

# SUBSEQUENT DRAFT EIR APPENDICES (VOL. 2 OF 2)

Copper River Ranch Project  
SCH#2000021003

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## Biological Resource Evaluation

# Biological Resource Evaluation

## Copper River Ranch Residential Development Project

Fresno County, California



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# Executive Summary

The Assemi Group and the City of Fresno propose to rezone a 128.6-acre portion of the Copper River Ranch residential development to accommodate housing density changes in Fresno, Fresno County, California. This project will require an update to a California Environmental Quality Act (CEQA) document that was completed for the project in 2003 since the 128.6-acre site was not included in the initial review.

To evaluate whether the project may affect biological resources under CEQA purview, we (1) obtained official lists from the United States Fish and Wildlife Service, the California Department of Fish and Wildlife, and the California Native Plant Society of special-status species and designated and proposed critical habitat; (2) reviewed other relevant background information such as aerial images and topographic maps; and (3) conducted a field reconnaissance survey of the project site.

This biological resource evaluation summarizes (1) existing biological conditions on the project site, (2) the potential for special-status species and regulated habitats to occur on or near the project site, (3) the potential impacts of the proposed project on biological resources and regulated habitats, and (4) measures to reduce those potential impacts to less-than-significant levels under CEQA.

We concluded that the project could impact the state listed as threatened Swainson's hawk (*Buteo swainsoni*), the state species of special concern burrowing owl (*Athene cunicularia*), and nesting migratory birds. However, any impacts can be reduced to less-than-significant levels with mitigation. We also concluded that the project will have no effect on regulated habitats.

# Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
EFH	Essential Fish Habitat
FE	Federally listed as Endangered
FESA	Federal Endangered Species Act
FP	State Fully Protected
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Science
SCE	State Candidate for listing as Endangered
SE	State listed as Endangered
SSSC	State Species of Special Concern
ST	State listed as Threatened
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

# 1.0 Introduction

## 1.1 Background

The Assemi Group (project applicant) and the City of Fresno (City) propose to update an existing California Environmental Quality Act (CEQA) document for the Copper River Ranch residential development project (Project) in Fresno, Fresno County, California. An Environmental Impact Report was completed for the Project in 2003, and development has proceeded on portions of the Project site over the past 15 years. However, a 128.6-acre portion of the overall Project was not evaluated in the initial review. The Project applicant now wishes to rezone that land to accommodate housing density changes, and new laws enacted since 2003 have prompted the need to reevaluate the parcel.

The purpose of this biological resource evaluation is to assess whether the Project will affect state- or federally protected resources pursuant to CEQA guidelines. Such resources include species of plants or animals listed or proposed for listing under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), as well as those covered under the Migratory Bird Treaty Act (MBTA), the California Native Plant Protection Act, and various other sections of California Fish and Game Code. This biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW).

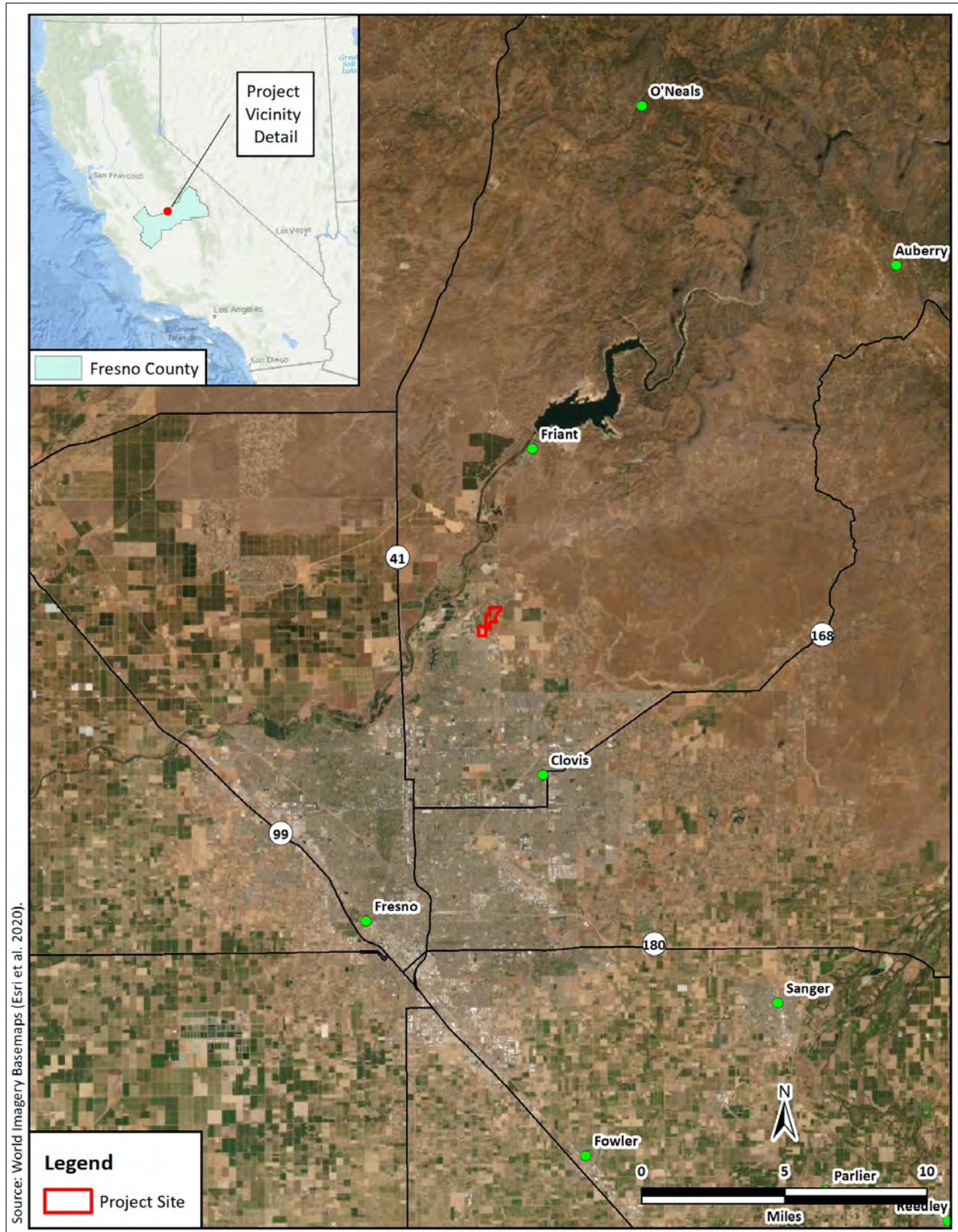
## 1.2 Project Description

This Project will involve rezoning a 128.6-acre area that is being developed for residential housing.

## 1.3 Project Location

The Project site is in northeastern Fresno, Fresno County, California (Figure 1). Specifically, it is west of Willow Avenue, north of Copper Avenue, and south of Silaxo Lane (Figure 2).





**Figure 1.** Project site vicinity map.





**Figure 2.** Project site map.

## 1.4 Purpose and Need of Proposed Project

The purpose of the Project is to update zoning plans for the 128.6-acre Project site. The Project is needed because the initial Environmental Impact Report did not address the 128.6-acre Project site.

## 1.5 Regulatory Framework

The relevant state and federal regulatory requirements and policies that guide the impact analysis of the Project are summarized below.

### 1.5.1 State Requirements

**California Endangered Species Act.** The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq., and California Code of Regulations [CCR] Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state listed species. During consultation, CDFW determines whether take would occur and identifies “reasonable and prudent alternatives” for the project and conservation of special-status species. CDFW can authorize take of state listed species under Sections 2080.1 and 2081(b) of the California Fish and Game Code in those cases where it is demonstrated that the impacts are minimized and mitigated. Take authorized under section 2081(b) must be minimized and fully mitigated. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Under CESA, CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (Fish and Game Code § 2070). CDFW also maintains lists of species of special concern, which serve as “watch lists.” Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern or fully protected species would be considered significant under certain circumstances.

**California Environmental Quality Act.** The California Environmental Quality Act (CEQA) of 1970 (Subsections 21000–21178) requires that CDFW be consulted during the CEQA review process regarding impacts of proposed projects on special-status species. Special-status species are defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under these criteria or by the scientific community. Therefore, species considered rare or endangered are addressed in this biological resource evaluation regardless of whether they are afforded protection through any other statute or regulation. The

California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity (CNPS 2020). Plants with Rare Plant Ranks 1A, 1B, 2A, or 2B are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare and endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the United States Fish and Wildlife Service or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

**California Native Plant Protection Act.** The California Native Plant Protection Act of 1977 (California Fish and Game Code §§ 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFW at least 10 days in advance of any change in land use, which allows CDFW to salvage listed plants that would otherwise be destroyed.

**Nesting birds.** California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are “Fully Protected” as those that may not be taken or possessed except under specific permit.

**California Department of Fish and Wildlife Jurisdiction.** The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream; substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Lake and Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code Section 1602.

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act (CWC § 13000 et. sec.) was established in 1969 and entrusts the State Water Resources Control Board and nine Regional Water Quality Control Boards (collectively Water Boards) with the responsibility to preserve and enhance all beneficial uses of California’s diverse waters. The Act grants the Water Boards authority to establish water quality objectives and regulate point- and nonpoint-source pollution discharge to the state’s surface and ground waters. Under the auspices of the United States Environmental Protection Agency, the Water Boards are responsible for certifying, under Section 401 of the federal Clean Water Act, that activities affecting waters of the United States comply California water quality standards. The Porter-Cologne Water Quality Control Act addresses all “waters of the State,” which are more broadly

defined than waters of the United States. Waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the state. They include artificial as well as natural water bodies and federally jurisdictional and federally non-jurisdictional waters. The Water Boards may issue a Waste Discharge Requirement permit for projects that will affect only federally non-jurisdictional waters of the State.

### 1.5.2 Federal Requirements

**Federal Endangered Species Act.** The United States Fish and Wildlife Service (USFWS) and the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) enforce the provisions stipulated in the Federal Endangered Species Act of 1973 (FESA, 16 USC § 1531 et seq.). Threatened and endangered species on the federal list (50 Code of Federal Regulations [CFR] 17.11 and 17.12) are protected from take unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present on the project site and determine whether the proposed project may affect such species. Under the FESA, habitat loss is an impact to a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA or result in the destruction or adverse modification of critical habitat proposed or designated for such species (16 United States Code [USC] § 1536[3], [4]). Therefore, project-related impacts to these species or their habitats would be considered significant and would require mitigation.

**Migratory Bird Treaty Act.** The federal Migratory Bird Treaty Act (MBTA) (16 USC § 703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young (16 USC § 703 and § 715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an "active nest." However, the "Migratory Bird Permit Memorandum" issued by the USFWS in 2003 and updated in 2018 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2018).

**United States Army Corps of Engineers Jurisdiction.** Areas meeting the regulatory definition of "waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters

used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States (33 CFR part 328.3). Ditches and drainage canals where water flows intermittently or ephemerally are not regulated as waters of the United States. Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.



## 2.0 Methods

### 2.1 Desktop Review

We obtained a USFWS species list for the Project as a framework for the evaluation and reconnaissance survey (USFWS 2020, Appendix A). In addition, we searched the California Natural Diversity Data Base (CNDDB 2020, Appendix B) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2020, Appendix C) for records of special-status plant and animal species from the vicinity of the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Friant 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site and the eight surrounding quads (Little Table Mtn, Millerton Lake West, Millerton Lake East, Lanes Bridge, Academy, Fresno North, Clovis, and Round Mountain). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies or public interest groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2020) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2020), and relevant literature.

### 2.2 Reconnaissance Survey

Colibri Senior Scientist Joshua Reece conducted field reconnaissance surveys of the Project site on 15 and 17 September 2020. Except where gates at residential communities precluded access, the Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the site to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of special-status raptors (Figure 3). The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (<https://www.wildlife.ca.gov/conservation/lisa>) and under the Porter-Cologne Water Quality Control Act. All plants except ornamentals and all animals (vertebrate wildlife species) observed in the survey area were identified and documented.

### 2.3 Significance Criteria

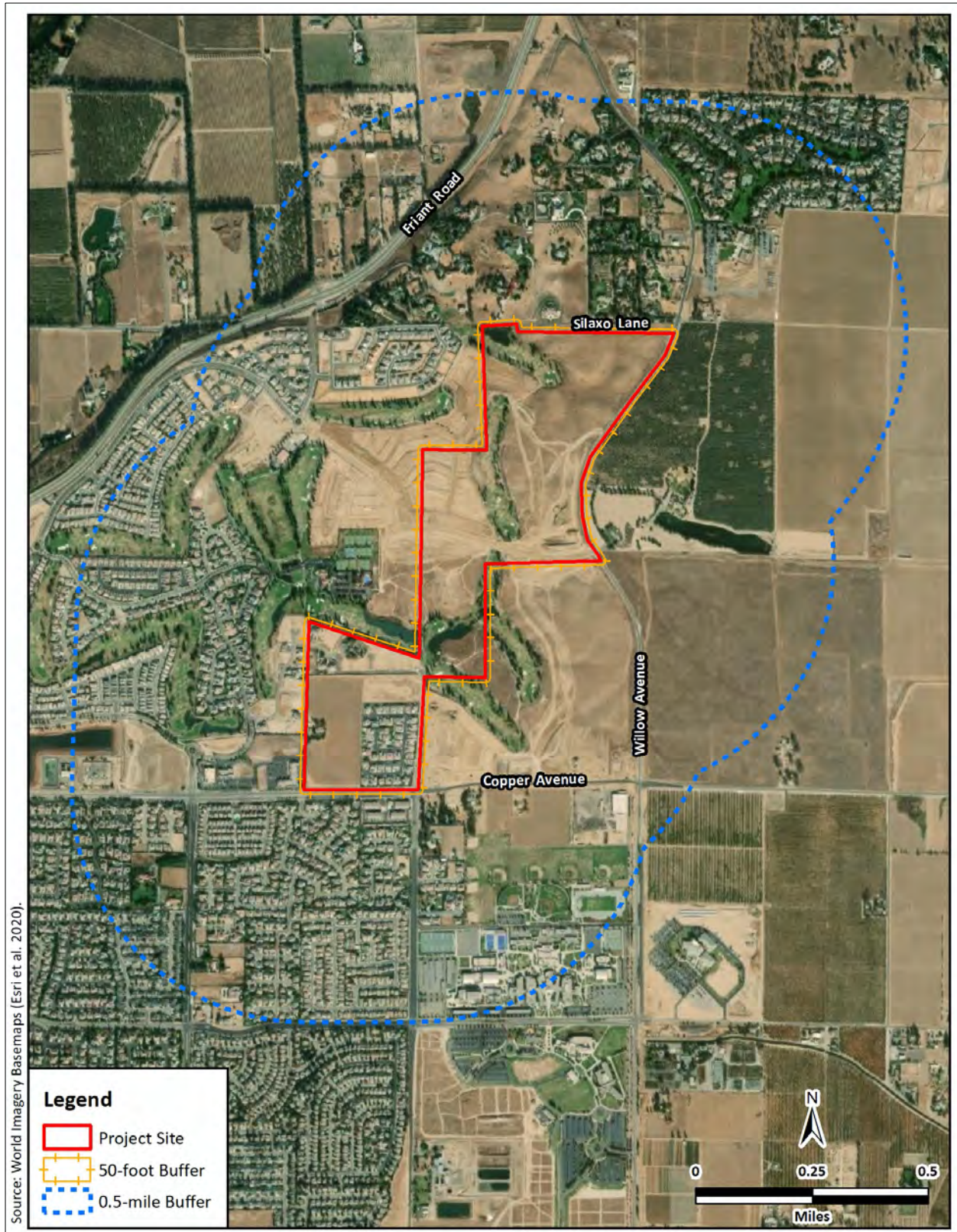
CEQA defines “significant effect on the environment” as “a substantial, or potentially substantial, adverse change in the environment” (Pub. Res. Code § 21068). Under CEQA Guidelines Section 15065, a Project's effects on biological resources are deemed significant where the Project would do the following:

- a) Substantially reduce the habitat of a fish or wildlife species,
- b) Cause a fish or wildlife population to drop below self-sustaining levels,
- c) Threaten to eliminate a plant or animal community, or
- d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

- e) 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 CDFW or USFWS;
- f) 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 CDFW or USFWS;
- g) 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;
- h) 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;
- i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- j) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.



**Figure 3.** Reconnaissance survey area map.



## 3.0 Results

### 3.1 Desktop Review

The USFWS species list for the Project included 12 species listed as threatened or endangered under the FESA (USFWS 2020, Table 1, Appendix A). None of those species could occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence (Table 1). As identified in the species list, the Project site does not occur in USFWS-designated or proposed Critical Habitat for any species (USFWS 2020, Appendix A).

Searching the CNDDDB for records of special-status species from within the Friant 7.5-minute USGS topographic quad and the eight surrounding quads produced 447 occurrence records of 59 species (Table 1, Appendix B). Of those 59 species, 15 were not considered further because state or federal regulatory agencies or public interest groups do not recognize them through special designation (Appendix B). Of the remaining 45 species, 27 are known from within 5 miles of the Project site (Table 1, Figure 4). Two special-status species, Swainson's hawk (*Buteo swainsoni*) and burrowing owl (*Athene cunicularia*), have a low potential to occur on or near the Project site. All other special-status species evaluated have no potential to occur due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, (3) their absence during the reconnaissance survey, or (4) a combination thereof.

Searching the CNPS inventory of rare and endangered plants of California yielded 18 species with a California Rare Plant Rank (CRPR) of 1B or 2B (CNPS 2020, Table 1, Appendix C). None of those species are expected to occur on or near the Project site due to the lack of habitat (Table 1). The combined list from all three sources in Table 1 includes a total of 50 species.

The Project site is underlain by a mix of San Joaquin sandy loam, 0–3% slopes; Montpellier coarse sandy loam, 15–30% slopes; Pollasky/Montpellier complex sandy loam, 9–30% slopes; and Cometa sandy loam, 3–9% slopes (NRCS 2020). The elevation of the Project site ranges from 367–394 feet above mean sea level (Google 2020).

