030-036
GENERAL PLAN:	RVLD (Residential Very Low Density) RLD (Residential Low Density)
ZONING:	X – outside of the city limits

Planning Division Recommendation:

☒ Revise and Proceed
☐ Resubmit

Reference Previous Comments from Site Plan Review No. 2021-017

Project Requirements

- Tentative Subdivision Map
- General Plan Amendment (to eliminate RVLD designation)
- Change of Zone
- Traffic Impact/Vehicle Miles Traveled Analysis
- Noise Study
- Cultural Resources Study
- Project is subject to Air District Rule 9510
- Initial Study / Mitigated Negative Declaration
- Tribal Consultation under AB 52
- Additional Information as Needed

PROJECT SPECIFIC INFORMATION: March 16, 2022

1. Raised intersection required at Helen and Sauver Drive for traffic calming purposes.
2. The buffer along the north boundary (within the RVLD land use area) must be maintained. Residences shall not be allowed to encroach into said area.
3. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
4. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the <u>westerly</u> and <u>northern</u> site boundary.
7. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
9. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: February 23, 2022

1. The buffer along the north boundary (within the RVLD land use area) must be maintained. Residences shall not be allowed to encroach into said area.
2. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
3. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
4. **Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.**
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the westerly and northern site boundary.
7. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
9. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: February 2, 2022

1. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
2. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.
   c. Traffic Impact Analysis / VMT may be required.
3. Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.
4. Lot widths shall be a minimum of 50 feet for all interior lots.
5. A block wall with landscaping will be required along the westerly and northern site boundary.
6. A Noise Study shall be provided.
   a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
7. VTM shall comply with all requirements prescribed as part of VMC Chapter 16.20.
8. Meet all other Codes/ordinances and comply with previous comments.

PROJECT SPECIFIC INFORMATION: January 5, 2021

1. The proposal to develop a residential subdivision will require the applicant to file for the following:
   a. Annexation of the project site into the Visalia City Limits;
   b. Tentative Subdivision Map, including the following:
      i. Show entire project area in a separate exhibit.
      ii. Phasing Plan and operational statement.
      iii. Detailed site plan with lot dimensions and street cross sections
2. The proposal will require CEQA Initial Study and environmental determination (potentially a Negative Declaration).
   a. Tribal consultation as required by AB 52 shall be conducted for the project.
   b. Submittal of a Cultural Resource Study shall be required.

    c. Traffic Impact Analysis / VMT may be required.
3. The applicant shall provide a site plan that accurately depicts the boundary of the entire site area.
4. Lots not meeting the minimum of 5,000 square feet in area will not be supported by staff.
5. Lot widths shall be a minimum of 50 feet for all interior lots.
6. A block wall with landscaping will be required along the westerly and northern property frontage.
7. A Noise Study shall be provided.
    a. The applicant will be required to disclose to future homeowners that the project area will be bordered on two sides (North and West across Road 88) by industrial uses.
8. Meet all other Codes and Ordinances.

Notes:

1. **The applicant shall contact the San Joaquin Valley Air Pollution Control District to verify whether additional permits are required to conduct the proposed use.**

2. **Prior to completion of a final building inspection for a project, a signed MWELO Certificate of Compliance shall be submitted indicating that all landscaping has been installed to MWELO standards.**

Sections of the Municipal Code to review:

Title 16 Subdivisions

17.12 Single-Family Residential Zone

17.32.080 Maintenance of landscaped areas.

17.34 Off-street parking and loading facilities
17.34.020(A)(1) Single-family dwelling

17.36 Fences Walls and Hedges
17.36.030 Single-family residential zones

NOTE: Staff recommendations contained in this document are not to be considered support for a particular action or project unless otherwise stated in the comments. The comments found on this document pertain to the site plan submitted for review on the above referenced date. Any changes made to the plan submitted must be submitted for additional review.

Signature RG ____

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 1
Site Plan: SPR21229
Name: Henry Martinez

Site Plan Review Comments

☐ No Comment at this time.

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001.

☐ Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:

☐ Territorial Reinforcement: Define property lines (private/public space).

☐ Access Controlled/ Restricted etc.

☑ lighting Concerns:
Ample street lighting to deter property crimes.

☐ Traffic Concerns:

☐ Surveillance Issues:

☑ Line of Sight Issues:
Low Shrubs to deter transients from setting up camps.