**Table 1.** Special-status species, their listing status, habitats, and potential to occur on or near the Project site.

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
<b>Federally and State Listed Endangered or Threatened Species</b>			
Boggs Lake hedge-hyssop ( <i>Gratiola heterosepala</i> )	SE, 1B.2	Shallow water, margins of vernal pools below 5200 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
California jewelflower <sup>3</sup> ( <i>Caulanthus californicus</i> )	SE, FE, 1B.1	Flats, slopes, generally in non-alkaline grassland at 200–300 feet elevation.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
Greene's tuctoria ( <i>Tuctoria greenei</i> )	SR, FE, 1B.1	Vernal pools below 3400 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Hairy Orcutt grass <sup>3</sup> ( <i>Orcuttia pilosa</i> )	SE, FE, 1B.1	Vernal pools below 650 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Hartweg's golden sunburst <sup>3</sup> ( <i>Pseudobahia bahiifolia</i> )	SE, FE, 1B.1	Grassland and open woodland with clay soil at 330–650 feet elevation.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
San Joaquin adobe sunburst ( <i>Pseudobahia peirsonii</i> )	FT, SE, 1B.1	Grassland, bare dark clay at 330–3000 feet elevation.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
San Joaquin Valley Orcutt grass <sup>3</sup> ( <i>Orcuttia inaequalis</i> )	FT, SE, 1B.1	Vernal pools below 2600 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Fleshy owl's-clover <sup>3</sup> ( <i>Castilleja campestris</i> var. <i>succulenta</i> )	FT, SE, 1B.2	Vernal pools, moist places below 2500 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Tree-anemone ( <i>Carpenteria californica</i> )	ST, 1B.2	Streambanks, chaparral, oak woodland at 1100–4400 feet elevation.	<b>None.</b> Habitat lacking; outside known range.
Conservancy fairy shrimp ( <i>Branchinecta conservatio</i> )	FE	Vernal pools and depressions.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
Crotch bumble bee <sup>3</sup> ( <i>Bombus crotchii</i> )	SCE	Open grasslands and scrub habitats in the Central Valley.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
Valley elderberry longhorn beetle <sup>3</sup> ( <i>Desmocerus californicus dimorphus</i> )	FT	Elderberry ( <i>Sambucus</i> sp.) plants with stems > 1-inch diameter at ground level.	<b>None.</b> Habitat lacking; the Project site is outside the currently recognized range of this species.
Vernal pool fairy shrimp <sup>3</sup> ( <i>Branchinecta lynchi</i> )	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages and seasonal wetlands.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Vernal pool tadpole shrimp ( <i>Lepidurus packardii</i> )	FE	Vernal pools, clay flats, alkaline pools, and ephemeral stock tanks.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Delta smelt ( <i>Hypomesus transpacificus</i> )	FT, SE	Estuarine waters in the Sacramento-San Joaquin River delta.	<b>None.</b> Habitat lacking; no connectivity to the aquatic habitat this species requires.
California red-legged frog ( <i>Rana draytonii</i> )	FT, SSSC	Creeks, ponds, and marshes for breeding; small mammal burrows for upland cover.	<b>None.</b> The Project site is outside the current known range of this species.
California tiger salamander <sup>3</sup> ( <i>Ambystoma californiense</i> )	FT, ST	Vernal pools or other seasonal ponds for breeding; small mammal burrows for upland cover.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover; no seasonal water bodies present in the survey area.
Foothill yellow-legged frog ( <i>Rana boylei</i> )	SE, SSSC	Perennial streams and rivers with rocky substrates and open, sunny banks in forests, chaparral, or woodlands.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
Blunt-nosed leopard lizard ( <i>Gambelia silus</i> )	FE, SE	Semiarid grasslands, alkali flats, and washes.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.
Giant garter snake ( <i>Thamnophis gigas</i> )	FT, ST	Marshes, sloughs, ponds, or other permanent sources of water with emergent vegetation and grassy banks or open areas during active season; uplands with underground refuges or crevices during inactive season.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.
Tricolored blackbird <sup>3</sup> ( <i>Agelaius tricolor</i> )	ST	Freshwater emergent wetlands, agricultural fields, irrigated pastures, grassland, silage fields near dairies.	<b>None.</b> Habitat lacking; emergent vegetation at the golf course ponds was too limited and too routinely disturbed to support nesting.
Swainson's hawk <sup>3</sup> ( <i>Buteo swainsoni</i> )	ST	Large trees for nesting with adjacent grasslands, alfalfa fields, or grain fields for foraging.	<b>Low.</b> Potential nest trees and foraging habitat are present within the survey area.
Western yellow-billed cuckoo <sup>3</sup> ( <i>Coccyzus americanus occidentalis</i> )	FT, SE	Open woodlands with dense, low vegetation along waterways.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.
Least Bell's vireo <sup>3</sup> ( <i>Vireo bellii pusillus</i> )	FE, SE	Riparian forest with dense understory.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.
Golden eagle ( <i>Aquila chrysaetos</i> )	FP	Open grasslands, woodland, forests, and foothill farmlands.	<b>None.</b> Habitat lacking; the Project site is outside the local range of this species.
Fresno kangaroo rat ( <i>Dipodomys nitratoideus exilis</i> )	FE, SE	Sandy, alkaline, saline, and clay soils in upland scrub and grassland.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	FE, ST	Grassland and upland scrub with a small mammal prey base.	<b>None.</b> Habitat lacking; the Project site is outside the current known range of this species.
Sierra Nevada red fox ( <i>Vulpes vulpes necator</i> )	FT, ST	High elevation alpine and subalpine habitats	<b>None.</b> Habitat lacking; the Project site is outside the range of this species.
<b>State Species of Special Concern</b>			
Hardhead <sup>3</sup> ( <i>Mylopharodon conocephalus</i> )	SSSC	Undisturbed areas of larger streams with high water quality.	<b>None.</b> Habitat lacking; no connectivity to the aquatic habitat this species requires.
Coast horned lizard <sup>3</sup> ( <i>Phrynosoma blainvillii</i> )	SSSC	Grasslands, woodlands, and upland scrub, with open areas and patches of loose, sandy soil.	<b>None.</b> Habitat lacking; the Project site is outside the current known local range of this species.
Western spadefoot <sup>3</sup> ( <i>Spea hammondi</i> )	SSSC	Rain pools for breeding and small mammal burrows or other suitable refugia for nonbreeding upland cover.	<b>None.</b> Habitat lacking; no rain pools or other ephemeral water bodies found in the survey area.
Northwestern pond turtle <sup>3</sup> ( <i>Actinemys marmorata</i> )	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation and woody debris for basking and adjacent natural upland areas for egg laying.	<b>None.</b> Habitat lacking; the golf course ponds are too small and routinely disturbed to support this species.
Northern California legless lizard <sup>3</sup> ( <i>Anniella pulchra</i> )	SSSC	Moist warm loose soil in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, and sandy wash.	<b>None.</b> Habitat lacking; no suitable land cover types present in the survey area.
California glossy snake <sup>3</sup> ( <i>Arizona elegans occidentalis</i> )	SSSC	Arid scrubs, rocky washes, grasslands,	<b>None.</b> Habitat lacking; the Project site consisted of

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
		chaparral with open areas and loose soil.	developed and disturbed land cover.
Burrowing owl <sup>3</sup> ( <i>Athene cunicularia</i> )	SSSC	Grassland and upland scrub with friable soil; some agricultural or other developed and disturbed areas with ground squirrel burrows.	<b>Low.</b> Habitat present in the survey area along slopes; although burrows were found that could support this species, no sign of use by owls was detected.
Pallid bat ( <i>Antrozous pallidus</i> )	SSSC	Arid or semi-arid locations in rocky areas and sparsely vegetated grassland near water. Rock crevices, caves, mine shafts, bridges, buildings, and tree hollows for roosting.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
Spotted bat ( <i>Euderma maculatum</i> )	SSSC	Roosts in rock crevices, often in large rock outcrops and granite walls; typically forages over water and specializes on moths.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
Western mastiff bat ( <i>Eumops perotis californicus</i> )	SSSC	Roosts in crevices in cliff faces, buildings, trees, and tunnels in open semiarid and arid habitats such as conifer forest, oak woodland, coastal scrub, chaparral, grassland, desert scrub, and urban areas.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
American badger ( <i>Taxidea taxus</i> )	SSSC	Open, dry areas with friable soils and small mammal populations in grassland, conifer forests, and desert.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
<b>California Rare Plants</b>			

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
Caper-fruited tropidocarpum <sup>3</sup> ( <i>Tropidocarpum capparideum</i> )	1B.1	Alkaline soils, low hills, valleys below 1300 feet elevation.	<b>None.</b> Habitat lacking; the Project site does not include alkaline soils.
Madera leptosiphon <sup>3</sup> ( <i>Leptosiphon serrulatus</i> )	1B.2	Openings in woodland and chaparral at 1000–4200 feet elevation.	<b>None.</b> Habitat lacking; the Project site is below the known elevational range of this species.
Sanford's arrowhead <sup>3</sup> ( <i>Sagittaria sanfordii</i> )	1B.2	Ponds, ditches below 600 feet elevation.	<b>None.</b> Habitat lacking; the golf course ponds are too routinely disturbed and manicured to support this species.
Spiny-sepaed button-celery <sup>3</sup> ( <i>Eryngium spinosepalum</i> )	1B.2	Vernal pools and swales in valley and foothill grassland at 330–4200 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Hoover's calycadenia <sup>3</sup> ( <i>Calycadenia hooveri</i> )	1B.3	Rocky, exposed places, grassland, oak savanna at 330–1300 feet elevation.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
California satintail <sup>3</sup> ( <i>Imperata brevifolia</i> )	2B.1	Wet springs, meadows, streambanks, floodplains below 1600 feet elevation.	<b>None.</b> Habitat lacking; no suitable aquatic habitats found in the survey area.
Dwarf downingia <sup>3</sup> ( <i>Downingia pusilla</i> )	2B.2	Vernal pools, roadside ditches below 500 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Forked hare-leaf ( <i>Lagophylla dichotoma</i> )	1B.1	Grassland, openings in woodland at 160–1300 feet elevation.	<b>None.</b> Habitat lacking; the Project site consisted of developed and disturbed land cover.
Pincushion navarretia ( <i>Navarretia myersii</i> ssp. <i>myersii</i> )	1B.1	Vernal pools at 70–300 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area; the Project site is outside the current

Species	Status <sup>1</sup>	Habitat	Potential to Occur <sup>2</sup>
			known range of this species.
Boggs Lake hedge-hyssop ( <i>Gratiola heterosepala</i> )	1B.2	Shallow water, margins of vernal pools below 5300 feet elevation.	<b>None.</b> Habitat lacking; no vernal pools or other ephemeral aquatic habitats found in the survey area.
Orange lupine ( <i>Lupinus citrinus</i> ssp. <i>citrinus</i> )	1B.2	Granitic soils, open yellow-pine forests at 2000–5600 feet elevation.	<b>None.</b> Habitat lacking; the Project site is outside the elevational range of this species.

CNDDDB (2020), CNPS (2020), USFWS (2020), Jepson (2020).

Status <sup>1</sup>	Potential to Occur <sup>2</sup>
FE = Federally listed Endangered	None: Neither species nor sign observed; conditions unsuitable for occurrence.
FT = Federally listed Threatened	Low: Neither species nor sign observed; conditions marginal for occurrence.
FP = State Fully Protected	Moderate: Neither species nor sign observed, but conditions suitable for occurrence.
SCE = State Candidate for listing as Endangered	Present: Species or sign observed; conditions suitable for occurrence.
SE = State listed Endangered	
ST = State listed Threatened	
SSSC = State Species of Special Concern	

CNPS California Rare Plant Rank <sup>1</sup> :	Threat Ranks <sup>1</sup> :
1B – plants rare, threatened, or endangered in California and elsewhere.	0.1 – seriously threatened in California (> 80% of occurrences).
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20–80% of occurrences).

<sup>3</sup>Species known from within 5 miles of the Project site.





## 3.2 Reconnaissance Survey

### 3.2.1 Land Use and Habitats

The Project site supported residential development, portions of a golf course, and disturbed land with patches of ruderal vegetation (Figures 2 and 5–7). The area was surrounded by residential development to the north; residential development, portions of a gold course, and disturbed land to the south; orchards, residential development, portions of a golf course, and disturbed land to the east; and residential development, commercial development, portions of a golf course, and disturbed land to the west.



**Figure 5.** Photograph of the Project site, looking west, showing a gated residential development.





**Figure 6.** Photograph of the Project site, looking northeast, showing a manicured golf course.



**Figure 7.** Photograph of the Project site, looking east, showing disturbed land cover and an adjacent orchard.

### 3.2.2 Plant and Animal Species Observed

A total of 23 plant species (10 native and 13 nonnative) were found during the reconnaissance survey (Table 2). Seven bird species and four mammal species were also detected (Table 2).

**Table 2.** Plant and animal species observed during the reconnaissance survey.

Common Name	Scientific Name	Status
<b>Plants</b>		
<b>Family Amaranthaceae</b>		
Pigweed amaranth	<i>Amaranthus albus</i>	Nonnative
Prostrate pigweed	<i>Amaranthus blitoides</i>	Native
<b>Family Asteraceae</b>		
Canada horseweed	<i>Erigeron canadensis</i>	Native
Common spikeweed	<i>Centromedia pungens</i>	Native
Common sunflower	<i>Helianthus annuus</i>	Native
Flax-leaved horseweed	<i>Erigeron bonariensis</i>	Nonnative
Prickly lettuce	<i>Lactuca serriola</i>	Nonnative
Stinkwort	<i>Dittrichia graveolens</i>	Nonnative
Telegraph weed	<i>Heterotheca grandiflora</i>	Native
<b>Family Boraginaceae</b>		
Common fiddleneck	<i>Amsinckia intermedia</i>	Native
<b>Family Brassicaceae</b>		
Black mustard	<i>Brassica nigra</i>	Nonnative
<b>Family Chenopodiaceae</b>		
Russian thistle	<i>Salsola tragus</i>	Nonnative
<b>Family Convolvulaceae</b>		
Field bindweed	<i>Convolvulus arvensis</i>	Nonnative
<b>Family Euphorbiaceae</b>		
Turkey-mullein	<i>Croton setiger</i>	Native
<b>Family Fabaceae</b>		
Bur clover	<i>Medicago polymorpha</i>	Nonnative
Miniature lupine	<i>Lupinus bicolor</i>	Native
<b>Family Fagaceae</b>		
Cork oak	<i>Quercus suber</i>	Nonnative
<b>Family Lamiaceae</b>		
Vinegarweed	<i>Trichostema lanceolatum</i>	Native
<b>Family Poaceae</b>		
Hairy crabgrass	<i>Digitaria sanguinalis</i>	Nonnative
Red brome	<i>Bromus madritensis ssp. rubens</i>	Nonnative
Wild oat	<i>Avena fatua</i>	Nonnative
<b>Family Polygonaceae</b>		

Prostrate knotweed	<i>Polygonum arenastrum</i>	Nonnative
<b>Family Solanaceae</b>		
Jimsonweed	<i>Datura wrightii</i>	Native
<b>Birds</b>		
<b>Family Accipitridae</b>		
Red-tailed hawk	<i>Buteo jamaicensis</i>	MBTA, CFGC
<b>Family Columbidae</b>		
Mourning dove	<i>Zenaida macroura</i>	MBTA, CFGC
<b>Family Corvidae</b>		
American crow	<i>Corvus brachyrhynchos</i>	MBTA, CFGC
<b>Family Falconidae</b>		
American kestrel	<i>Falco sparverius</i>	MBTA, CFGC
<b>Family Mimidae</b>		
Northern mockingbird	<i>Mimus polyglottos</i>	MBTA, CFGC
<b>Family Sturnidae</b>		
European starling	<i>Sturnus vulgaris</i>	Nonnative
<b>Family Tyrannidae</b>		
Say's Phoebe	<i>Sayornis saya</i>	MBTA, CFGC
<b>Mammals</b>		
<b>Family Canidae</b>		
Coyote	<i>Canis latrans</i>	Native
<b>Family Geomyidae</b>		
Botta's pocket gopher	<i>Thomomys bottae</i>	Native
<b>Family Leporidae</b>		
Desert cottontail	<i>Sylvilagus audubonii</i>	Native
<b>Family Sciuridae</b>		
California ground squirrel	<i>Otospermophilus beecheyi</i>	Native

MBTA = Protected under the Migratory Bird Treaty Act (16 USC § 703 et seq.); CFGC = Protected under the California Fish and Game Code (CFGC §§ 3503 and 3513).

### 3.2.3 Nesting Birds

Migratory birds could nest on or near the Project site. Such species include, but are not limited to, mourning dove (*Zenaida macroura*) and red-tailed hawk (*Buteo jamaicensis*).

### 3.2.4 Regulated Habitats

Artificial ponds at the golf course, as surface waters within the boundaries of the state, are under the regulatory jurisdiction of the SWRCB. However, no impacts to these features are anticipated.

### 3.3 Special-Status Species

#### 3.3.1 Swainson's hawk (*Buteo swainsoni*) (ST)

Swainson's hawk is a state listed as threatened raptor in the family Accipitridae. It is a gregarious, migratory, breeding resident of Central California where it uses open areas including grassland, sparse shrubland, pasture, open woodland, and annual agricultural fields such as grain and alfalfa to forage on small mammals, birds, and reptiles. After breeding, it eats mainly insects, especially grasshoppers (Bechard et al. 2020). Swainson's hawk builds a small to medium-sized nest in medium to large trees near foraging habitat. The nesting season begins in March or April in Central California when this species returns to its breeding grounds from wintering areas in Mexico and Central and South America. Nest building commences within one to two weeks of arrival to the breeding area and lasts about one week (Bechard et al. 2020). One to four eggs are laid and incubated for about 35 days. Young typically fledge in about 38–46 days and tend to leave the nest territory within 10 days of fledging (Bechard et al. 2020). Swainson's hawks depart for the non-breeding grounds between August and September.

Two CNDDDB records for Swainson's hawk, from 1956, are known from within 5 miles of the Project site (CNDDDB 2020). No Swainson's hawks were observed during the reconnaissance survey, but potential nest trees were on and within 0.5 miles of the Project site, and open grassland and agricultural fields nearby could support foraging. Therefore, this species has a low potential to occur on the Project site.

#### 3.3.2 Burrowing owl (*Athene cunicularia*) (SSSC)

Burrowing owl is a member of the family Strigidae and recognized as a species of special concern by the CDFW (CDFW 2020). Burrowing owl depends on burrow systems excavated by other species such as California ground squirrel (*Otospermophilus beecheyi*) and American badger (*Taxidea taxus*) (Poulin et al. 2020). Burrowing owl uses burrows for protection from predators, weather, as roosting sites, and dwellings to raise young (Poulin et al. 2020). It commonly perches outside burrows on mounds of soil or on nearby fence posts. Prey includes insects, especially grasshoppers and crickets, frogs, toads, lizards, and small mammals (Poulin et al. 2020). The nesting season begins in March and incubation lasts about 28–30 days. Females incubate eggs males forage and deliver food items to the burrow/nest; young fledge between 44 and 53 days after hatching (Poulin et al. 2020). Adults can live up to 8 years in the wild.

Two CNDDDB records of burrowing owls (from 2000) are known from within 5 miles of the Project site (CNDDDB 2020). Several California ground squirrel burrows were found on the Project site, although no evidence of use of the burrows by owls (e.g., feathers, guano, pellets) was observed. Nevertheless, this species has a low potential to occur on the Project site.

## 4.0 Environmental Impacts

### 4.1 Significance Determinations

This Project, which will result in temporary impacts to disturbed land cover, will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as no such habitat is present on the Project site; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b) as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) 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 CDFW or USFWS (criterion f) as no riparian habitat or other sensitive natural community was present in the survey area; (6) 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 (criterion g) as no impacts to wetlands will occur; (7) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no trees or biologically sensitive areas will be impacted; or (8) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criteria provided the framework for criteria BIO1 and BIO2 below. These criteria are used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: 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 CDFW or USFWS (significance criterion e).
- Criterion BIO2: 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 (significance criterion h).

#### 4.1.1 Direct and Indirect Impacts

##### **4.1.1.1 Potential Impact #1: Have a Substantial Effect on any Special-Status Species (Criterion BIO1)**

The Project could adversely affect, either directly or through habitat modifications, two special-status animals that occur or may occur on or near the Project site. Swainson's hawk (ST) has a low potential to occur on or near the Project site. The burrowing owl (SSSC) was not detected but also has a low potential to occur on the Project site. Construction activities such as excavating, trenching, or using other heavy equipment that disturbs or harms a special-status species or substantially modifies its habitat could constitute a significant impact. We recommend that Mitigation Measure B1-B2 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

##### **Mitigation Measure B1. Protect nesting Swainson's hawk.**

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.
2. If it is not possible to schedule work between September and February, a qualified biologist shall conduct surveys for active Swainson's hawk nests within 0.5 miles of the Project site following methods developed by the Swainson's Hawk Technical Advisory Committee (2000). If an active nest is found within 0.5 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

##### **Mitigation Measure B2. Protect nesting burrowing owl.**

1. Conduct focused burrowing owl surveys to assess the presence/absence of burrowing owl in accordance with guidelines in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).
2. If a burrowing owl or sign of burrowing owl use (e.g., feathers, guano, pellets) is detected on or within 500 feet of the Project site, and the qualified biologist determines that Project activities would disrupt the owl(s), a construction-free buffer, limited operating period, or passive relocation shall be implemented in consultation with the CDFW.

##### **4.1.1.2 Potential Impact #2: Interfere Substantially with Native Wildlife Movements, Corridors, or Nursery Sites (Criterion BIO2)**



The Project could impede the use of nursery sites for native birds protected under the California Fish and Game Code and Migratory Bird Treaty Act. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort is considered take by the CDFW. Loss of fertile eggs or nestlings, or any activities resulting in nest abandonment, could constitute a significant impact if the species is particularly rare in the region. We recommend that Mitigation Measure B2 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

**Mitigation Measure B2. Protect nesting birds.**

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during Project implementation. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas for nests. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

#### 4.1.2 Cumulative Impacts

The Project involves rezoning 128.6 acres for residential development. Although all land within and adjacent to the Project site is disturbed by residential, commercial, and agricultural development, it still provides potential foraging and breeding habitat for the state listed as threatened Swainson's hawk and species of special concern burrowing owl. However, implementing Mitigation Measures B1 and B2 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level.

#### 4.1.3 Unavoidable Significant Adverse Effects

No unavoidable significant adverse effects on biological resources would occur from implementing the Project.

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**Appendix A.** USFWS list of threatened and endangered species and critical habitats.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office  
Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

September 09, 2020

Consultation Code: 08ESMF00-2020-SLI-2854

Event Code: 08ESMF00-2020-E-08744

Project Name: Copper River Ranch

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

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## Project Summary

Consultation Code: 08ESMF00-2020-SLI-2854

Event Code: 08ESMF00-2020-E-08744

Project Name: Copper River Ranch

Project Type: DEVELOPMENT

Project Description: Evaluate approximately 128.6 acres for rezoning opportunities

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.90316556354432N119.73714636971465W>



Counties: Fresno, CA

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## Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Fresno Kangaroo Rat <i>Dipodomys nitratoide exilis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5150">https://ecos.fws.gov/ecp/species/5150</a> Species survey guidelines: <a href="https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf">https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf</a>	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2873">https://ecos.fws.gov/ecp/species/2873</a>	Endangered

## Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/625">https://ecos.fws.gov/ecp/species/625</a>	Endangered
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened

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## Amphibians

NAME	STATUS
<p>California Red-legged Frog <i>Rana draytonii</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a></p> <p>Species survey guidelines: <a href="https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf">https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf</a></p>	Threatened
<p>California Tiger Salamander <i>Ambystoma californiense</i></p> <p>Population: U.S.A. (Central CA DPS)</p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a></p>	Threatened

## Fishes

NAME	STATUS
<p>Delta Smelt <i>Hypomesus transpacificus</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a></p>	Threatened

## Crustaceans

NAME	STATUS
<p>Conservancy Fairy Shrimp <i>Branchinecta conservatio</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a></p>	Endangered
<p>Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a></p>	Threatened

## Flowering Plants

NAME	STATUS
<p>Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8095">https://ecos.fws.gov/ecp/species/8095</a></p>	Threatened
<p>Hartweg's Golden Sunburst <i>Pseudobahia bahiifolia</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1704">https://ecos.fws.gov/ecp/species/1704</a></p>	Endangered
<p>San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/5506">https://ecos.fws.gov/ecp/species/5506</a></p>	Threatened

## **Critical habitats**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **Appendix B.** CNDDDB occurrence records.





# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad> IS > (Little Table Mtn. (3711917)> OR > Millerton Lake East (3711915)> OR > Millerton Lake West (3711916)> OR > Lanes Bridge (3611987)> OR > Friant (3611986)> OR > Academy (3611985)> OR > Fresno North (3611977)> OR > Clovis (3611976)> OR > Round Mountain (3611975))  
> AND > Taxonomic Group> IS > (Fish> OR > Amphibians> OR > Reptiles> OR > Birds> OR > Mammals> OR > Mollusks> OR > Arachnids> OR > Crustaceans> OR > Insects> OR > Ferns> OR > Gymnosperms> OR > Monocots> OR > Dicots> OR > Lichens> OR > Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<b><i>Agelaius tricolor</i></b> tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 613	955 S:12	0	1	1	0	2	8	8	4	10	1	1
<b><i>Ambystoma californiense</i></b> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	297 1,300	1271 S:70	10	18	6	1	6	29	23	47	64	3	3
<b><i>Anniella pulchra</i></b> Northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	300 300	375 S:1	0	0	0	0	0	1	1	0	1	0	0
<b><i>Antrozous pallidus</i></b> pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	1,360 1,360	420 S:1	0	0	0	0	0	1	1	0	1	0	0
<b><i>Aquila chrysaetos</i></b> golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2,400 2,400	323 S:1	0	0	0	0	0	1	1	0	1	0	0
<b><i>Ardea alba</i></b> great egret	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	296 296	43 S:1	0	0	0	0	0	1	0	1	1	0	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<b>Arizona elegans occidentalis</b> California glossy snake	G5T2 S2	None None	CDFW_SSC-Species of Special Concern	300 300	260 S:1	0	0	0	0	0	1	1	0	1	0	0
<b>Athene cunicularia</b> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	331 500	1989 S:6	1	2	0	0	0	3	4	2	6	0	0
<b>Bombus crotchii</b> Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		300 2,000	276 S:4	0	0	0	0	0	4	4	0	4	0	0
<b>Branchinecta lynchi</b> vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	310 2,340	791 S:71	7	16	5	1	1	41	11	60	70	1	0
<b>Branchinecta mesoatlantica</b> midvalley fairy shrimp	G2 S2S3	None None		335 497	144 S:19	1	0	0	0	0	18	2	17	19	0	0
<b>Buteo swainsoni</b> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	300 665	2535 S:7	1	2	0	0	0	4	1	6	7	0	0
<b>Calicina mesaensis</b> Table Mountain harvestman	G1 S1	None None		760 760	1 S:1	0	0	0	0	0	1	1	0	1	0	0
<b>Calycadenia hooveri</b> Hoover's calycadenia	G2 S2	None None	Rare Plant Rank - 1B.3		37 S:1	0	0	0	0	0	1	0	1	1	0	0
<b>Carpenteria californica</b> tree-anemone	G1? S1?	None Threatened	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley USFS_S-Sensitive	1,148 1,400	13 S:2	1	1	0	0	0	0	0	2	2	0	0
<b>Castilleja campestris var. succulenta</b> succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	350 2,300	99 S:20	6	5	2	1	2	4	12	8	18	2	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<b><i>Caulanthus californicus</i></b> California jewelflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley		67 S:1	0	0	0	0	1	0	1	0	0	0	1
<b><i>Coccyzus americanus occidentalis</i></b> western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	270 345	165 S:2	0	0	0	0	2	0	2	0	0	0	2
<b><i>Cryptantha hooveri</i></b> Hoover's cryptantha	GH SH	None None	Rare Plant Rank - 1A	1,200 1,200	4 S:1	0	0	0	0	0	1	1	0	1	0	0
<b><i>Desmocerus californicus dimorphus</i></b> valley elderberry longhorn beetle	G3T2 S2	Threatened None		270 2,000	271 S:3	1	1	1	0	0	0	2	1	3	0	0
<b><i>Dipodomys nitratoides exilis</i></b> Fresno kangaroo rat	G3TH SH	Endangered Endangered	IUCN_VU-Vulnerable		12 S:1	0	0	0	0	1	0	1	0	0	0	1
<b><i>Downingia pusilla</i></b> dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	300 300	132 S:1	0	0	0	0	0	1	1	0	1	0	0
<b><i>Efferia antiochi</i></b> Antioch efferian robberfly	G1G2 S1S2	None None		260 300	4 S:2	0	0	0	0	0	2	2	0	2	0	0
<b><i>Egretta thula</i></b> snowy egret	G5 S4	None None	IUCN_LC-Least Concern	296 296	20 S:1	0	0	0	0	0	1	0	1	1	0	0
<b><i>Emys marmorata</i></b> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	388 1,230	1398 S:9	1	0	0	2	0	6	4	5	9	0	0
<b><i>Eremophila alpestris actia</i></b> California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	370 370	94 S:1	0	0	0	1	0	0	1	0	1	0	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Eryngium spinosepalum</i> spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 1,800	108 S:8	3	2	0	0	1	2	2	6	7	1	0
<i>Euderma maculatum</i> spotted bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	500 500	68 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Eumops perotis californicus</i> western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	310 1,500	296 S:8	0	0	1	0	0	7	8	0	8	0	0
<i>Falco mexicanus</i> prairie falcon	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2,100 2,100	456 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	G2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,800 2,414	99 S:6	2	0	1	0	0	3	4	2	6	0	0
<i>Imperata brevifolia</i> California satintail	G4 S3	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	300 300	32 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Lagophylla dichotoma</i> forked hare-leaf	G2 S2	None None	Rare Plant Rank - 1B.1	630 630	7 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	1,980 1,980	324 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Leptosiphon serrulatus</i> Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	600 1,742	27 S:5	0	0	0	0	0	5	4	1	5	0	0
<i>Linderiella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	350 4,621	508 S:37	2	8	1	0	0	26	12	25	37	0	0



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Lupinus citrinus</i> var. <i>citrinus</i> orange lupine	G2T2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	2,950 2,950	57 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Lytta moesta</i> moestan blister beetle	G2 S2	None None		410 410	12 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Lytta molesta</i> molestan blister beetle	G2 S2	None None		275 2,200	17 S:5	0	0	0	0	0	5	5	0	4	1	0
<i>Metapogon hurdi</i> Hurd's metapogon robberfly	G1G2 S1S2	None None		325 325	3 S:1	0	0	0	0	0	1	1	0	0	1	0
<i>Mylopharodon conocephalus</i> hardhead	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	255 255	33 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Navarretia myersii</i> ssp. <i>myersii</i> pincushion navarretia	G2T2 S2	None None	Rare Plant Rank - 1B.1	400 400	16 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Nycticorax nycticorax</i> black-crowned night heron	G5 S4	None None	IUCN_LC-Least Concern	296 296	37 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	300 2,475	47 S:12	2	3	2	1	4	0	6	6	8	0	4
<i>Orcuttia pilosa</i> hairy Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	400 410	35 S:3	0	2	0	0	1	0	2	1	2	1	0
<i>Perognathus inornatus</i> San Joaquin pocket mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern		127 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Phalacrocorax auritus</i> double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	332 332	39 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Phrynosoma blainvillii</i> coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	300 300	784 S:1	0	0	0	0	1	0	1	0	0	1	0





# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	440 500	27 S:5	0	4	0	0	1	0	1	4	4	1	0
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	390 495	51 S:5	0	1	3	1	0	0	2	3	5	0	0
<i>Rana boylei</i> foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	1,252 1,252	2468 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Sagittaria sanfordii</i> Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	310 360	126 S:7	0	1	1	0	0	5	6	1	7	0	0
<i>Spea hammondi</i> western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	259 1,380	1409 S:78	4	18	5	1	1	49	19	59	77	1	0
<i>Taxidea taxus</i> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	250 1,200	594 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	G1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		18 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Tuctoria greenei</i> Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	385 405	50 S:3	0	0	0	0	3	0	3	0	0	0	3
<i>Vireo bellii pusillus</i> least Bell's vireo	G5T2 S2	Endangered Endangered	IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	345 360	503 S:2	0	0	0	0	2	0	2	0	0	2	0
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	G4T2 S2	Endangered Threatened		410 410	1018 S:1	0	0	0	0	0	1	1	0	1	0	0



**Summary Table Report**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Vulpes vulpes necator</i> Sierra Nevada red fox	G5T1T2 S1	Proposed Endangered Threatened	USFS_S-Sensitive	1,800 1,800	201 S:1	0	0	0	0	0	1	1	0	1	0	0

## **Appendix C.** CNPS plant list.



\*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

## Plant List

18 matches found. [Click on scientific name for details](#)

### Search Criteria

California Rare Plant Rank is one of [1B, 2A, 2B], Found in Quads 3711917, 3711916, 3711915, 3611987, 3611986, 3611985, 3611977 3611976 and 3611975;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Calycadenia hooveri</a>	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S2	G2
<a href="#">Carpenteria californica</a>	tree-anemone	Hydrangeaceae	perennial evergreen shrub	(Apr)May-Jul	1B.2	S1?	G1?
<a href="#">Castilleja campestris var. succulenta</a>	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
<a href="#">Caulanthus californicus</a>	California jewelflower	Brassicaceae	annual herb	Feb-May	1B.1	S1	G1
<a href="#">Downingia pusilla</a>	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
<a href="#">Eryngium spinosepalum</a>	spiny-sepaed button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
<a href="#">Gratiola heterosepala</a>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
<a href="#">Imperata brevifolia</a>	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4
<a href="#">Lagophylla dichotoma</a>	forked hare-leaf	Asteraceae	annual herb	Apr-May	1B.1	S2	G2
<a href="#">Leptosiphon serrulatus</a>	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
<a href="#">Lupinus citrinus var. citrinus</a>	orange lupine	Fabaceae	annual herb	Apr-Jul	1B.2	S2	G2T2
<a href="#">Orcuttia inaequalis</a>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
<a href="#">Orcuttia pilosa</a>	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1

<a href="#"><u>Pseudobahia bahiifolia</u></a>	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
<a href="#"><u>Pseudobahia peirsonii</u></a>	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1
<a href="#"><u>Sagittaria sanfordii</u></a>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
<a href="#"><u>Tropidocarpum capparideum</u></a>	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1
<a href="#"><u>Tuctoria greenei</u></a>	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

### Suggested Citation

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### Questions and Comments

[rareplants@cnps.org](mailto:rareplants@cnps.org)

# Appendix D

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## Cultural Resource Evaluation





## **A Cultural Resources Survey of 81.52 Acres**

**APN 579-07-16, 579-07-33, 579-07-16, 33, 579-07-33, 579-07-34, 579-07-38, 40, 579-07-40, 579-07-41, 579-07-42, 579-07-43, 579-07-46, 579-07-47, 579-22-32, 579-22-33, 579-22-32, 579-22-34, 579-22-35, 579-22-36, 579-39-06, 579-39-45, 579-39-47, 579-39-48, 579-39-53, 579-39-54 and 579-40-29**

**Prepared For: The Assemi Group**



**Prepared by Robert Pennell, Tribal Cultural Resources Director,  
Roger LaJeunesse, PhD.**

**Venessa Jimenez, Cultural Resources Assistant**

**Ngoc Thuy Kirby, GIS Specialist**

**Table Mountain Rancheria, February, 2021**

**Topographic Quadrangle: Lanes Bridge and Friant Calif., 7.5' (2018)**

**(Keywords: Fresno County, Pitkachi, Table Mountain, Jan Joaquin River**

**(Cover photo: Looking North over the Copper River Ranch Development)**

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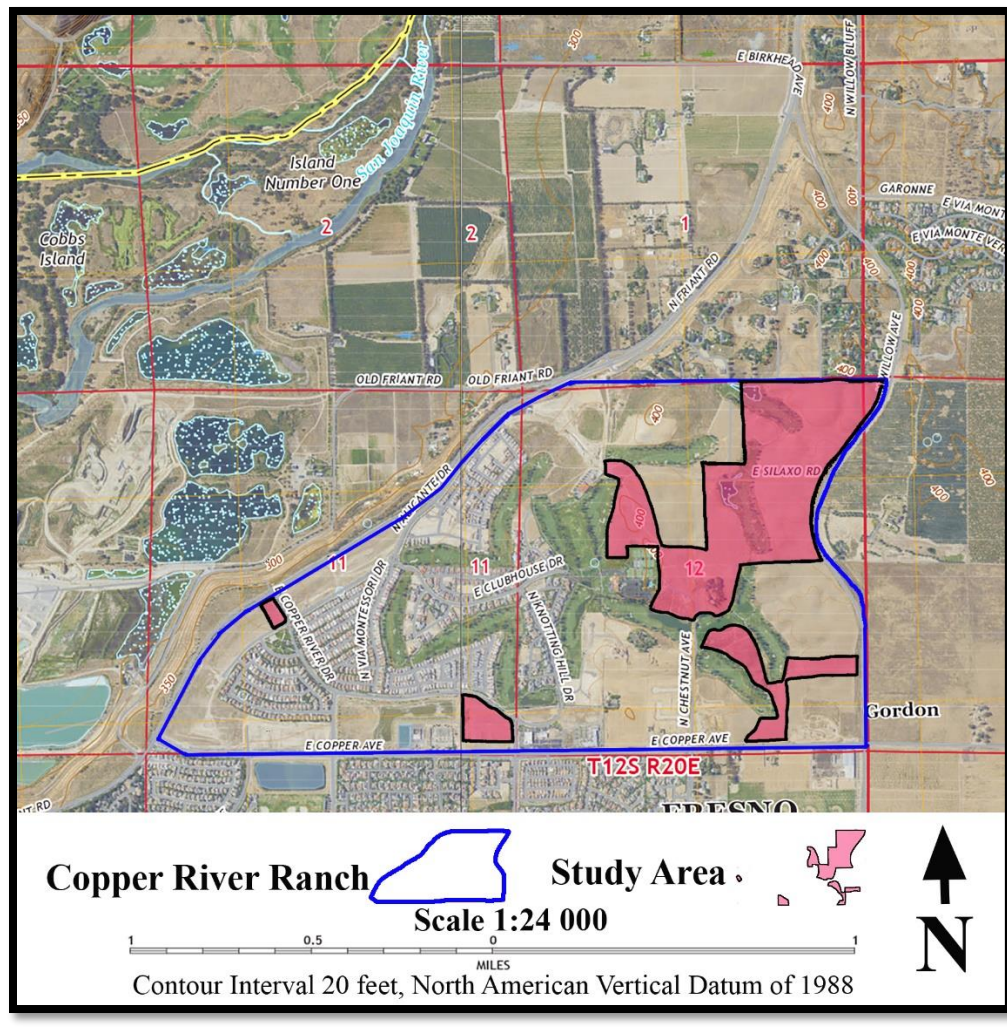
## 1.0 INTRODUCTION

On October 21 2020 and December 11 2020, the Table Mountain Cultural Resources Department conducted a cultural resources survey and inventory on 81.52 acres; including; APN 579-07-16, 579-07-33, 579-07-16, 33, 579-07-33, 579-07-34, 579-07-38, 40, 579-07-40, 579-07-41, 579-07-42, 579-07-43, 579-07-46, 579-07-47, 579-22-32, 579-22-33, 579-22-32, 579-22-34, 579-22-35, 579-22-36, 579-39-06, 579-39-45, 579-39-47, 579-39-48, 579-39-53, 579-39-54 and 579-40-29, properties owned by Assemi Group, Inc. The 81.52 acre study area is bounded by, E. Copper Ave, N Friant Road and N Willow Ave in the City of Fresno, Fresno County. **(Figure 1 and 2)** The proposed development is located on the United States Geologic Survey (USGS) Friant and Lanes Bridge (2018) 7.5' topographic quadrangle maps. The study area falls within Section 12, Friant Quadrangle and Section 11, Lanes Bridge Quadrangle, in Township 12 South, Range 20 East of the Mount Diablo Meridian. **(Figure 4).**

**Figure 1**



The results of this effort are included in a cultural resources report for the 81.52 acre development of additional low density residential infrastructure within the study area, the Copper River Ranch Planned Development, including dwelling units, public streets and related utilities. In order to complete this process, an inventory of cultural resources is required, pursuant to AB-52 of the California Environmental Quality Act.

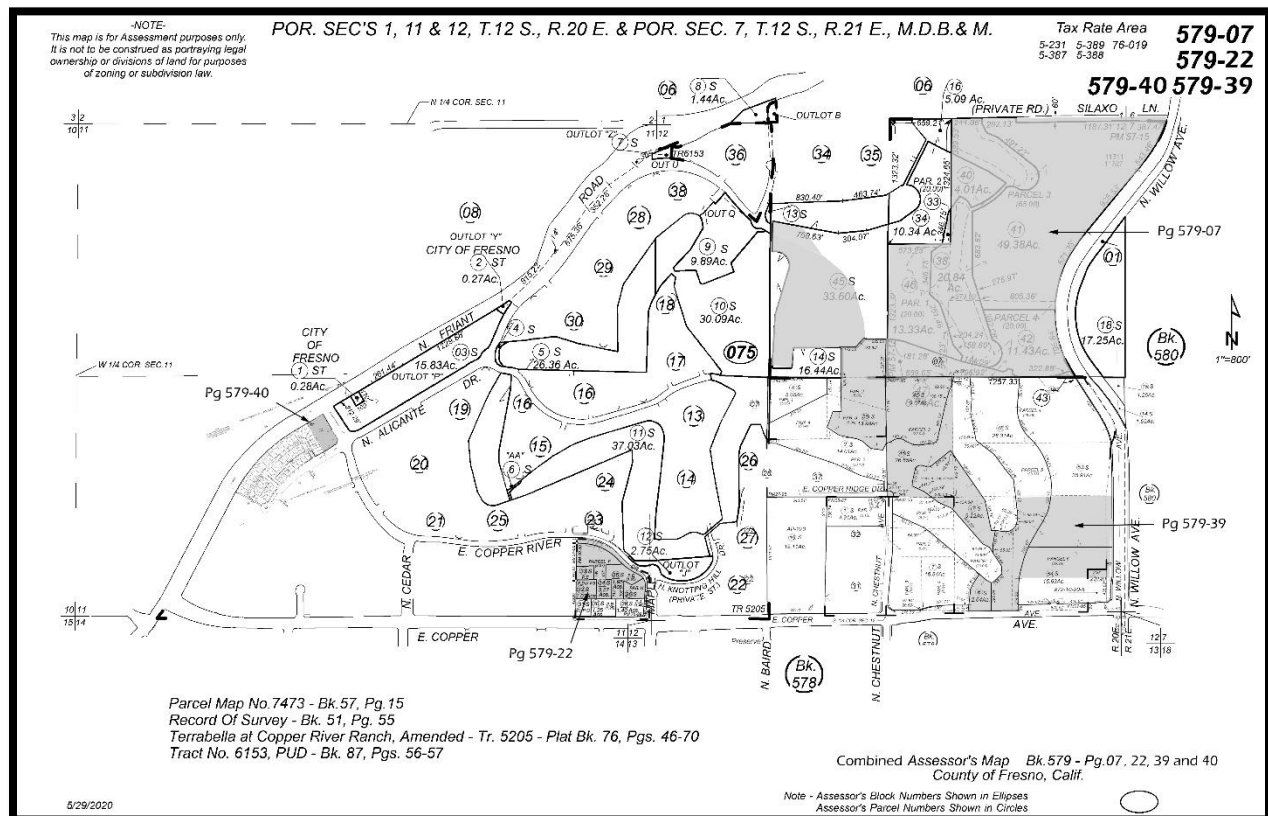


**Figure 2**

## **2.0 Background**



The Assemi Group is developing additional low density residential infrastructure within the study area, the Copper River Ranch Planned Development, including dwelling units, public streets and related utilities.. This report presents the results of the cultural resources investigation of 81.52 acres on the aforementioned parcels, (**Figure 3**) owned by The Assemi Group.



**Figure 3**

This archaeological survey by Table Mountain Rancheria was conducted on October 21 2020 and December 11 2020. Project personnel included professional archaeological staff from the Table Mountain Rancheria Cultural Resources Department of Friant, California; Robert Pennell, Roger LaJeunesse Ph.D, and Venessa Jimenez. A description of the natural and cultural setting of the study area is presented below, as well as a discussion of the survey methods employed, and a finding of no effect.