☑ Other Concerns:
Provide basin access point for PD and EMS until phase 3 is completed.

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 2
Site Plan: SPR22021
Name: Henry Martinez

Site Plan Review Comments

- [x] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
  Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
  Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [ ] lighting Concerns:
- [ ] Traffic Concerns:
- [ ] Surveillance Issues:
- [ ] Line of Sight Issues:
- [ ] Other Concerns:

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 3
Site Plan: SPR22023
Name: Henry Martinez

Site Plan Review Comments

☑ No Comment at this time.

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact Fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001.

☐ Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:

☐ Territorial Reinforcement: Define property lines (private/public space).

☐ Access Controlled/ Restricted etc.

☐ lighting Concerns:

☐ Traffic Concerns:

☐ Surveillance Issues:

☐ Line of Sight Issues:

☐ Other Concerns:

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 4
Site Plan: SPR22024
Name: Henry Martinez

Site Plan Review Comments

- [x] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
  Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
  Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [ ] lighting Concerns:
- [ ] Traffic Concerns:
- [ ] Surveillance Issues:
- [ ] Line of Sight Issues:
- [ ] Other Concerns:

City of Visalia
Police Department
303 S. Johnson St.
Visalia, CA 93292
(559) 713-4370

Date: 03/15/2022
Item: 5
Site Plan: SPR22047
Name: Henry Martinez

Site Plan Review Comments

- [ ] No Comment at this time.
- [ ] Request opportunity to comment or make recommendations as to safety issues as plans are developed.
- [ ] Public Safety Impact Fee:
  Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
  Effective date - August 17, 2001.
- [ ] Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.
- [ ] Not enough information provided. Please provide additional information pertaining to:
- [ ] Territorial Reinforcement: Define property lines (private/public space).
- [ ] Access Controlled/ Restricted etc.
- [x] lighting Concerns:
  Ample exterior lighting to deter property crimes.
- [ ] Traffic Concerns:
- [x] Surveillance Issues:
  Requesting surveillance cameras outdoor, indoor, and at the shooting lanes.
- [x] Line of Sight Issues:
  Low Shrubs to deter transients from setting up camp.
- [x] Other Concerns:
  Concerns with transients setting camps in trash enclosure.

SITE PLAN REVIEW COMMENTS

CITY OF VISALIA TRAFFIC SAFETY DIVISION

March 16, 2022

ITEM NO: 1	**Resubmit**
SITE PLAN NO:	SPR21229
PROJECT TITLE:	Iron Ridge II
DESCRIPTION:	To Develop a 199 Lot Subdivision (R-1-20 / X)
APPLICANT:	Ernie Escobedo
OWNER:	ROAD 88 LLC
APN:	081030036
LOCATION:	Between Shirk Road and Road88, South of W. Goshen Ave

THE TRAFFIC DIVISION WILL PROHIBIT ON-STREET PARKING AS DEEMED NECESSARY

☐ No Comments

☒ See Previous Site Plan Comments

☒ Install Street Light(s) per City Standards at time of development.

☒ Install Street Name Blades at ***intersection*** Locations.

☒ Install Stop Signs on ***local roads that intersect an arterial/collector status roadway*** at time of development.

☐ Construct parking per City Standards PK-1 through PK-4.

☒ Construct drive approach per City Standards at time of development.

☒ Traffic Impact Analysis required (CUP)

- ☐ Provide more traffic information such as . Depending on development size, characteristics, etc., a TIA may be required.

☐ Additional traffic information required (Non Discretionary)

- ☐ Trip Generation - Provide documentation as to concurrence with General Plan.
- ☐ Site Specific - Evaluate access points and provide documentation of conformance with COV standards. If noncomplying, provide explanation.
- ☐ Traffic Impact Fee (TIF) Program - Identify improvments needed in concurrence with TIF.

Additional Comments:

- VMT Analysis may be required.
- Intersection of Helen Ave and Sauver to be designed as a raised intersection. Drainage needs to be addressed.
- TIA to address site circulation.