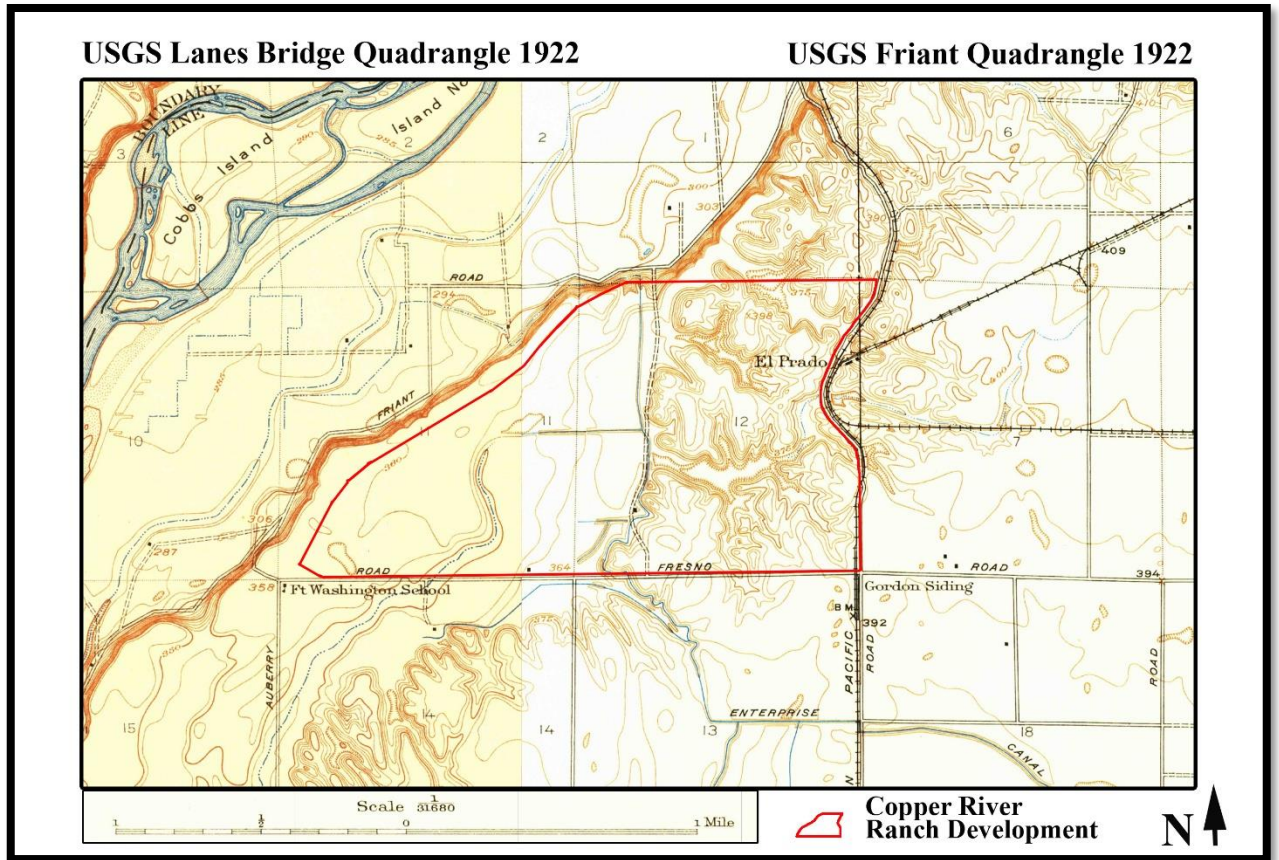
### **3.0 REGULATORY CONTEXT**

“CEQA, or the California Environmental Quality Act, is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. Most proposals for physical development in California are subject to the provisions of CEQA, as are many governmental decisions which do not immediately result in physical development (such as adoption of a general or community plan). Every development project which requires a discretionary governmental approval will require at least some environmental review pursuant to CEQA, unless an exemption applies.”(Public Resources Code 21000–21189 Gatto, 2014)

#### **4.0 SETTING**

The 81.52 acre study area is bounded by, E. Copper Ave, N Friant Road and N Willow Ave in the City of Fresno, Fresno County. The proposed development is located on the United States Geologic Survey (USGS) Friant and Lanes Bridge (2018) 7.5’ topographic quadrangle maps. The study area falls within Section 12, Friant Quadrangle and Section 11, Lanes Bridge Quadrangle, in Township 12 South, Range 20 East of the Mount Diablo Meridian. Elevation above sea level ranges from 363ft to 402ft. Surrounding areas includes housing and commercial development and open range land. **(Figure 3, ).**





**Figure 4**

#### **4.1 Natural Environment**

The study area is situated on the eastern edge of the San Joaquin Valley, .67 miles east of the San Joaquin River and 3.75 miles west of foot slopes of the Sierra Nevada Foothills, specifically Owens Mountain. The immediate study area has been heavily disturbed and prior to 1990, was formerly used for agriculture. Prior to development, the area would have been rolling arid California Prairie, dominated by sparse perennial bunch grasses such as Purple Needle Grass, *Nassella pulchra*, and during years of optimum precipitation, annual forbes such as California Poppy. Prior to the current development over the last two decades, the Copper River Ranch and Golf Course project area was characterized by a relatively flat western half, with no more than four feet in elevational change, while the eastern half was a rolling plateau or bench roughly 15 to

40 feet higher than the western half. This plateau or bench was trifurcated by broad shallow channels characterized by a gentle U-shaped cross section. The topography of the western upper bench was likely created by singular erosional events sometime in the recent geological past. The only reliable water sources adjacent to the study area are the San Joaquin River, .67 miles to the west and Little Dry Creek, 1.63 miles to the north. A half mile long segment of one blue line stream is noted on the 1922 Lanes Bridge Quadrangle, section 11, within the lower western bench, which likely carried water only during brief periods of heavy precipitation. Given its distance from any reliable water source, Native American occupation of the immediate study area is highly unlikely within the discernable past (**Figure 4**).

#### **4.2 Ethnography and Ethnohistory**

The indigenous people of the San Joaquin Valley and its bordering foothills of the Sierra and Diablo Ranges are speakers of Yokutsan languages within the Penutian language family. The word *yokuts* or *yokotch* translates as people in most of the Yokutsan dialects and has been attached to the many groups that speak this language as a Tribal appellation by early anthropologists working in the region. The majority of Yokuts lived along rivers, seasonal streams and permanent springs on the more well-watered eastern side of the San Joaquin Valley, around the shores of historic Tulare Lake and along the braids of the San Joaquin River as it flowed north from the big bend of the river near what is today Mendota. Valley lands between water courses usually lacked resources necessary for settlements. Lieutenant George H. Derby, US Topographical Engineers, noted during his reconnaissance survey of the San Joaquin (Tulare) Valley in April and May of 1850 that “The Tulare valley, from the mouth of the Mariposa to the Tejon pass at its head, is about one hundred and twenty mile in extent, and varies from eight to one hundred miles in width. With the exception of a strip of fertile land upon the rivers emptying into the (Tulare) lake from the east,

it is little better than a desert. The soil is generally dry, decomposed and incapable of cultivation, and the vegetation, consisting of Artemisias [sic] and wild sage, is extremely sparse.”(California Historical Society Quarterly, 1932). The study area likely falls within the pre-contact homelands of the *Pitkachi* (about 18 miles to the N/NE (Latta, 1977) (National Archives, 1928; Merriam, 1967; Heizer, 1972). The *Pitkachi*, a Tribe of the San Joaquin River Yokuts group of the Foothill Yokuts division, occupied the area south of the San Joaquin in between Mendota and immediately south of the study in present day Fresno. (Kroeber, 1925: Plate 47; Wallace 1978b). Known ethnographic villages located near this area include *Kohuou*, near Herndon. The *Pitkachi* were said to be named after a salt or alkali that was “evil-smelling” (Kroeber, 1925).

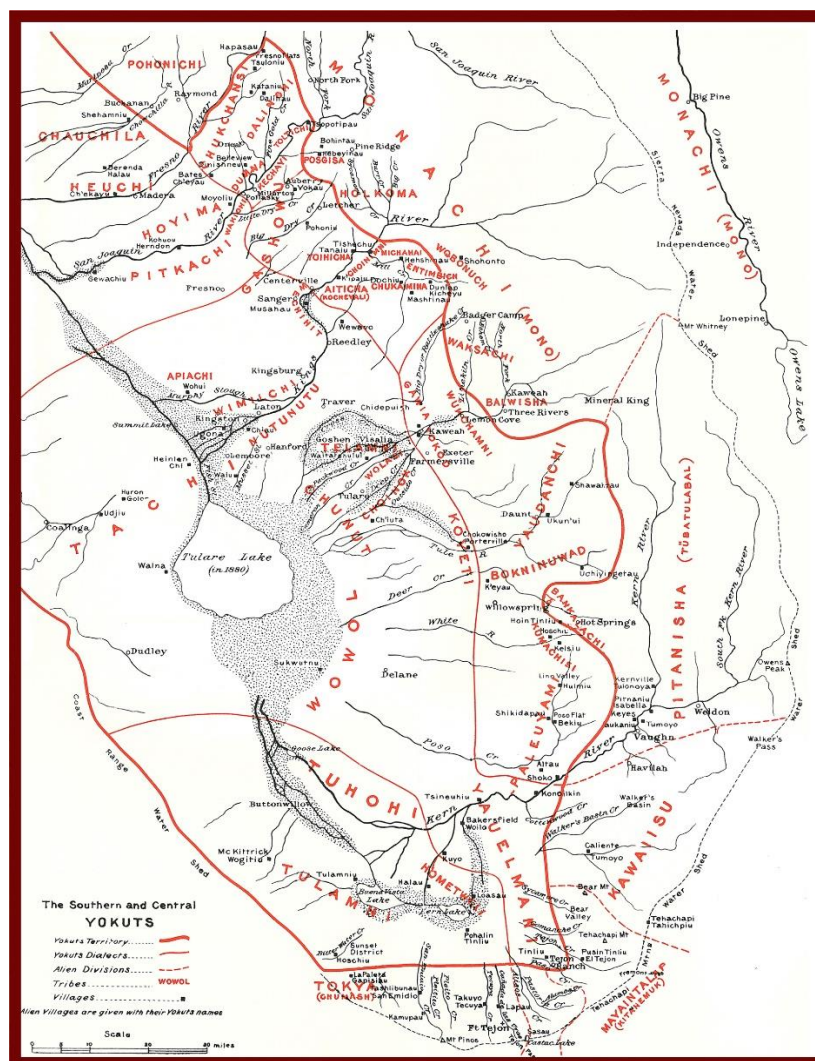


Figure 5

Yokuts occupants of the San Joaquin Valley and adjoining Sierran foothills were hunters and gatherers who depended upon the seasonal vegetal and faunal resources. Similar to their neighboring Tribes, the *Pitkachi* lived in permanently established villages during most of the year, usually between the months of October and May (Gayton, 1930:365). The rest of the year, they would travel across their territory, tracking seasonally available plants as well as game and fish. Their principal villages were located along permanent springs, sloughs, and streams, while temporary camps were scattered throughout their area along seasonal drainages. Pounding rocks, the most visible vestige of Native American occupation, are located on rock boulders and bedrock outcrops above seasonal or permanent water courses, but are rarely found on the valley floor. River cobble mortars or wooden mortars on fallen tree logs were more commonly used in this area. The abundance of resources in the valley supported a socially complex lifestyle, with the high population numbers normally associated with agricultural peoples (**Figure 5**) (Baumhoff, 1963).

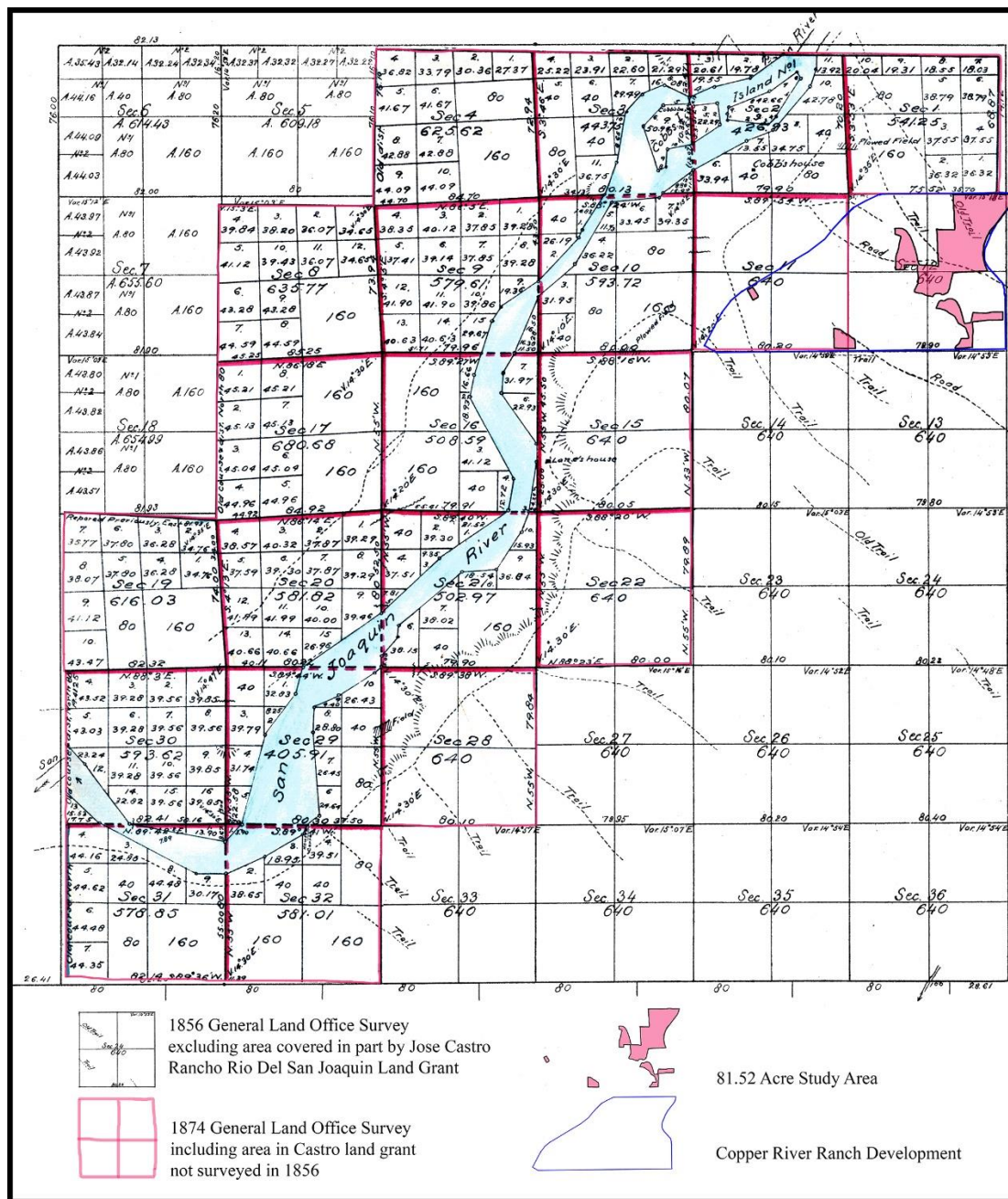
Numerous accounts (Gayton, 1930, 1948; Kroeber, 1925; Latta, 1977; McCarthy, 1995; Spier, 1978; and Wallace, 1978a), of Valley Yokuts life ways offer details of pre-European land use in the San Joaquin Valley.

### **Historic Era Context; 1840-1970**

According to 1856 and 1874 survey maps produced by the U.S. General Land Office, (GLO, 1812-1946) (**Figure 6**) the subject property was crossed by two historic roads in the 19<sup>th</sup> Century, the Road from Stockton to Kings River and the “Old Road”. The Old Road (*El Camino Viejo* in Spanish) was the less used eastern branch of the main *El Camino Viejo* that connected Los Angeles to the Bay Area via the west side of the valley along the Coastal Ranges ending at San Francisco Bay near present day Oakland. Little information exists regarding the origin of this



eastern branch, but it appears to have been in use since at least the early 1840s. This east side branch crossed the



**Figure 6**

San Joaquin River at a shallow ford on the southern half of General Jose Castro's 1846 land grant, Rancho Rio del San Joaquin, at a place subdivided by Jose Castro for a new town to be called City

of Washington. Ultimately, Castro was unable to secure his land grant in the U.S Courts and his vision for a new community never materialized. Fort Washington, a fortified trading post, ferry and hotel, was established at this river crossing in 1850 by Thomas Alsbury, Wiley B. Cassity and Major Lane (Clough and Secrest, 1984). Fort Washington became one of the flash points for the Mariposa Indian War of 1850-1851 when Cassity was killed in December 1850 by local Tribes along the Road between Rootville (Millerton) and Fort Washington.

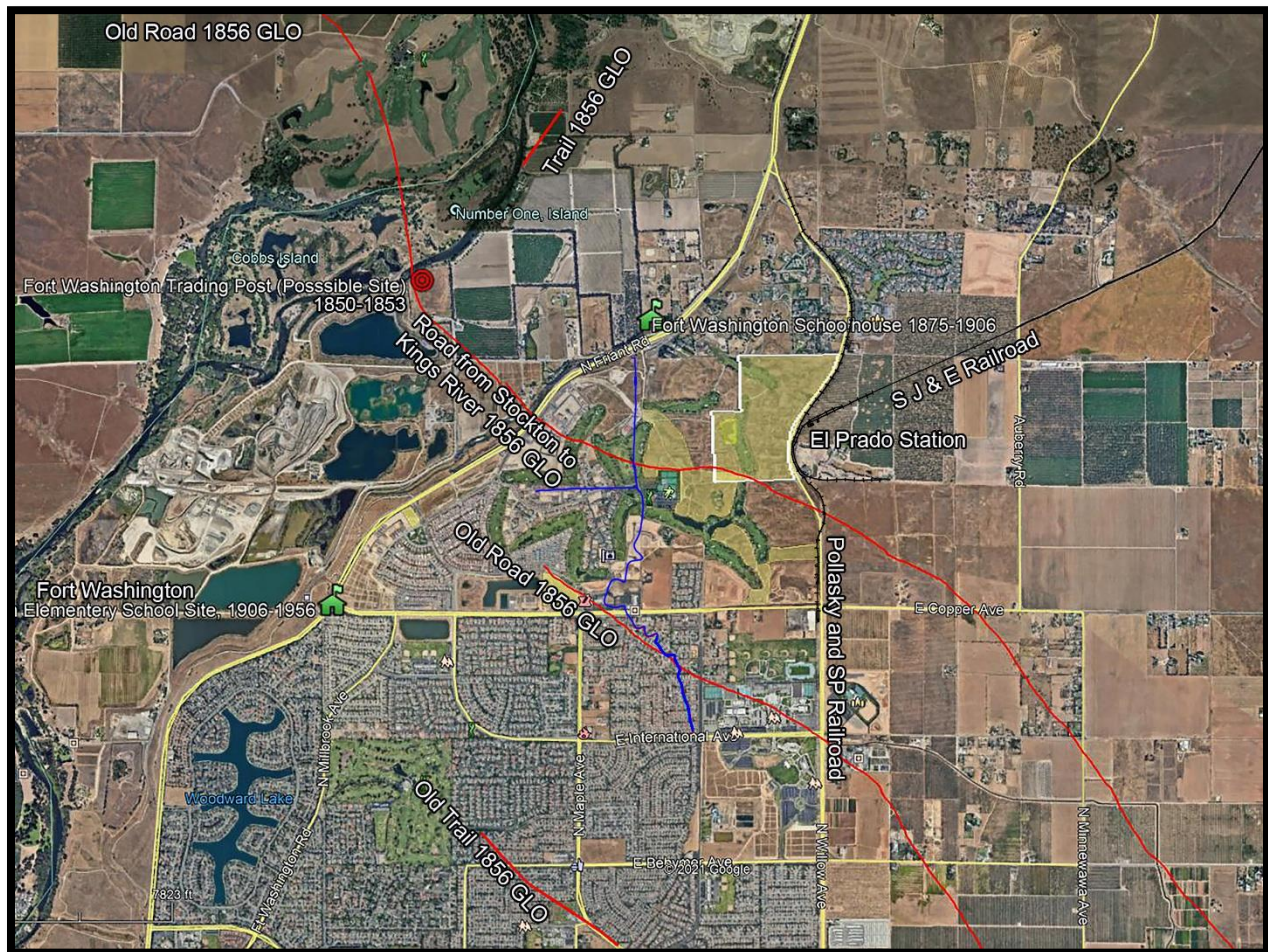
The Stockton to Kings River Road was one of three stage lines established between 1850-1854, crossing the San Joaquin River between the County seat at Millerton and present day Fresno. This line ran from Stockton to Visalia, intersecting the “Old Road” at Fort Washington, passing through the study area, eventually crossing the Kings River at Pooles Ferry two miles north of Reedley, California on its way to Visalia. (GLO Map 12S 20E, 13S 21E 1856) No physical evidence of either road currently exists within the study area. **(Figure 7)** Fort Washington eventually lent its name to the local elementary school, Fort Washington Elementary. Fort Washington School District was established in 1874-75 and shows on the 1891 Thompson Atlas of Fresno County as being on the north side of Old Millerton Road, 218 yards north of the study area. It was moved to the corner of Fresno and Auberry (today's Millbrook Ave and Copper Road) around 1906, approximately 65 yards south of the study area. It was demolished following WWII and no physical evidence of either construction exists today. **(see figure 4 and 7).**

In 1891, Fresno promoter Marcus Pollasky organized funding from local investors to build a railroad line, the San Joaquin Valley Railroad, or Pollasky Line, from Fresno through Hamptonville, (present day Friant) to the Sierra Nevada Mountains. Its stated purpose was to open the area for real estate development and logging. Upon partial completion of the rail line as far as Hamptonville in 1892, Hamptonville was renamed Pollasky, whereupon Mr. Pollasky quietly left





edge of the study area in APN 579-39-54, 579-07-41 and 579-07-42. An *in situ* concrete culvert stamped



**Figure 8**

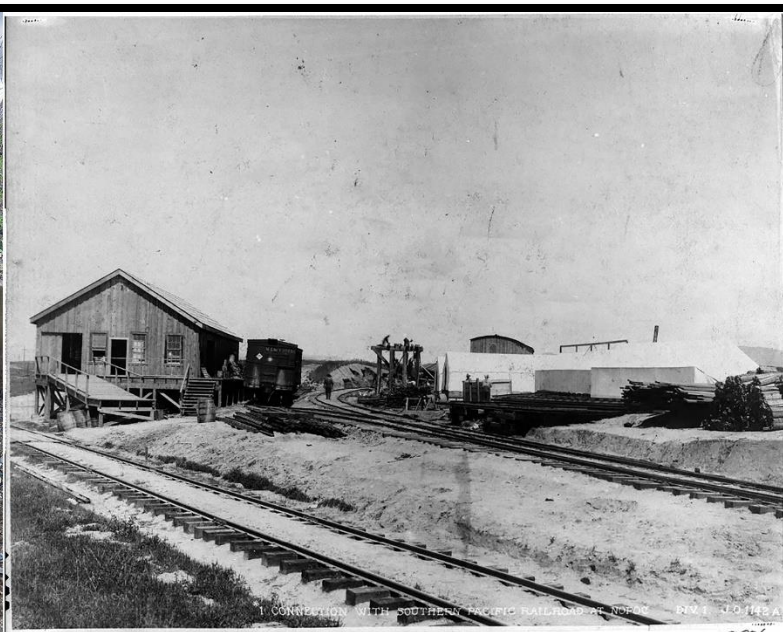
with the date 1911, is found on the eastern edge of APN 579-39-53. **(Figure 9)**. The Pollasky-SP Line is registered with the Fresno County Landmark Commission as an historic resource. Treatment of this feature should be discussed by the Assemi Group and the County Landmark Commission.