Leslie Blair

Leslie Blair

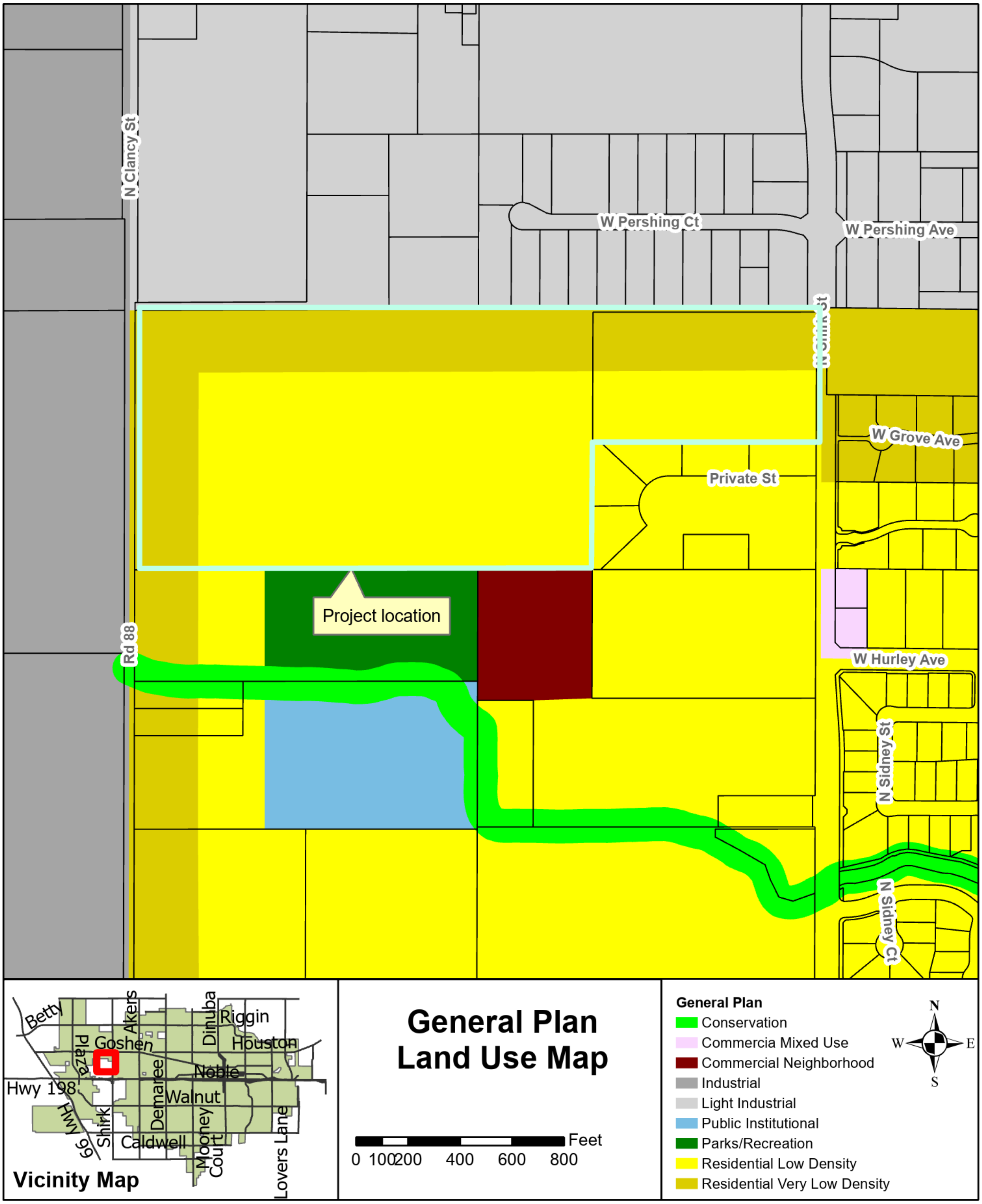
21-229RRR

- Future median access restrictions on Road 88 and Shirk Ave. TIA to address site access locations off of Road 88 (Clancey) and Shirk Road for overall development.
- Streetnames required to be submitted for review and approval.
- Questions, contact Traffic Engineering 559-713-4633.

Leslie Blair

General Plan Amendment No. 2021-03, Change of Zone No. 2021-04, Shepherds Ranch I Tentative Subdivision Map No. 5581, Shepherds Ranch II Tentative Subdivision Map No. 5589, Tentative Parcel Map No. 2022-03 and Annexation No. 2022-04

Location: The project site consists of two parcels located between Shirk Street and Road 88, 300 feet south of W. Pershing Court. (APN: 081-030-046, 080)



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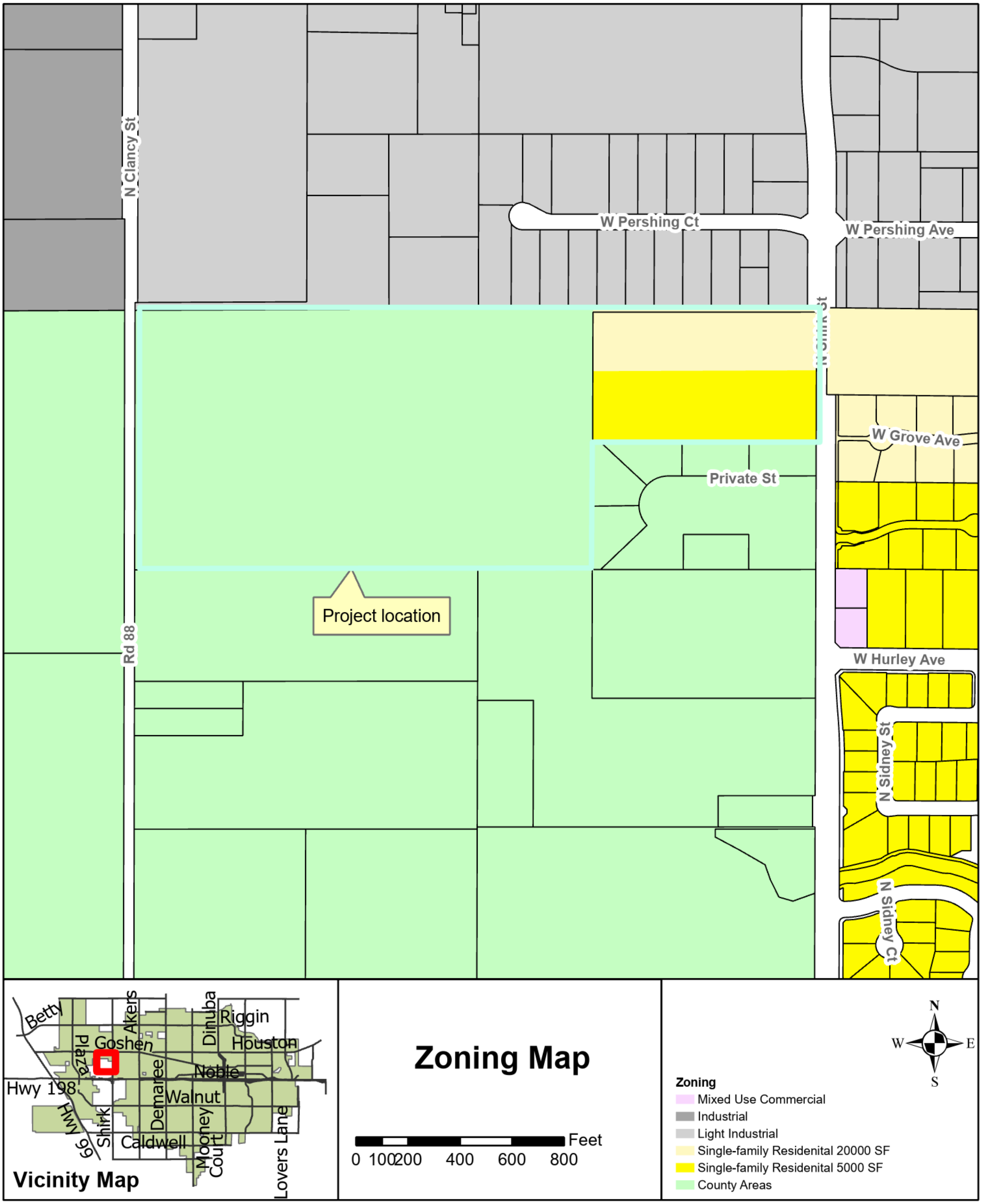