A spur line off of the SP-Pollasky line was built in 1912 to aid in the construction of the Big Creek Hydroelectric Project. The San Joaquin and Electric, commonly known as the SJ&E, began at a station called El Prado, **(Figure 10)** located 75 meters east and outside of the study area.





**Figure 9, 1911 storm culvert on the Pollasky SP Rail Line, SE corner of the Copper River Ranch Development**



**Figure 10, El Prado Station for the SJ&E Railroad under construction, 1912. View looking NNE from today's Willow Ave. Photo courtesy of the Huntington Library and Calisphere.**

The SJ&E rail line went through the town of Auberry ending at the company town of Cascada, today's Big Creek. The entire line was built in 157 days, working for seven days a week and 10 hours per day. All construction work was done by wheelbarrow, mule team and scraper. Higher in the mountains, blasting through granite was handled by individuals or teams of two. The SJ&E was built to carry materials and passengers for the largest hydroelectric project in the world at the time. Upon its completion, the Big Creek Hydroelectric project supplied 95% of the electricity for southern California. The SJ&E Railroad was abandoned in 1933 (Johnston, 1965). Many sections of the railroad grade and portions of trestle footings still exist throughout its original line, including some of the railroad grade at El Prado.

## **5.0 Record Search**

In April 2019 Table Mountain Cultural Resources Department requested a record search from the Southern San Joaquin Valley Information Center. The record search indicated no

archaeological resources had been previously identified on the subject property or within ½ mile radius. (**Appendix A**).

## **6.0 Field Methods**

Field investigators included Robert Pennell, Roger LaJeunesse, and Venessa Jimenez, Department of Cultural Resources, Table Mountain Rancheria, Friant, CA. The goal of the survey was to identify any historic properties or resources including, (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources. (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or an historical resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources.



**Figure 11**

On October 21 2020 and December 11 2020, an extensive on-foot investigation of the study area was undertaken, (**Figure 11**). We walked transects spaced 20 meters apart. In the course of the investigation no historic or cultural resources were identified. Most of the study area has been

heavily disturbed by grading or obscured by dirt piles. Due to recent activity prior to the survey, 80% of the remaining surface area was visible.

Our on-site procedure involved identifying and recording all features that were visible on the surface using a Trimble GeoXH GeoExplorer 6000 series GPS unit with an accuracy of +/- 10cm. no artifacts were identified, no historic resources or properties eligible for the National Register of Historic Places were found.

## **7.0 GEOARCHEOLOGICAL CONTEXT**

Cultural Resources staff used both on-site and in- office methods to complete our geoarchaeology review. Our on-site procedure involved examining surface soils composition throughout the study area, more specifically in road cuts and excavations. In-office procedures involved identifying soils utilizing the UC Davis California Soil Resource lab Soil Survey Geographic Database (SSURGO). Soils identified by the SSURGO within the study area are predominately the Pollasky/Montpellier series complex. The Montpellier series consists of deep and very deep, well or moderately well drained soils formed in old alluvium from granitic rock sources. The Pollasky series occurs on the eastern San Joaquin Valley side slopes and consists of moderately deep, well drained, moderately coarse textured Regosols formed in the residuum from softly to moderately consolidated arkosic (sandstone) sediments (SUURGO). This series occurs on undulating to steep dissected terraces under annual grasses and forbs. The Pollasky/Montpellier series complex soils are found in the higher dissected bench lands on the eastern half of the study area. Hanford series soils consist of very deep, well drained soils that formed in moderately coarse textured alluvium



dominantly from granite. Hanford soils are found on stream bottoms, floodplains and alluvial fans having slopes of 0 to 15 percent and are also found on the lower, flatter bench of the western half of the study area (**Figure 12**).



**Figure 12**

The western half of the study area also contained large disturbed deposits of Pumicite (finely powdered Pumice). Some Pumicite deposits identified were possibly undisturbed and were found layered between sand and gravel alluvium, while other Pumicite deposits were very deep and uniform. **(Figure 13)** Pumice and Pumicite deposits are commonly found in the area near Friant Dam/Millerton Lake and have been mined commercially over

the last century and were described by the California Division of Mines (Chesterman and Schmidt 1956).

“The pumice and pumicite deposits near Friant, California, occur in the Friant (Pleistocene?) formation which crops out in the low foothills north and east of Friant. The Friant formation is flat-lying and consists mostly of lacustrine and fluvial deposits of silt, sand, gravel, and thinly layered pumicite. Pumice occurs only locally as thin beds or admixed with sands overlying the pumicite. Although the maximum thickness of the Friant formation is not known, locally the pumicite is at least 150 feet thick. The pumicite is in layers that range in thickness from a few hundredths of a millimeter to an inch (fig. 43). Individual layers of pumicite are uniform in thickness and can be traced for several tens of feet along their strike. In color, the pumicite ranges from grades of white through pink to brick red. The redness is caused by an iron oxide stain. Local alteration, especially in several layers near the base of the sequence has developed a pink colored clay. Fractures are filled locally by brown opaline silica.”



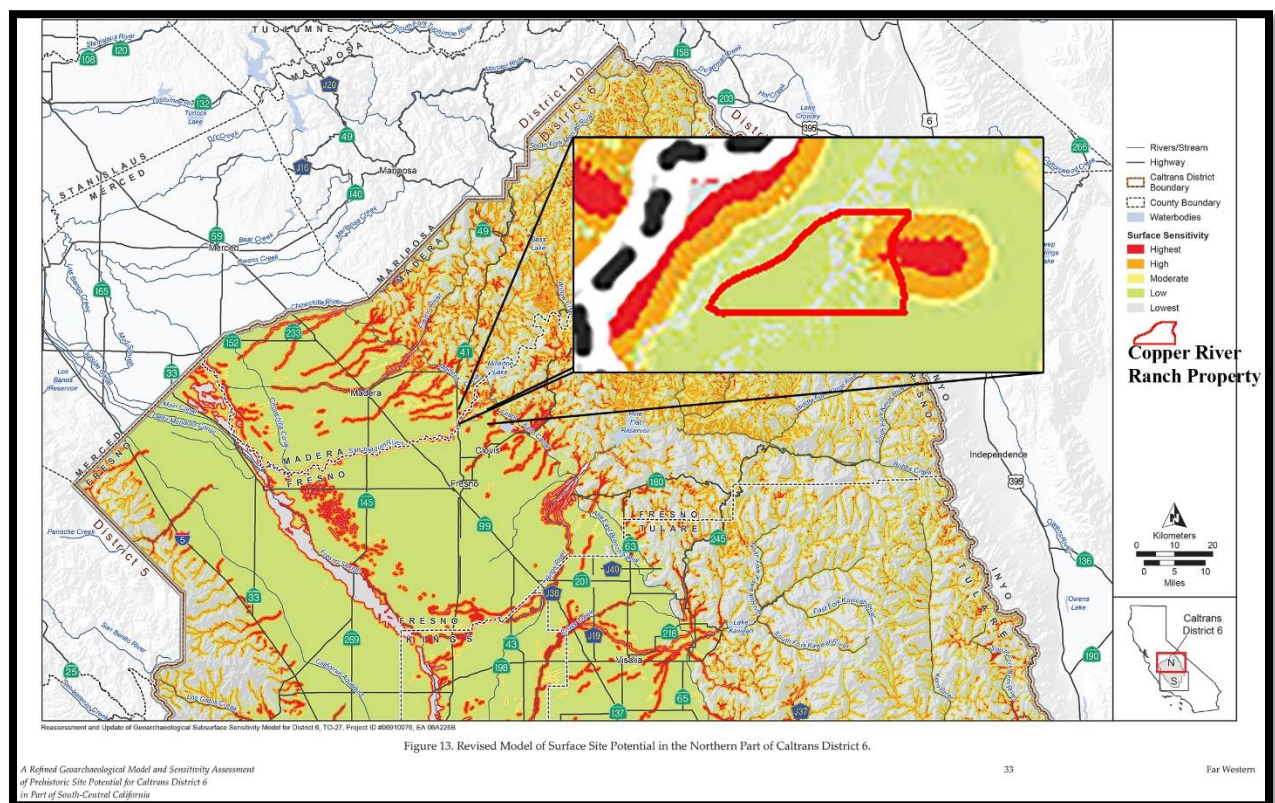
Figure 13. 8 ft road cut on the eastern half of the Copper River Development showing layers of alluvium deposits.

Ponding basin side wall, eastern half of the Copper River Development. Deep pumicite deposit.

Pumicite deposits in alluvium have also been identified in road cuts on Auberry Road along Little Dry Creek and Willow Ave near where it connects with Friant Road. It has been suggested that these pumicite deposits may have been created by a terminal Pleistocene catastrophic flood event or series of events that may have been responsible for the shaping of the two differing land forms and soil series found within the study area.

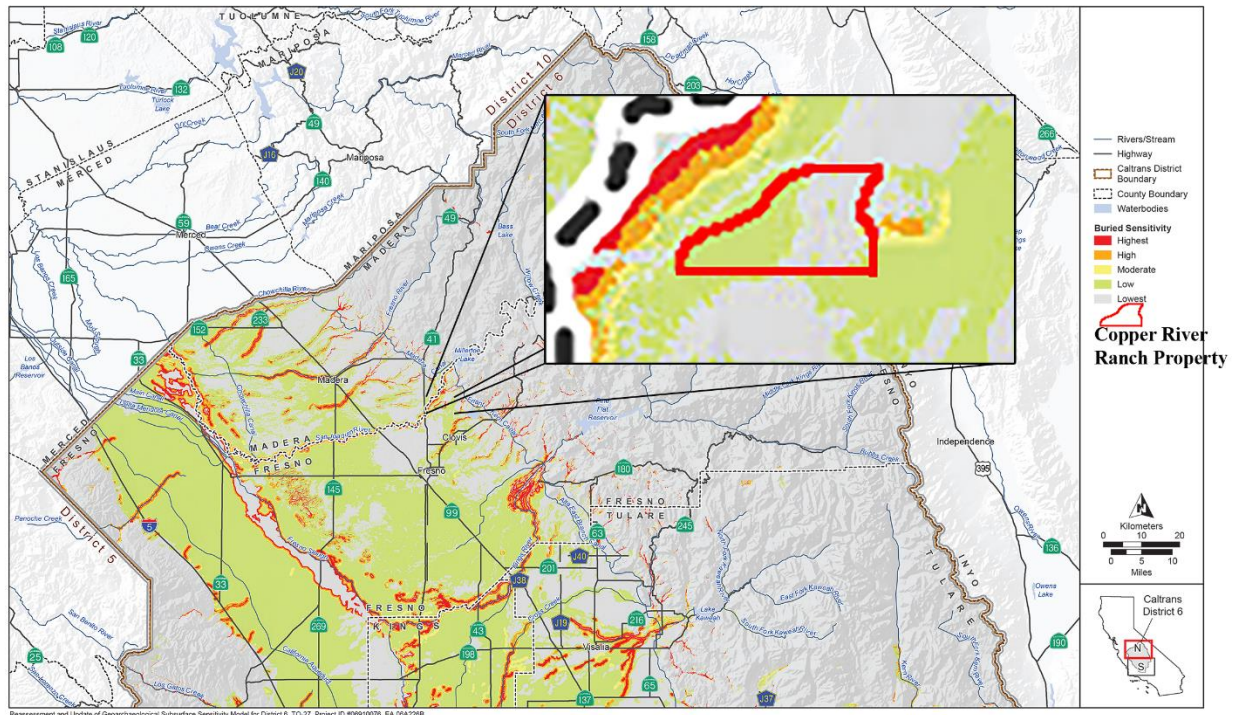


Additionally, Cultural Resources staff reviewed A Refined Geoarchaeological Model and Sensitivity Assessment of Prehistoric Site Potential for Caltrans District Six in Part of South Central California, (2019, Meyer et al) specifically, sections related to the APE and surrounding area to gain a better understanding of the potential for surface and buried cultural deposits within the APE. The assessment for potential buried cultural deposits was determined to be necessary as the project proponent proposes extensive grading and trenching. The study area for the Copper River Ranch Development, was evaluated by Caltrans and Far Western and Associates in 2019 as being low sensitivity and lowest sensitivity for both surface and buried cultural deposits (**Figures 14 and 15**).



**Figure 14, Surface site sensitivity**





A Refined Geoarchaeological Model and Sensitivity Assessment of Prehistoric Site Potential for Caltrans District 6 in Part of South-Central California

Figure 18. Revised Extent of Buried Site Potential in the Northern Part of Caltrans District 6.

42

Far Western

## Figure 14, Buried site sensitivity

### 8.0 Evaluations and Recommendations

No historic or tribal cultural resources determined to be eligible for the National Register of Historic Places were found during the survey on the subject property. Any signs of cultural resources may have possibly filtered out due to many years of ground disturbances by farming. The Assemi Group and the County Landmark Commission should discuss the presence and treatment of the remnants of the Pollasky/Sp Railroad. There is a remote possibility that cultural artifacts or human remains may be inadvertently discovered during significant ground disturbing activities, although that is unlikely due to distance of the subject property from any viable water source. Contractors and construction workers should be notified of the possibility of cultural findings during construction. If there is a finding, work surrounding that area should be stopped until a qualified archaeologist has been able

to evaluate the finding. If human remains are found, the Fresno County Coroner must be notified immediately. The coroner has 24 hours to contact the Native American Heritage Commission if the remains are deemed Native American. The Most Likely Descendent (MLD) then has 24 hours to suggest proper treatment for the remains per the NAHC.

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# Appendix A



12/3/2019

Robert Pennell  
Table Mountain Rancheria  
PO Box 410  
Friant, CA, 93626

Re: Pickett and Associates Business Park  
Records Search File No.: 19-471

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Clovis USGS 7.5' quad. The following reflects the results of the records search for the project area and the .5 radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ shapefiles

Resources within project area:	P-10-005837, 10-003930
Resources within .5 radius:	P-10-005197, 10-007030
Reports within project area:	FR-02390
Reports within .5 radius:	FR-00392, FR-01842

**Resource Database Printout (list):**

☒ enclosed ☐ not requested ☐ nothing listed

**Resource Database Printout (details):**

☒ enclosed ☐ not requested ☐ nothing listed

**Resource Digital Database Records:**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Database Printout (list):**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Database Printout (details):**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Digital Database Records:**

☒ enclosed ☐ not requested ☐ nothing listed

**Resource Record Copies:**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Copies:**

☒ enclosed ☐ not requested ☐ nothing listed

**OHP Historic Properties Directory:**

☐ enclosed ☐ not requested ☒ nothing listed

**Archaeological Determinations of Eligibility:**

☐ enclosed ☐ not requested ☒ nothing listed

**CA Inventory of Historic Resources (1976):**

☐ enclosed ☐ not requested ☒ nothing listed

**Caltrans Bridge Survey:** Not available at SSJVIC; please see

<http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>

**Ethnographic Information:** Not available at SSJVIC

**Historical Literature:** Not available at SSJVIC

**Historical Maps:** Not available at SSJVIC; please see

<http://historicalmaps.arcgis.com/usgs/>

**Local Inventories:** Not available at SSJVIC

**GLO and/or Rancho Plat Maps:** Not available at SSJVIC; please see

<http://www.glorerecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1> and/or

<http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items>

**Shipwreck Inventory:** Not available at SSJVIC; please see

<http://www.slc.ca.gov/Info/Shipwrecks.html>

**Soil Survey Maps:** Not available at SSJVIC; please see

<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Jeremy E David  
Student Assistant



# Appendix E

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## Water Supply Memorandum

## Memorandum

To: Christine Lingenfelter, Chief Real Estate Officer, Assemi Group  
From: Stephen Spencer, Project Manager, Provost & Pritchard  
Subject: Full Build-Out Demand Estimate from Meter Data,  
Copper River Ranch Development, Fresno California  
Date: July 30, 2021

Note: This memorandum has been revised from our original July 8, 2021 memo based on comments received from the City of Fresno on July 16, 2021.

This memorandum has been prepared to summarize the estimated water demand for the Copper River Ranch (CRR) Development based on actual meter usage data in 2020. The City of Fresno provided the 2020 water meter usage data for the constructed lots within the CRR Development area (see Attachment 1 – 2020 Meter Data ). The meter data included most residential tracts within the original 706 acres covered by the 2003 FEIR and the few constructed meters from the 109 acres to be included in the Subsequent EIR. Meter connections, average day, and maximum day demand for the 26 mixed use tracts included in the City data aided in the demand calculation process.

### **Connections**

The Attachment 1 – 2020 Meter Data provided by the City of Fresno represents only connections to lots that are currently developed and occupied. For undeveloped lots that lack meter connection data, the Exhibit 2 – Copper River Ranch Exhibit Map<sup>1</sup> and Attachment 3A – Total Units Calculation document<sup>2</sup> were referenced to determine the planned number of connections at full build-out. In some cases, planned unit counts for tracts in the pre-planning stages are not known. The City of Fresno General Plan<sup>3</sup>, published in 2020, was used as a supplemental document to estimate the unit density per acre and establish a connection count for each tract and parcel for calculation purposes. The number of connections listed are domestic meters only. Where tracts have irrigation demand (e.g., for irrigation of medians, etc.), that demand is spread across each connection in the tract to estimate fully the tract's water demand.

### **Demand**

The average day demand for each water meter was calculated by dividing the total volume of water used by the number of days the meter was on-line (generally 365 days for a full year's operation). In contrast, the maximum day demand serves as an extreme condition occurring once a year when total water demand across the development is the highest for the year. In 2020, that day occurred on July 25 per City staff. The arithmetic mean of the average and maximum day flow per connection and can be found in the table below. Detailed demand calculations are included in Attachment 2.

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<sup>1</sup> Draft Land Use Report (City of Fresno, January 2021) and Planned Land Use Circulation Map (City of Fresno, April 2017) provided by the Assemi Group. See Exhibits 1 and 2.

<sup>2</sup> Units Calculation (City of Fresno, January 2021) provided by the Assemi Group.

<sup>3</sup> City Wide Standards for Density and Development Intensity (City of Fresno, 2020)

Table 1. Demand Per Connection based on 2020 Meter Data (City of Fresno, 2021)

Average Flow Per Connection		
Land Use Designation	Average Day Flow/Connection (AVG)	Max Day Flow/Connection (AVG)
Low Density Residential, RL	0.65 gpm	1.31 gpm
Medium-Low Density Residential, RML	0.25 gpm	0.42 gpm
Medium Density Residential, RM	0.16 gpm	0.26 gpm
Medium-High Density Residential, RMH	0.16 gpm	0.26 gpm
Commercial, CC	2.85 gpm	4.57 gpm

Each tract in the commercial, low, medium-low, medium, and medium-high density residential land-use subcategories were calculated separately due to the differences in dwelling unit densities. In order to produce data that was most representative, it was necessary to remove tracts that were less than 50% built out from the typical flow-per-connection calculation presented in Table 1. When calculating total demand for the CRR Development, actual demand by tract was used for tracts that were at least 50% built out. For partially developed tracts less than 50% built out, demand was estimated using the average per-connection calculation from Table 1.

When calculating full build-out demand, the demand estimates are divided between the original 706-acre development from the FEIR and the newly considered 109-acre development covered by the SEIR.

### **Demand Projections**

Provost & Pritchard examined the City of Fresno's Attachment 1 – 2020 Meter Data to determine an average flow per connection by land use type. The maximum number of connections in a tract were determined by the Total Units Calculation document (Attachment 3A; Assemi Group, 2020) which details each tract at its planned unit count at completion. Meter data was used for tracts that are constructed, while averaged values shown in Table 1 were used for undeveloped areas. As discussed in the Connections section, there are several tracts, generally planned for urban neighborhood developments, that have not yet been assigned a unit count. In these cases, the General Plan densities (see Attachment 3B – Table 3-1 General Plan Dwelling Unit Densities) were used to determine the projected buildout connection count. The projected demand for the CRR Development was determined by multiplying the flow per connection by the projected, or existing, connections depending on the status of construction. The final result is shown on Table 2, split between the original development defined in the FEIR and the newly proposed 109 acre development. The Peak Hour demand is calculated by multiplying the Maximum Day Demand by a peaking factor of 1.53<sup>4</sup>.

Tables 3 and 4 further break down the demand calculations for the two development areas by land use designation.

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<sup>4</sup> Peaking factor provided by City Staff

Table 2. Total Demand Calculation

	706 Acre Development	109 Acre Development
<b>Average Day, GPM</b>	789	137
<b>Max Day, GPM</b>	1428	247
<b>Peak Hour, GPM</b>	2185	379

Table 3. Total Demand by Land Use Type, FEIR

Original 706 Acres				
Land Use	Designation	Projected Average Day Demand, gpm	Projected Max Day Demand, gpm	Projected Peak Hour Demand, gpm
Commercial	CC	77	123	189
Residential Urban Neighborhood	RUN	106	217	332
Low Density Residential	RL	267	538	822
Medium-Low Density Residential	RML	206	338	518
Medium Density Residential	RM	103	162	248
Medium-High Density Residential	RMH	30	50	76
<b>Total</b>		<b>789</b>	<b>1,428</b>	<b>2,185</b>

Table 4. Total Demand by Land Use Type, SEIR

New 109 Acre Project				
Land Use	Designation	Projected Average Day Demand, GPM	Projected Max Day Demand, GPM	Projected Peak Hour Demand, GPM
Commercial	CC	-	-	-
Residential Urban Neighborhood	RUN	-	-	-
Low Density Residential	RL	38	68	105
Medium-Low Density Residential	RML	99	179	274
Medium Density Residential	RM	-	-	-
Medium-High Density Residential	RMH	-	-	-
<b>Total</b>		<b>137</b>	<b>247</b>	<b>379</b>

In addition to the water demand summarized above, the CRR Development water demand includes sufficient water to meet firefighting requirements. City staff have indicated that a fire flow demand of 2,500 gallons per minute should be added to the Max Day Demand to generate a total demand estimate for the CRR Development. Using that value, the Total Water Demand for the original 706 acres covered by the FEIR is:

$$\begin{aligned}
 \text{Total Demand} &= \text{MDD} + \text{Fire Flow} \\
 &= 1,428 \text{ gpm} + 2,500 \text{ gpm} = 3,928 \text{ gpm}
 \end{aligned}$$

City staff have indicated that a fire flow demand of 1,500 gallons per minute should be added to Max Day Demand to generate a total demand estimate for the Subsequent EIR 109 acre area. Using that value, the Total Water Demand for the new 109 acre development covered by the SEIR is:

$$\begin{aligned}\text{Total Demand} &= \text{MDD} + \text{Fire Flow} \\ &= 247 \text{ gpm} + 1,500 \text{ gpm} = 1,747 \text{ gpm}\end{aligned}$$

City staff have indicated that this demand will be covered through payment of water capacity fees.

### **Available Water Supply**

As previously reported, the CRR Development has constructed or funded water supplies to meet the demand of the 706-acre project covered by the FEIR (see Table 5).

Table 5. Developed Water Supplies for CRR

Water Well/Source	Actual Maximum Capacity,	Notes
	GPM	
Well 330	1,800	Expanded capacity
Well 369	1,000	
Well 370	1,250	Well 370 was recently completed but is has only operated intermittently. The City is completing start up testing to confirm proper operation of the well controls.
Well 371	NA	Well 371 has not been constructed at the time of this memo.
<b>Totals</b>	<b>4,050</b>	A required capacity of 4,900 GPM was originally determined in the 2003 Final EIR for Copper River Ranch. Agreements with the City that the 4,900 GPM would be supplied by groundwater wells.

## **Summary**

Table 6 below summarizes the Demand and Supply calculations for the original 706-acre development covered by the 2003 FEIR and the additional 109-acre area to be covered by the 2021 SEIR.

*Table 6. Demand and Supply Calculation Summary*

	706 Acres	109 Acres	Notes
Full Build-Out Connections	2799	453	See Attachment 2 and 3A for connections by Tract.
Average Day Demand (GPM)	789	137	Based on water meter data
Maximum Day Demand (GPM)	1428	247	Based on water meter data
Peak Hour Demand (GPM)	2185	379	Maximum day demand x 1.53 per City
Fire Flow (GPM)	2500	1500	City staff indicated that a fire flow of 2,500 GPM should be applied to the original development. Fire flow demand for the additional 109 acres will be covered through payment of water capacity fees.
Total Demand (MDD+Fire Flow) (GPM)	3928	1747	
Constructed Water Supply (GPM)	4,050	NA	Water supply for the SEIR area will be developed in conjunction with the City through payment of water capacity fees.
Excess/Deficit Capacity (GPM/[GPM])	122	NA	

As shown in Table 6, water supplies constructed for the original 706 acres covered by the FEIR are sufficient to meet the project build-out water demand for that area. The water required for the new 109 acres covered by the SEIR will be covered through payment of water capacity fees.

## **Golf Course**

The 2003 FEIR states that the Copper River golf course annual usage was anticipated to be 1,070 acre-ft per year (AFY) plus 100 AFY for the clubhouse. The 2003 FEIR originally anticipated that the golf course demand would be primarily met with a combination of reclaimed water from the nearby wastewater treatment plant and raw water supplied by Fresno Irrigation District (FID). It was anticipated that FID would supply 480 AFY, and the remainder of the demand (about 690 AFY) would come from reclaimed water. Today, due to more precise water management, the demand is approximately 762 AFY. Currently the golf course demand is met with reclaimed water (183 AFY), raw FID water (283 AFY, assuming a 3-month water delivery window) and groundwater pumped from two irrigation wells (296 AFY). As development continues, the amount of reclaimed water would increase proportionally up to the current plant capacity of 450 AFY (400,000 GPD).



**Exhibits and Attachments**

Exhibit 1 – General Plan Land Use Map

Exhibit 2 – Copper River Ranch Exhibit Map

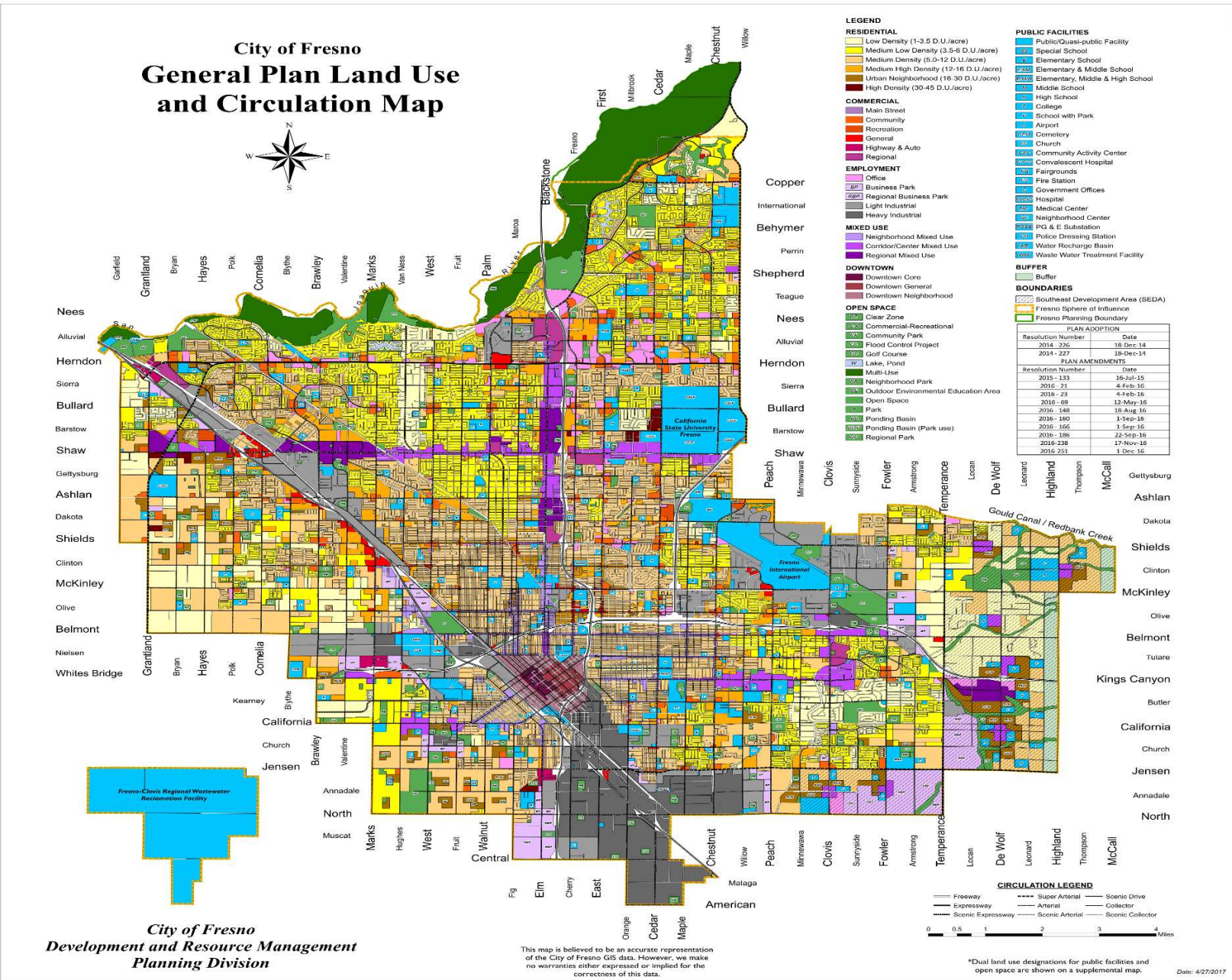
Attachment 1 – 2020 Meter Data

Attachment 2 – Projected Demand Calculations

Attachment 3A – Total Units Calculations

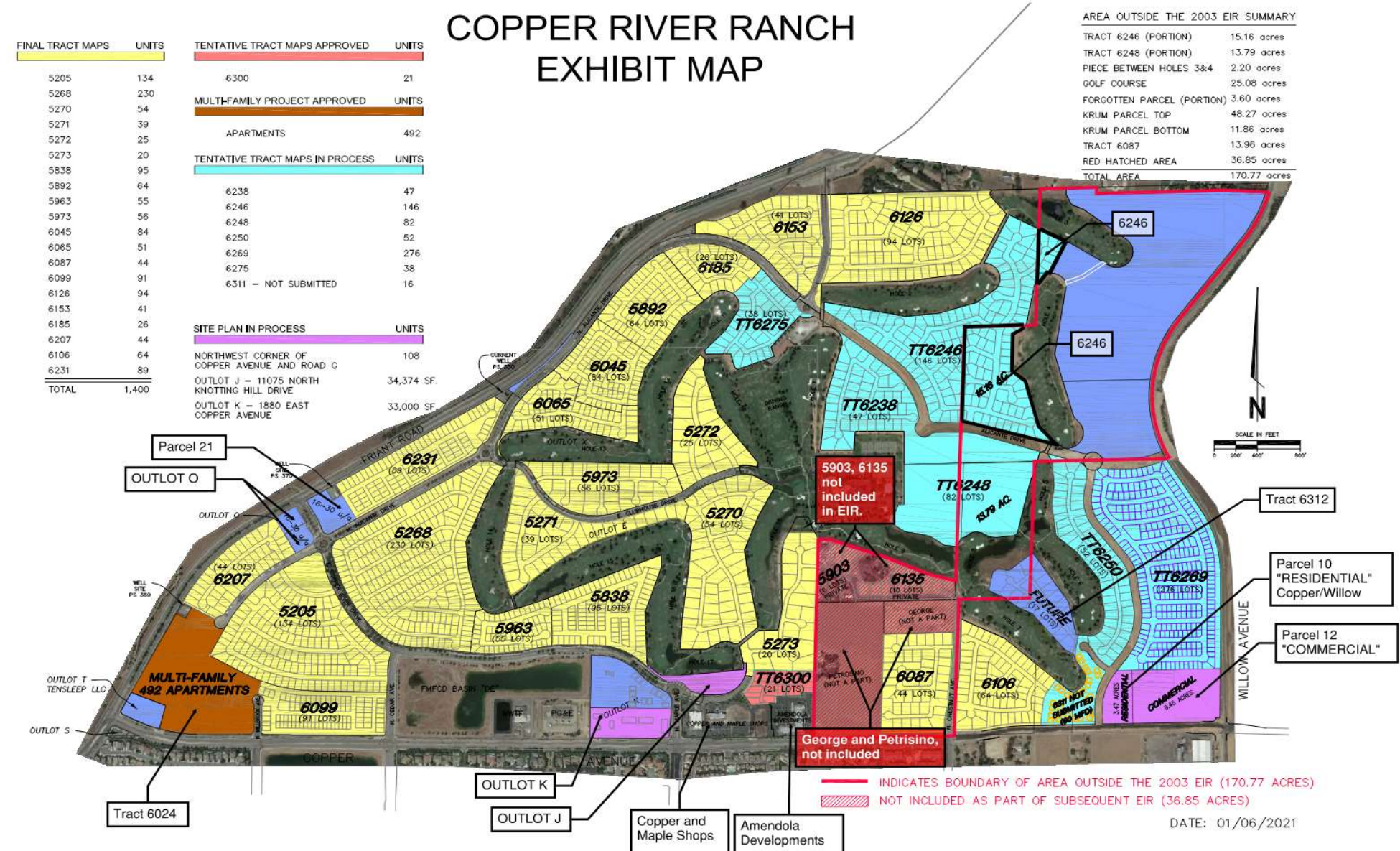
Attachment 3B – Table 3-1 General Plan Dwelling Unit Densities

Exhibit 1 –  
General  
Plan Land  
Use Map





## Exhibit 2 – Copper River Ranch Exhibit Map



## Attachment 1 – 2020 Meter Data

Table 2-1 Meter Data, Average Day

AVERAGE DAY								
TRACT	LAND USE	Water Demand gpd	Irrigation Demand gpd	Total Demand gpd	Total Demand gpm	Total Connections No.	Flow Per Connection w/ IRR gpm	Flow Per Connect w/o IRR gpm
PO801CI	CC	376	6,252	6,628	4.60	3.00	1.53	2.30
PO802CI	CC	2,492	7,293	9,785	6.80	5.00	1.36	3.40
T5205	RML	56,111	5,189	61,300	42.57	138.00	0.31	0.32
T5268	RML	71,350	3,973	75,322	52.31	232.00	0.23	0.23
T5270	RL	45,011	869	45,880	31.86	52.00	0.61	0.62
T5271	RL	27,739	896	28,636	19.89	36.00	0.55	0.57
T5272	RL	19,858	0	19,858	13.79	18.00	0.77	0.77
T5273	RL	266	2,638	2,904	2.02	4.00	0.50	0.50
T5838	RML	18,536	5,599	24,136	16.76	96.00	0.17	0.18
T5892	RM	17,490	0	17,490	12.15	64.00	0.19	0.19
T5963	RMH	15,426	1,902	17,328	12.03	58.00	0.21	0.22
T5973	RML	18,058	1,751	19,809	13.76	57.00	0.24	0.25
T6045	RM	17,027	385	17,413	12.09	85.00	0.14	0.14
T6065	RM	14,120	0	14,120	9.81	51.00	0.19	0.19
T6087	RML	21,401	1,516	22,917	15.91	46.00	0.35	0.36
T6099	RM	13,099	7,986	21,084	14.64	93.00	0.16	0.16
T6106	RM	0	0	0	0.00	0.00	0.00	0.00
T6126	RML	22,671	274	22,945	15.93	81.00	0.20	0.20
T6153	RML	15,762	375	16,138	11.21	37.00	0.30	0.31
T6185	RML	2,913	1,085	3,997	2.78	18.00	0.15	0.17
T6207	RMH	6,083	0	6,083	4.22	43.00	0.10	0.10
T6231	RMH	245	0	245	0.17	12.00	0.01	0.01
T6238	RL	0	0	0	0.00	0.00	0.00	0.00
T6300	RML	0	0	0	0.00	0.00	0.00	0.00
T5903	RL	1,713	0	1,713	1.19	2.00	0.00	
T6135	RL	3,347	5,409	8,756	6.08	1.00	0.00	

Table 2-2 Meter Data Maximum Day

MAX DAY								
TRACT	LAND USE	Water Demand gpd	Irrigation Demand gpd	Total Demand gpd	Total Demand gpm	Total Connections No.	Flow Per Connection w/ IRR gpm	Flow Per Connect w/o IRR gpm
PO801CI	CC	200.00	12,200.00	12,400.00	8.61	3.00	2.87	4.31
PO802CI	CC	2,700.00	11,200.00	13,900.00	9.65	5.00	1.93	4.83
T5205	RML	102,837.15	13,250.00	116,087.15	80.62	138.00	0.58	0.58
T5268	RML	123,912.12	3,011.22	126,923.34	88.14	232.00	0.38	0.38
T5270	RL	83,400.39	2,200.00	85,600.39	59.44	52.00	1.14	1.14
T5271	RL	69,984.39	100.00	70,084.39	48.67	36.00	1.35	1.35
T5272	RL	37,525.40	0.00	37,525.40	26.06	18.00	1.45	1.45
T5273	RL	274.20	7,000.00	7,274.20	5.05	4.00	1.26	1.26
T5838	RML	22,326.76	420.00	22,746.76	15.80	96.00	0.16	0.16
T5892	RM	23,621.11	0	23,621.11	16.40	64.00	0.26	0.26
T5963	RMH	26,018.01	950.00	26,968.01	18.73	58.00	0.32	0.32
T5973	RML	30,168.81	6,900.00	37,068.81	25.74	57.00	0.45	0.45
T6045	RML	26,967.88	2,140.00	29,107.88	20.21	85.00	0.24	0.24
T6065	RM	20,252.36	0.00	20,252.36	14.06	51.00	0.28	0.28
T6087	RML	33,150.00	6,140.20	39,290.20	27.28	46.00	0.59	0.59
T6099	RM	15,993.43	18,700.00	34,693.43	24.09	93.00	0.26	0.26
T6106	RM	0	0	0.00	0.00	0.00	0.00	0.00
T6126	RML	38,411.48	0	38,411.48	26.67	81.00	0.33	0.33
T6153	RML	24,827.80	177.00	25,004.80	17.36	37.00	0.47	0.47
T6185	RML	6,241.54	2,592.30	8,833.84	6.13	18.00	0.34	0.34
T6207	RMH	12,209.45	1.00	12,210.45	8.48	43.00	0.20	0.20
T6231	RMH	0	0	0.00	0.00	12.00	0.00	0.00
T6238	RL	0	0	0.00	0.00	0.00	0.00	0.00
T6300	RML	0	0	0.00	0.00	0.00	0.00	0.00
T5903	RL	3,500	0	3,500	2.43	2.00	1.22	1.22
T6135	RL	5,409	0	5,409	3.76	1.00	3.76	3.76



## Attachment 2 – Projected Demand Calculations

Table 3-1 2020 Updated Demand Analysis

	Original 706 Acre Development										
	Tract/Parcel	Designation	Connections	Flow Per Connection		Average Day Flow	Flow Per Connection	MDD	Average Day	Max Day	Peak Hour
			No.	gpm (AVG)	gpd	gpm (MAX)	gpd	gpm	gpm	gpm	
	Outlot	T*	CC	2	2.85	8,207	4.57	13,150.00	5.70	9.13	13.97
	Outlot	J*	CC	3	2.85	12,310	4.57	19,725.00	8.55	13.70	20.96
	Outlot	K*	CC	4	2.85	16,413	4.57	26,300.00	11.40	18.26	27.94
	"COMMERCIAL" Parcel 12*		CC	10	2.85	41,034	4.57	65,750.00	28.50	45.66	69.86
	Copper and Maple Shops		CC	5	2.85	20,517	4.57	32,875.00	14.25	22.83	34.93
	Amendola Investments		CC	3	2.85	12,310	4.57	19,725.00	8.55	13.70	20.96
	Outlot	K*	RUN	118	0.15	25,223	0.42	70,836.97	17.52	49.19	75.26
	Outlot	O*	RUN	46	0.15	9,783	0.42	27,476.34	6.79	19.08	29.19
	Parcel	21*	RUN	58	0.15	12,487	0.30	25,306.04	8.67	17.57	26.89
	Tract	6024*	RUN	492	0.15	105,165	0.27	189,297.11	73.03	131.46	201.13
	Tract	6248	RL	53	0.65	49,838	1.31	100,305.93	34.61	69.66	106.58
	Tract	6250	RL	52	0.65	48,897	1.31	98,413.37	33.96	68.34	104.56
	"RESIDENTIAL" Copper/Willow		RL	17	0.65	15,986	1.31	32,173.60	11.10	22.34	34.18
	Tract	6312	RL	12	0.65	11,284	1.31	22,710.78	7.84	15.77	24.13
	Tract	6311	RL	90	0.65	84,630	1.31	170,330.83	58.77	118.29	180.98
	Tract	6246	RML	101	0.25	36,663	0.42	60,944.64	25.46	42.32	64.75
	Tract	6275	RML	38	0.25	13,794	0.42	22,929.67	9.58	15.92	24.36
	Tract	6269	RM	273	0.16	63,253	0.26	101,842.00	43.93	70.72	108.21
From Meter Data	Tract	5205	RML	133	0.32	61,300	0.58	111,881.09	42.57	77.70	118.87
From Meter Data	Tract	5268	RML	228	0.23	75,322	0.38	124,735.01	52.31	86.62	132.53
	Tract	5270*	RL	54	0.65	50,778	1.31	102,198.50	35.26	70.97	108.59
	Tract	5271*	RL	39	0.65	36,673	1.31	73,810.03	25.47	51.26	78.42
	Tract	5272*	RL	25	0.65	23,508	1.31	47,314.12	16.33	32.86	50.27
	Tract	5273*	RL	20	0.65	18,807	1.31	37,851.30	13.06	26.29	40.22
From Meter Data	Tract	5838	RML	92	0.18	24,136	0.16	21,798.98	16.76	15.14	23.16
	Tract	5892	RM	64	0.17	16,106	0.26	23,875.05	11.19	16.58	25.37
Not Built out	Tract	5963*	RMH	58	0.16	13,239	0.26	21,718.96	9.19	15.08	23.08
	Tract	5973	RML	56	0.25	19,809	0.45	36,418.48	13.76	25.29	38.69
	Tract	6045	RM	84	0.14	17,413	0.24	28,765.43	12.09	19.98	30.56
	Tract	6065	RM	51	0.19	14,120	0.28	20,252.36	9.81	14.06	21.52
	Tract	6099	RM	91	0.16	21,084	0.26	33,947.33	14.64	23.57	36.07
From Meter Data	Tract	6106*	RM	65	0.17	16,358	0.26	24,248.10	11.36	16.84	25.76
	Tract	6126*	RML	94	0.25	33,813	0.42	56,720.75	23.48	39.39	60.27
	Tract	6153*	RML	41	0.25	14,883	0.42	24,739.90	10.34	17.18	26.29
	Tract	6185*	RML	26	0.25	9,438	0.42	15,688.72	6.55	10.89	16.67
	Tract	6207*	RMH	44	0.16	10,043	0.26	16,476.45	6.97	11.44	17.51
	Tract	6231*	RMH	89	0.16	20,314	0.26	33,327.37	14.11	23.14	35.41
	Tract	6238*	RL	47	0.65	44,196	1.31	88,950.55	30.69	61.77	94.51
	Tract	6300*	RML	21	0.25	7,554	0.40	12,075.22	5.25	8.39	12.83
								789.37 gpm	1428.39 gpm	2185.44 gpm	
							Max Day Demand + Fire Flow =		3928 gpm		Fire flow value of 2,500 gpm provided by B. Buche.