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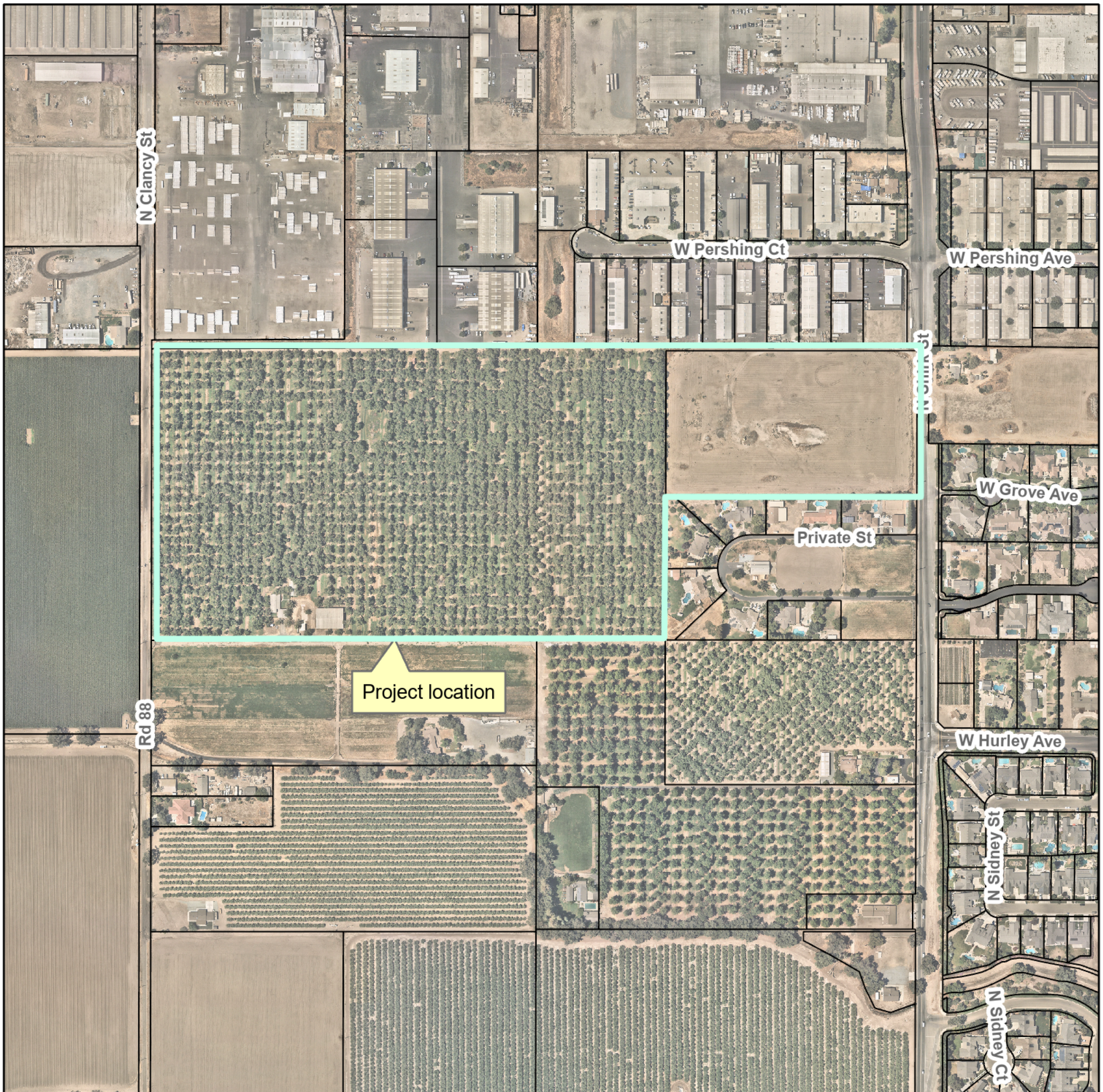
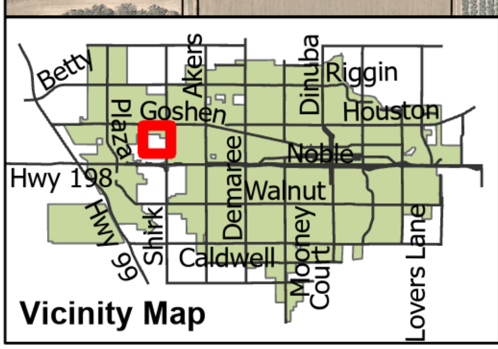
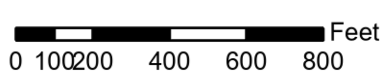
Location: The project site consists of two parcels located between Shirk Street and Road 88, 300 feet south of W. Pershing Court. (APN: 081-030-046, 080)





Aerial Photo, 2021



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