New 109 Acre Project												
Tract	6246	RML	49	0.25	17,787	0.42	32,017	12.35	22.23	34.02	-->both portions of tract located outside of 2003 EIR.	
Tract	6246	RML	6	0.25	2,178	0.42	3,920	1.51	2.72	4.17		
Tract	6248*	RL	53	0.65	49,838	1.31	89,708	34.61	62.30	95.31		
Tract	6312*	RL	5	0.65	4,702	1.31	8,463	3.27	5.88	8.99		
	KRUM*	RML	296	0.25	107,449	0.42	193,408	74.62	134.31	205.50		
Tract	6087	RML	44	0.25	15,972	0.42	28,750	11.09	19.97	30.55		
	Tract	5903*	RL	6	0.65	5,642	1.31	10,156	3.92	7.05	10.79	Red Text indicates that tract is excluded from the overall calculation (see Red Hatched Area of Tract Map)
	Tract	6135*	RL	10	0.65	9,403	1.31	16,926	6.53	11.75	17.98	
	Golf Course	IRR	-									
	George/Petricino	Varies	-									
								137.45 gpm	247.41 gpm	378.53 gpm		

## Attachment 3A – Total Units Calculations

### ORIGINAL 706 ACRES ONLY

TRACT	STATUS	UNIT COUNT
5205	Final	134
5268	Final	230
5270	Final	54
5271	Final	39
5272	Final	25
5273	Final	20
5838	Final	95
5892	Final	64
5963	Final	55
5973	Final	56
6045	Final	84
6065	Final	51
<del>6087</del>	<del>Final</del>	<del>44</del>
6099	Final	91
6126	Final	94
6153	Final	41
6185	Final	26
6207	Final	44
6106	Final	64
6231	Final	89
6300	TTM Approved	21
6238	TTM	47
6246 ***	TTM	97
6248 ***	TTM	33
6250	TTM	52
6269	TTM	276
6275	TTM	38
6311	TTM	16
6312 ***	TTM	10
6024	MFD	492
OUTLOT O *	NOT MAPPED	46
OUTLOT P *	NOT MAPPED	58
OUTLOT K	Conceptual	118
<del>KRUM **</del>	<del>NOT MAPPED</del>	<del>296</del>

**TOTAL: 2660**

\* (16-30) du/ac, assume 23

\*\* (3.5-6) du/ac, assume 4.75

\*\*\* Portion of tract

### ADDED 109 ACRES ONLY

TRACT	STATUS	UNIT COUNT
<del>5205</del>	<del>Final</del>	<del>134</del>
<del>5268</del>	<del>Final</del>	<del>230</del>
<del>5270</del>	<del>Final</del>	<del>54</del>
<del>5271</del>	<del>Final</del>	<del>39</del>
<del>5272</del>	<del>Final</del>	<del>25</del>
<del>5273</del>	<del>Final</del>	<del>20</del>
<del>5838</del>	<del>Final</del>	<del>95</del>
<del>5892</del>	<del>Final</del>	<del>64</del>
<del>5963</del>	<del>Final</del>	<del>55</del>
<del>5973</del>	<del>Final</del>	<del>56</del>
<del>6045</del>	<del>Final</del>	<del>84</del>
<del>6065</del>	<del>Final</del>	<del>51</del>
6087	Final	44
<del>6099</del>	<del>Final</del>	<del>91</del>
<del>6126</del>	<del>Final</del>	<del>94</del>
<del>6153</del>	<del>Final</del>	<del>41</del>
<del>6185</del>	<del>Final</del>	<del>26</del>
<del>6207</del>	<del>Final</del>	<del>44</del>
<del>6106</del>	<del>Final</del>	<del>64</del>
<del>6231</del>	<del>Final</del>	<del>89</del>
<del>6300</del>	<del>TTM Approved</del>	<del>21</del>
<del>6238</del>	<del>TTM</del>	<del>47</del>
6246 ***	TTM	49
6248 ***	TTM	35
<del>6250</del>	<del>TTM</del>	<del>52</del>
<del>6269</del>	<del>TTM</del>	<del>276</del>
<del>6275</del>	<del>TTM</del>	<del>38</del>
<del>6311</del>	<del>TTM</del>	<del>16</del>
6312 ***	TTM	6
6024	MFD	492
<del>OUTLOT O *</del>	<del>NOT MAPPED</del>	<del>46</del>
<del>OUTLOT P *</del>	<del>NOT MAPPED</del>	<del>58</del>
<del>OUTLOT K</del>	<del>Conceptual</del>	<del>118</del>
KRUM **	NOT MAPPED	296

**TOTAL: 430**

\* (16-30) du/ac, assume 23

\*\* (3.5-6) du/ac, assume 4.75

\*\*\* Portion of tract



**Attachment 3B – Table 3-1 General Plan Dwelling Unit Densities**

TABLE 3-1: CITYWIDE STANDARDS FOR DENSITY AND DEVELOPMENT INTENSITY		
Land Use	Minimum to Maximum Residential Density (du/net acre) <sup>1,2,3</sup>	Maximum Floor Area Ratio
Buffer	Max = 0.05 (1 unit per 20 net acres)	-
<b>Residential</b>		
Low Density	Min = 1 unit per 5 acres Max = 3.5 units per acre	-
Medium Low Density	Min = 3.5 units per acre Max = 6 units per acre	-
Medium Density	Min = 5 units per acre Max = 12 units per acre	-
Medium High Density	Min = 12 units per acre Max = 16 units per acre	-
Urban Neighborhood Density	Min = 16 units per acre Max = 30 units per acre	-
High Density	Min = 30 units per acre Max = 45 units per acre	-
<b>Commercial</b>		
Main Street		1.0
Community		1.0
Recreation		0.5
General		2.0
Highway & Auto		0.75
Regional		1.0
<b>Mixed-Use</b>		
Neighborhood Mixed-Use	Min = 12 units per acre Max = 16 units per acre	1.5
Corridor/Center Mixed-Use	Min = 16 units per acre Max = 30 units per acre	1.5
Regional Mixed-Use	Min = 30 units per acre Max = 45 units per acre	2.0
<b>Downtown</b>		
Downtown Neighborhood	Min = No limit Max = No limit	No limit
Downtown General	Min = No limit Max = No limit	No limit
Downtown Core	Min = No limit Max = No limit	No limit
<b>Employment</b>		
Office	-	2.0
Business Park	-	1.0
Regional Business Park	-	1.0
Light Industrial	-	1.5
Heavy Industrial	-	1.5

1. Based on Net Acreage.

2. Residential density refers to the ratio of residential dwelling units per acre (43,560 square feet) of land which is calculated by dividing the number of existing or proposed residential dwelling units by the land area of the property designated for, or proposed for development with, a residential use. The residential land area includes property upon which the residential and ancillary structures are located, together with yards and other private or common open spaces, and includes vehicle access drives and parking areas together with public and private roadways. The residential land area does not include major streets or State Routes designated by Figure MT-1: General Plan Circulation Diagram, and does not include schools or regional trails.

3. Additional density may be allowed for affordable housing or provision of community benefits (pursuant to California Government Code Sections 65915 – 65918, as may be amended).

# Appendix F

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## Environmental Noise Assessment

**ENVIRONMENTAL NOISE ASSESSMENT**

**COPPER RIVER RANCH SEIR  
FRESNO, CALIFORNIA**

**WJVA Report No. 20-034**

**PREPARED FOR**

**CRAWFORD & BOWEN PLANNING, INC.  
113 NORTH CHURCH STREET, SUITE 302  
VISALIA, CALIFORNIA 93291**

**PREPARED BY**

**WJV ACOUSTICS, INC.  
VISALIA, CALIFORNIA**



**DECEMBER 3, 2020**

# **1. INTRODUCTION**

## **Project Description:**

The Copper River Ranch project was originally submitted to and approved by the County of Fresno Board of Supervisors in 2000. The project was designated and zoned for a mixture of uses including commercial, multifamily residential, and single family residential. In 2001, the City of Fresno initiated the update of their General Plan and wanted to include the Copper River Ranch area. Work on the General Plan update was completed and the Plan was approved in 2002. The Copper River Ranch project was approved in 2003 by the Fresno City Council, and the area was annexed into the Fresno City limits. The project has been in a state of development since 2004 and today, there are commercial and single family uses on the project site.

The Copper River project has been building out/developed since that time in general conformance to what was analyzed in the 2003 EIR. However, as development has occurred there have been some minor changes with regard to subdivision layouts, number of units, and some minor changes to locations of commercial/office. In addition, there are approximately 170.77 acres that were not studied as part of the 2003 EIR for which the Project Applicant proposes to develop now or in the future 108.84 acres of the 170.77 acres. As such, those areas will require additional evaluation, such as biological surveys and cultural evaluation. The SEIR will include a full evaluation of the “new” project areas as well as all proposed land use changes and associated maps.

The Applicant is proposing to modify the existing general plan designations to reflect both the actual built out conditions of Copper River Ranch today and to identify any proposed land use designations and zone districts that are planned for the future.

## **Environmental Noise Assessment:**

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJVA Acoustics, Inc. (WJVA), is based upon the project Land Use Plan provided by the applicant (Figure 1), traffic data provided by JLB Traffic Engineering in conjunction with Fresno Council of Governments (Fresno COG), and a project site visit on October 6 and 7, 2020. Revisions to the Land Use Plan, project traffic information or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides examples of sound levels for reference.

## 2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

- a. 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?
- b. Would the project result in 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?

### a. Noise Level Standards

#### CITY OF FRESNO

##### **Municipal Code**

Section 15-2506 of the City of Fresno Municipal<sup>1</sup> code establishes hourly acoustical performance standards for non-transportation noise sources. The standards, provided in Table I, are made more restrictive during the nighttime hours of 10:00 p.m. to 7:00 a.m. Additionally, the municipal code states that when ambient noise levels exceed or equal the levels described in Table I, mitigation shall only be required to limit noise to the existing ambient noise levels, plus five (5) dB. Section 15-2506 of the Municipal Code is consistent with Implementing Policy NS-1-I of the Noise Element of the City of Fresno General Plan (adopted 12/18/14).

TABLE I NON-TRANSPORTATION NOISE LEVEL STANDARDS, dBA CITY OF FRESNO MUNICIPAL CODE, SECTION 15-2506			
Daytime (7 a.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)	
L <sub>eq</sub>	L <sub>max</sub>	L <sub>eq</sub>	L <sub>max</sub>
50	70	45	60
Source: City of Fresno Municipal Code			

Additional guidance is provided in Section 10-102(b) of the City's Municipal Code. Section 10 provides existing ambient noise levels to be applied to various districts, further divided into

various hours of the day. Table II describes the assumed minimum ambient noise levels by district and time. Section 10-102(b) states *“For the purpose of this ordinance, ambient noise level is the level obtained when the noise level is averaged over a period of fifteen minutes, without inclusion of the offending noise, at the location and time of day at which a comparison with the offending noise is to be made. Where the ambient noise level is less than that designated in this section, however, the noise level specified herein shall be deemed to be the ambient noise level for that location”*.

<p>TABLE II</p> <p>ASSUMED MINIMUM AMBIENT NOISE LEVEL, dBA</p> <p>CITY OF FRESNO MUNICIPAL CODE, SECTION 10-102(B)</p>		
DISTRICT	TIME	SOUND LEVEL, dB Leq
RESIDENTIAL	10 PM TO 7 AM	50
RESIDENTIAL	7 PM TO 10 PM	55
RESIDENTIAL	7 AM TO 7 PM	60
COMMERCIAL	10 PM TO 7 AM	60
COMMERCIAL	7 AM TO 10 PM	65
INDUSTRIAL	ANYTIME	70

Source: City of Fresno Municipal Code

Section 10-106 (Prima Facie Violation) States *“Any noise or sound exceeding the ambient noise level at the properly line of any person offended thereby, or, if a condominium or apartment house, within any adjoining living unit, by more than five decibels shall be deemed to prima facie evidence of a violation of Section 8-305.”*

For noise sources that are not transportation related, which usually includes commercial or industrial activities and other stationary noise sources (such as amplified music), it is common to assume that a 3-5 dB increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3 dB increase is the minimum change perceptible to most people, and a 5 dB increase is perceived as a “definitely noticeable change.”

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides typical A-weighted sound levels for common noise sources.

## General Plan

The City of Fresno General Plan Noise Element<sup>2</sup> provides noise level criteria for land use compatibility for both transportation and non-transportation noise sources. The General Plan



sets noise compatibility standards for transportation noise sources in terms of the Day-Night Average Level ( $L_{dn}$ ). The  $L_{dn}$  represents the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The  $L_{dn}$  represents cumulative exposure to noise over an extended period of time and are therefore calculated based upon *annual average* conditions. Table III provides the General Plan noise level standards for transportation noise sources.

<p style="text-align: center;"><b>TABLE III</b></p> <p style="text-align: center;"><b>CITY OF FRESNO GENERAL PLAN NOISE LEVEL STANDARDS</b>  <b>TRANSPORTATION (NON-AIRCRAFT) NOISE SOURCES</b></p>			
Noise-Sensitive Land Use	Outdoor Activity Areas <sup>1</sup>	Interior Spaces	
	$L_{dn}$ /CNEL, dB	$L_{dn}$ /CNEL, dB	$L_{eq}$ dB <sup>2</sup>
Residential	65	45	---
Transient Lodging	65	45	---
Hospitals, Nursing Homes	65	45	---
Theaters, Auditoriums, Music Halls	---	---	35
Churches, Meeting Halls	65	---	45
Office Buildings	---	---	45
Schools, Libraries, Museums	---	---	45

1 Where the location of the outdoor activity areas is unknown or is not applicable, the exterior noise level standard shall be applied to the property line of the receiving land use.

2 As determined for a typical worst-case hour during periods of use.

Source: City of Fresno General Plan

**Implementation Policy NS-1-a** of the General Plan provides guidance in regards to the development of new noise sensitive land uses (including residential developments).

***Desirable and Generally Acceptable Exterior Noise Environment.*** Establish 65 dBA  $L_{dn}$  or CNEL as the standard for the desirable maximum average exterior noise levels for defined usable exterior areas of residential and noise-sensitive uses for noise, but designate 60 dBA  $L_{dn}$  or CNEL (measured at the property line) for noise generated by stationary sources impinging upon residential and noise-sensitive uses. Maintain 65 dBA  $L_{dn}$  or CNEL as the maximum average exterior noise levels for non-sensitive commercial land uses, and maintain 70 dBA  $L_{dn}$  or CNEL as maximum average exterior noise level for industrial land uses, both to be measured at the property line of parcels where noise is generated which may impinge on neighboring properties.

The General Plan also provides noise level standards for non-transportation (stationary) noise sources. The General Plan noise level standards for non-transportation noise sources are identical to those provided in the City's Municipal code, provided above in Table I.

**Implementation Policy NS-1-i** of the General Plan Noise Element provides guidance in regards to mitigation for new developments and projects that have potential to result in a noise-related impact at existing noise-sensitive land uses.

**Mitigation by New Development.** *Require an acoustical analysis where new development of industrial, commercial or other noise generating land uses (including transportation facilities such as roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by [Table III] and [Table I] to determine impacts, and require developers to mitigate these impacts in conformance with Tables 9-2 and 9-3 as a condition of permit approval through appropriate means.*

*Noise mitigation measures may include:*

- *The screening of noise sources such as parking and loading facilities, outdoor activities, and mechanical equipment;*
- *Providing increased setbacks for noise sources from adjacent dwellings;*
- *Installation of walls and landscaping that serve as noise buffers;*
- *Installation of soundproofing materials and double-glazed windows; and*
- *Regulating operations, such as hours of operation, including deliveries and trash pickup.*

*Alternative acoustical designs that achieve the prescribed noise level reduction may be approved by the City, 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 roadways when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility, with no City funding.*

**Implementation Policy NS-1-j** of the General Plan Noise Element provides guidance in regards to the establishment of a significance threshold when determining an increase in noise levels over existing ambient noise levels.

**Significance Threshold.** *Establish, as a threshold of significance for the City's environmental review process, that a significant increase in ambient noise levels is assumed if the project would increase noise levels in the immediate vicinity by 3 dB  $L_{dn}$  or CNEL or more above the ambient noise limits established in this General Plan Update.*

*Commentary: When an increase in noise would result in a "significant" impact (increase of three dBA or more) to residents or businesses, then noise mitigation*

*would be required to reduce noise exposure. If the increase in noise is less than three dBA, then the noise impact is considered insignificant and no noise mitigation is needed. By setting a specific threshold of significance in the General Plan, this policy facilitates making a determination of environmental impact, as required by the California Environmental Quality Act. It helps the City determine whether (1) the potential impact of a development project on the noise environment warrants mitigation, or (2) a statement of overriding considerations will be required.*

### State of California

There are no state noise standards that are applicable to the project.

### Federal Noise Standards

There are no federal noise standards that are applicable to the project.

## **b. Construction Noise and Vibration**

There are no known state or federal standards that specifically address construction noise or vibration. The City of Fresno Municipal Code does not explicitly provide guidance on construction noise or vibration. However, Section 10.109 (Exceptions) of the Municipal Code states that the noise provisions shall not apply to *“Construction, repair or remodeling work accomplished pursuant to a building, electrical, plumbing, mechanical, or other construction permit issued by the city or other governmental agency, or to site preparation and grading, provided such work takes place between the hours of 7:00 a.m. and 10:00 p.m. on any day except Sunday.”* Although not specifically stated in the Noise Element or the Municipal Code, it is also a standard requirement of many jurisdictions that all construction equipment be properly maintained and muffled to minimize noise generation at the source.

The City of Fresno does not have regulations that define acceptable levels of vibration. One of the most recent references suggesting vibration guidelines is the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual<sup>3</sup>. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table IV and Table V, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec). The PPV levels reported in Table IV and Table V represent those measured at the potential receiver location.

TABLE IV		
GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA		
Human Response	Maximum PPV (in/sec) at Receiver	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4
Source: Caltrans		

TABLE V		
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA		
Structure and Condition	Maximum PPV (in/sec) at Receiver	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Caltrans		


### **3. SETTING**

The project site is located in the northern portion of the City of Fresno, and is generally bound to the south by E. Copper Avenue, to the east by N. Willow Avenue and to the northwest by N. Friant Road. Originally approved in 2003, the project site has been in various states of construction and buildout since 2004. The project includes a combination of residential land uses (both single- and multi-family) and mixed-use (including a golf course, office and commercial land uses).

Surrounding land uses include residential land uses to the south and the north, agricultural land uses to the east and a concrete/asphalt recycling and materials facility to the west. The closest existing off-site sensitive receptors to the project site are considered to be residential land uses north and south of the project site.

#### **a. Background Noise Level Measurements**

Existing noise levels in the project vicinity are dominated by traffic noise along local roadways, aircraft overflights associated with Fresno-Yosemite International Airport and other noise sources associated with residential and urban environments (human voices, landscaping activities, barking dogs, etc.). As various components of the overall project are currently under construction, noise associated with construction activities was also observed. Such noise sources are considered to be temporary and would not occur at the current extent once full project buildout is complete.

Measurements of existing ambient noise levels in the project vicinity were conducted between October 6, 2020 and October 7, 2020. Long-term (24-hour) ambient noise level measurements were conducted at four (4) locations (sites LT-1, LT-2, LT-3 and LT-4). Ambient noise levels were measured for a period of 24 continuous hours at each of the four locations. Site LT-1 was located south of E. Copper River Drive and west of N. Maple Avenue, in an undeveloped area originally designated commercial that would be redesignated to residential as part of the project. Site LT-2 was located east of N. Chestnut Avenue, adjacent to Hole 7 of the Copper River County Club Golf Course. Site LT-3 was located west of N. Willow Avenue and south of the future extension of Alicante Drive. Site LT-4 was located west of N. Willow Avenue, approximately 900 feet south of Silaxo (private drive). All four sites were exposed to noise associated with vehicle traffic on roadways, construction activities and aircraft overflights.  The locations of the four long-term measurement sites are provided on Figure 2.

Measured hourly energy average noise levels ( $L_{eq}$ ) at site LT-1 ranged from a low of 42.8 dB between 2:00 a.m. and 3:00 a.m. to a high of 56.0 dBA between 10:00 a.m. and 11:00 a.m. Hourly maximum ( $L_{max}$ ) noise levels at site LT-1 ranged from 54.1 to 83.8 dBA. Residual noise levels at the monitoring site, as defined by the  $L_{90}$ , ranged from 38.1 to 48.4 dBA. The  $L_{90}$  is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The  $L_{90}$  is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured  $L_{dn}$  value at site LT-1 for the 24-hour measurement period was 56.1 dB  $L_{dn}$ . Figure



3 graphically depicts hourly variations in ambient noise levels at site LT-1 for the 24-hour measurement period and provides a photograph of measurement site LT-1.

Measured hourly energy average noise levels ( $L_{eq}$ ) at site LT-2 ranged from a low of 38.3 dB between 2:00 a.m. and 3:00 a.m. to a high of 55.5 dBA between 6:00 p.m. and 7:00 p.m. Hourly maximum ( $L_{max}$ ) noise levels at site LT-2 ranged from 48.9 to 84.8 dBA. Residual noise levels at the monitoring site, as defined by the  $L_{90}$ , ranged from 64.1 to 49.6 dBA. The measured  $L_{dn}$  value at site LT-2 for the 24-hour measurement period was 51.9 dB  $L_{dn}$ . Figure 4 graphically depicts hourly variations in ambient noise levels at site LT-2 for the 24-hour measurement period and provides a photograph of measurement site LT-2.

Measured hourly energy average noise levels ( $L_{eq}$ ) at site LT-3 ranged from a low of 43.5 dB between 2:00 a.m. and 3:00 a.m. to a high of 58.1 dBA between 7:00 a.m. and 8:00 a.m. Hourly maximum ( $L_{max}$ ) noise levels at site LT-3 ranged from 62.3 to 81.1 dBA. Residual noise levels at the monitoring site, as defined by the  $L_{90}$ , ranged from 30.8 to 51.7 dBA. The measured  $L_{dn}$  value at site LT-3 for the 24-hour measurement period was 57.7 dB  $L_{dn}$ . Figure 5 graphically depicts hourly variations in ambient noise levels at site LT-3 for the 24-hour measurement period and provides a photograph of measurement site LT-2.

Measured hourly energy average noise levels ( $L_{eq}$ ) at site LT-4 ranged from a low of 62.8 dB between 2:00 a.m. and 3:00 a.m. to a high of 73.6 dBA between 8:00 a.m. and 9:00 a.m. as well as between 4:00 p.m. and 5:00 p.m. Hourly maximum ( $L_{max}$ ) noise levels at site LT-4 ranged from 83.2 to 95.3 dBA. Residual noise levels at the monitoring site, as defined by the  $L_{90}$ , ranged from 29.4 to 53.4 dBA. The measured  $L_{dn}$  value at site LT-4 for the 24-hour measurement period was 74.6 dB  $L_{dn}$ . Figure 6 graphically depicts hourly variations in ambient noise levels at site LT-4 for the 24-hour measurement period and provides a photograph of measurement site LT-4.

Additionally, short-term (15-minute) ambient noise level measurements were conducted at six (6) locations (Sites ST-1 through ST-6). Two (2) individual measurements were taken at each of the six short-term sites to quantify ambient noise levels in the morning and afternoon hours. The locations of the long-term and short-term noise monitoring sites are shown as Figure 2.

Short-term noise measurements were conducted for 15-minute periods at each of the six sites. Sites ST-1 and ST-2 were located north of E. Copper Avenue and were exposed to traffic noise associated with vehicles along E. Copper Avenue and other local roadways, as well as noise associated with aircraft overflights and construction activities. Sites ST-3 and ST-4 were located west of N. Willow Avenue and were exposed to traffic noise associated with vehicles along N. Willow Avenue and noise associated with construction activities. Site ST-5 was located in the vicinity of the Copper River Country Club tennis courts, golf course and clubhouse and was exposed to noise associated with human voices, parking lot movements, amplified music, construction activities and aircraft overflights. Site ST-6 was located between Alicante Drive and N. Friant Road, and was exposed to traffic noise associated with both roadways, as well as noise associated with construction activities and aircraft overflights.

Table VI summarizes short-term noise measurement results. The noise measurement data included energy average ( $L_{eq}$ ) maximum ( $L_{max}$ ) as well as five individual statistical parameters.

Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. For instance, the  $L_{90}$  describes the noise level exceeded 90 percent of the time during the measurement period, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

**TABLE VI**  
**SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA**  
**COPPER RIVER RANCH SEIR**  
**OCTOBER 6 & 7, 2020**

Site	Time	A-Weighted Decibels, dBA							Sources
		$L_{eq}$	$L_{max}$	$L_2$	$L_8$	$L_{25}$	$L_{50}$	$L_{90}$	
ST-1	8:12 a.m.	54.7	64.3	62.2	59.0	55.2	52.3	47.3	TR, AC
ST-1	4:25 p.m.	56.9	78.2	65.4	56.4	52.7	50.8	47.7	TR, AC
ST-2	8:35 a.m.	59.7	78.6	69.0	62.5	53.4	50.2	46.7	TR, C, AC
ST-2	4:46 p.m.	60.3	71.1	67.4	61.0	53.1	50.1	48.8	TR, AC
ST-3	8:57 a.m.	64.9	78.5	75.8	69.6	63.7	52.3	40.2	TR, C
ST-3	5:03 p.m.	66.1	82.4	46.3	67.2	64.8	53.0	41.1	TR
ST-4	9:18 a.m.	69.3	82.4	79.1	75.5	66.9	50.6	38.7	TR, AC
ST-4	5:25 p.m.	67.4	78.6	77.7	74.5	65.2	52.1	40.2	TR
ST-5	9:40 a.m.	45.1	50.4	48.1	47.3	46.1	45.1	43.2	V, C
ST-5	5:45 p.m.	46.3	61.1	50.4	47.7	44.5	41.4	39.8	V, C
ST-6	10:00 a.m.	53.2	59.4	58.8	56.9	54.6	52.0	46.4	TR, C, AC, D
ST-6	6:05 p.m.	52.7	69.0	62.1	52.0	49.8	48.5	46.2	TR, AC

TR: Traffic AC: Aircraft C: Construction V: Voices D: Barking Dogs

Source: WJV Acoustics, Inc.

#### **4. NOISE IMPACTS TO OFF-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES**

##### **a. Project Traffic Noise Impacts on Existing Noise-Sensitive Land Uses Outside Project Site (Significant and Unavoidable)**

WJVA utilized the FHWA Traffic Noise Model<sup>4</sup> to quantify expected project-related increases in traffic noise exposure along roadways in the project vicinity. The FHWA Model is a standard analytical method used by state and local agencies for roadway traffic noise prediction. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly  $L_{eq}$  values for free-flowing traffic conditions, and is generally considered to be accurate within  $\pm 1.5$  dB. To predict  $L_{dn}$  values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Average Daily Traffic (ADT) volumes for the analyzed receptor locations were provided by JLB Traffic Engineering in conjunction with Fresno Council of Governments (Fresno COG). ADT traffic volumes were provided for Existing (without project) and Existing plus project traffic scenarios.

The percentage of trucks and the day/night distribution of traffic on local roadways used for modeling was approximated based upon data previously obtained by WJVA from previous projects in the project vicinity. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Traffic noise exposure levels for specific scenarios were calculated based upon the FHWA Model and the above-described model inputs and assumptions. Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. Additionally, a significant impact would occur if project-related traffic noise levels were to result in an increase of 3 dB or more (over existing ambient noise levels) at sensitive receptor locations.

The City's exterior noise level standard for residential land uses is 65dB  $L_{dn}$ . Traffic noise was modeled at thirteen (13) representative receptor locations in the project vicinity. The thirteen modeled receptors are located at roadway setback distances representative of the sensitive receptors along each analyzed roadway segment. The receptor locations are described below and provided graphically on Figure 7.

- R-1: Residential land use located approximately 430 feet from the centerline of Friant Rd.
- R-2: Residential land use located approximately 215 feet from the centerline of Friant Rd.
- R-3: Residential land use located approximately 700 feet from the centerline of Friant Rd.
- R-4: Residential land use located approximately 75 feet from the centerline of Maple Ave.
- R-5: Residential land use located approximately 80 feet from the centerline of Chestnut Ave.
- R-6: Residential land use located approximately 75 feet from the centerline of 5<sup>th</sup> St.

- R-7: Church land use located approximately 700 feet from the centerline of Willow Ave.
- R-8: Residential land use located approximately 170 feet from the centerline of Copper Ave.
- R-9: Residential land use located approximately 170 feet from the centerline of Minnewawa Ave.
- R-10: Residential land use located approximately 100 feet from the centerline of Friant Rd.
- R-11: Residential land use located approximately 95 feet from the centerline of Copper Ave.
- R-12: Residential land use located approximately 95 feet from the centerline of Copper Ave.
- R-13: Residential land use located approximately 100 feet from the centerline of Copper Ave.

### **Existing Conditions**

Table VII provides Existing and Existing Plus Project traffic noise exposure levels at the thirteen analyzed receptor locations. The receptor locations are representative of existing residential land uses (and one church) located along the analyzed roadway segments. Receptor locations R-1, R-4, R-5 and R-8 through R-13 have existing acoustical shielding provided by existing sound walls, intervening topography or residential structures, and a conservative offset (-5 dB) was applied to more accurately reflect noise levels within the outdoor activity areas of these receptor locations. Noise levels described in Table VII include the offset provided by the existing acoustical shielding at these receptor locations.

<b>TABLE VII</b> <b>PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, L<sub>dn</sub></b> <b>COPPER RIVER RANCH SEIR, FRESNO</b> <b>EXISTING CONDITIONS</b>				
<b>Modeled Receptor</b>	<b>Existing</b>	<b>Existing Plus Project</b>	<b>Change (Maximum)</b>	<b>Significant Impact?</b>
R-1	51	50	-1	No
R-2	61	59	-2	No
R-3	53	52	+1	No
R-4	59	60	+1	No
R-5	49	50	+1	No
R-6	59	62	+3	<b>Yes</b>
R-7	44	45	+1	No
R-8	51	52	+1	No
R-9	51	52	+1	No
R-10	60	62	+2	No
R-11	61	61	0	No
R-12	60	61	+1	No
R-13	57	58	+1	No

Source: WJV Acoustics, Inc.  
JLB Traffic Engineering  
Fresno COG

Reference to Table VII indicates that project-related traffic would not result in noise levels at any sensitive receptors to exceed the City's noise level standard of 65 dB L<sub>dn</sub>. However, noise levels

at sensitive receptor R-6 (Church land use) would be expected to increase by approximately 3 dB as a result of project-related increase in traffic volumes along N. Willow Avenue. The City of Fresno General Plan Noise Element considers an increase of 3 dB or more to be a significant impact. It should be noted, since the 2014 update of the City of Fresno General Plan, the CEQA guidelines have been revised, and the noise impact determination requirement of “*substantial permanent or temporary increase in noise levels above levels existing without the project*” has been omitted. However, as the language remains in the City of Fresno General Plan it is applied to impact determination within this analysis.

It is important to note that project buildout would likely occur over several years (possibly decades), and as such project-related noise increases would not be realized for numerous years. While the exact buildout timeline is uncertain, the increases described in Table VII would not occur immediately.

**Potential Impact:**

Project-related traffic applied to existing traffic conditions would result in exterior noise levels at one modeled receptor location (R-6) to increase by approximately 3 dB. This is considered a significant impact per City of Fresno General Plan Noise Element.

**Mitigation Measures:**

While it may be possible by means of the construction of an individual sound wall at this receptor location, mitigation of traffic noise impacts is more difficult to achieve for existing noise-sensitive uses due to the many complications associated with working with individual landowners to implement noise mitigation measures such as sound wall construction and often create access issues. It therefore may not be feasible to achieve successful noise mitigation for this noise-sensitive use that could be impacted by the project. For that reason, this impact could remain significant and unavoidable.

**b. Proposed Impacts From Operational On-Site Sources  
(Less Than Significant With Mitigation)**

The project would include land uses identified as Commercial Community (CC). The CC district is intended for commercial development that primarily serves local needs such as convenience shopping and offices. Specific uses allowed include medium-scale retail, office, civic and entertainment uses, supermarkets, drug stores, and supporting uses.

A wide variety of noise sources can be associated with this land use designation. The noise levels produced by such sources can also be highly variable and could potentially impact existing off-site sensitive receptors. From the perspective of the City’s noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources include:

- Fans and blowers
- HVAC units
- Truck deliveries

- Loading Docks
- Compactors

**Potential Impact:**

Noise levels from new stationary noise sources cannot be predicted with any certainty at this time since specific uses have not yet been proposed and the locations of stationary noise sources relative to the locations of noise sensitive uses are not known. However, under some circumstances there is a potential for such uses to exceed the City's noise standards for stationary noise sources at the locations of sensitive receptors.

**Mitigation Measures:**

Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

When specific uses within the study area are proposed that could result in a noise-related conflict between a commercial or other stationary noise source and existing or proposed noise-sensitive receptor, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the City's noise standards. The acoustical analysis should be the responsibility of the project applicant and should be completed prior to issuance of a building permit.

**c. Noise from Construction  
(Less Than Significant With Mitigation)**

Construction noise would occur at various locations within the project site through the buildout period. Existing sensitive receptors could be located as close as 100 feet from construction activities. Table VIII provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

Construction noise is not considered to be a significant impact if construction is limited to the allowed hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The City of Fresno limits hours of construction to occur only between the hours of 7:00 a.m. to 10:00 p.m., Monday through Saturday. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.



**TABLE VIII**  
**TYPICAL CONSTRUCTION EQUIPMENT**  
**MAXIMUM NOISE LEVELS, dBA**

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

Source: FHWA

*Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987*

#### **Potential Impact:**

A noise impact could occur if construction activities do not incorporate appropriate mitigation measures and best management practices.

#### **Mitigation Measures:**

Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following mitigation measures and best management practices should be applied during periods of project construction.

- Per the City of Fresno Municipal Code, construction activities should not occur outside the hours of 7:00 a.m. to 10:00 p.m. Monday through Saturday and all day on Sunday.
- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.
- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.
- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.
- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and providing the contact phone number of a designated noise disturbance coordinator.

#### d. Vibration Impacts (Less Than Significant)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed project. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities (if they were to occur). Typical vibration levels at distances of 100 feet and 300 feet are summarized by Table IX. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table IV and Table V.

TABLE IX TYPICAL VIBRATION LEVELS DURING CONSTRUCTION		
Equipment	PPV (in/sec)	
	@ 100'	@ 300'
Bulldozer (Large)	0.011	0.006
Bulldozer (Small)	0.0004	0.00019
Loaded Truck	0.01	0.005
Jackhammer	0.005	0.002
Vibratory Roller	.03	0.013
Caisson Drilling	.01	0.006
Source: <i>Caltrans</i>		

After full project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at the closest off-site sensitive uses. Additional mitigation is not required.

## **5. NOISE IMPACTS TO PROPOSED ON-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES**

The project includes changes with regard to subdivision layouts, number of units, and some minor changes to locations of commercial/office in addition to new parcels not previously included in the original EIR. These changes would result in new residential land uses located adjacent to proposed commercial land uses (e.g. Parcel 11) and new commercial land uses to be located adjacent to proposed residential land uses (e.g. Parcel 10). The remaining changes in land use designation are generally in regards to residential lot layout and density of residential zoning designations, for which additional noise impacts would not be expected.

### **a. Traffic Noise Impacts To Proposed On-Site Receptors (Less Than Significant With Mitigation)**

The City of Fresno General Plan establishes an exterior noise level standard of 65 dB  $L_{dn}$  within outdoor activity areas of residential land uses, as well as interior noise level standard of 45 dB  $L_{dn}$  within residential land uses. Transportation-related noise level exposures resulting from roadways within the project site would not result in an exceedance of these standards due to low traffic speeds and low traffic volumes. However, the proposed project includes sensitive receptors (residential land uses) that could be impacted by traffic noise exposure adjacent to arterial roadways that border the project site. Such arterial roadways include Friant Road, Copper Avenue and Willow Avenue.

WJVA used the above-described FHWA traffic noise model and traffic noise modeling assumptions to determine the distances from the center of the roadways to the 65 dB  $L_{dn}$  noise exposure contour. Table X provides the approximate distances from the center of the arterial roadways adjacent to the project site (and proposed residential land uses included in the SEIR) to the 65 dB  $L_{dn}$  noise exposure contours. Table X provides the contour distances for 2035 Cumulative plus project traffic conditions, as they represent a worst-case assessment of traffic noise exposure at proposed sensitive receptor locations.

<p style="text-align: center;"><b>TABLE X</b></p> <p style="text-align: center;"><b>DISTANCES TO 65 dB L<sub>dn</sub> TRAFFIC NOISE CONTOURS</b></p> <p style="text-align: center;"><b>COPPER RIVER RANCH SEIR</b></p> <p style="text-align: center;"><b>2035 CUMULATIVE PLUS PROJECT CONDITIONS</b></p>	
Roadway Segment (Description)	Distance (feet) to 65 dB L <sub>dn</sub>
Friant Rd. (at East Copper River Dr.)	195
Copper Ave. (between Maple Ave. and Chestnut Ave.)	110
Willow Ave. (Copper Ave. to Alicante Dr.)	180
Willow Ave. (Alicante Dr. to Friant Rd.)	125

Source: WJV Acoustics, Inc.  
JLB Traffic Engineering  
Fresno COG

### **Potential Impact:**

An exterior noise impact could occur if the outdoor activity areas of proposed sensitive receptors are located within the 2035 cumulative conditions 65 dB L<sub>dn</sub> traffic noise contours described above in Table X. Additionally, interior noise levels could potentially be exceeded, depending on proximity to the roadway and proposed construction measures. Based upon the conceptual Land Use Plan (Figure 1), residential land uses are proposed adjacent to these arterial roadways. If the outdoor activity areas of these residential land uses are located along these roadways within the 65 dB L<sub>dn</sub> contour (as described in Table X), an impact would be expected to occur. Such impacts would likely occur at proposed residential land uses adjacent to these roadways.

### **Mitigation Measures:**

Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks and the construction of sound walls. Options for interior noise level mitigation include STC rated windows appropriate to the location and construction and other modifications to the exterior façade envelope.

When specific construction details and lot layout designs within the study area are proposed that could result in a noise-related conflict between transportation noise sources and sensitive receptors proposed adjacent to arterial roadways, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the City's exterior and interior noise standards. The acoustical analysis should be the responsibility of the project applicant.

## **b. Noise Impacts from Operational On-Site Sources (Less Than Significant With Mitigation)**

As described above, the project would include land uses identified as Commercial Community (CC). These land uses are proposed adjacent to proposed residential land uses. The CC district is intended for commercial development that primarily serves local needs such as convenience shopping and offices. Specific uses allowed include medium-scale retail, office, civic and entertainment uses, supermarkets, drug stores, and supporting uses. Proposed CC land uses are located adjacent to proposed residential land uses.

A wide variety of noise sources can be associated with this land use designation. The noise levels produced by such sources can also be highly variable and could potentially impact existing off-site sensitive receptors. From the perspective of the City's noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources include:

- Fans and blowers
- HVAC units
- Truck deliveries
- Loading Docks
- Compactors

### **Potential Impact:**

Noise levels from new stationary noise sources cannot be predicted with any certainty at this time since specific uses have not yet been proposed and the locations of stationary noise sources relative to the locations of new noise sensitive uses are not known. However, under some circumstances there is a potential for such uses to exceed the City's noise standards for stationary noise sources at the locations of sensitive receptors.

### **Mitigation Measures:**

Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

When specific uses within the study area are proposed (and their locations are defined) that could result in a noise-related conflict between a commercial or other stationary noise source and project proposed sensitive receptors, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the City's noise standards. The acoustical analysis should be the responsibility of the project applicant.

**c. Noise Impacts from Nearby Airports or Airstrips (No Impact)**

The Project site is not located within two miles of a public airport or private airstrip.



## 6. IMPACT SUMMARY

This impact summary addresses only the noise impacts determined to be “potentially significant” and summarizes the mitigation measures that would be required to reduce noise levels to a “less than significant” level or states that the impact may be significant and unavoidable. Potential impacts and correlating mitigation measures are described in detail above, and summarized below.

- Project-related traffic applied to existing traffic conditions could result in exterior noise levels at one modeled receptor location (R-6) to increase by approximately 3 dB. The City of Fresno General Plan Noise Element considers an increase of 3 dB or more to be a significant impact. It should be noted, since the 2014 General Plan update, the CEQA guidelines have been revised, and the noise impact determination requirement of *“substantial permanent or temporary increase in noise levels above levels existing without the project”* has been omitted. However, as the language remains in the City of Fresno General Plan it is applied to impact determination within this analysis. While it may be possible by means of the construction of individual sound walls, mitigation of traffic noise impacts is more difficult to achieve for existing noise-sensitive uses due to the many complications associated with working with individual landowners to implement noise mitigation measures such as sound wall construction as well as potential access issues. It therefore may not be feasible to achieve successful noise mitigation for the existing noise-sensitive use that could be impacted by the project. For that reason, **this impact could remain significant and unavoidable.**
- A noise impact could occur if construction activities do not incorporate appropriate mitigation measures and best management practices. Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following mitigation measures and best management practices should be applied during periods of project construction.
  - Per the City of Fresno Municipal Code, construction activities should not occur outside the hours of 7:00 a.m. to 10:00 p.m., Monday through Saturday.
  - All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.
  - Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.
  - All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.
- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and providing a contact phone number of a designated noise disturbance coordinator.

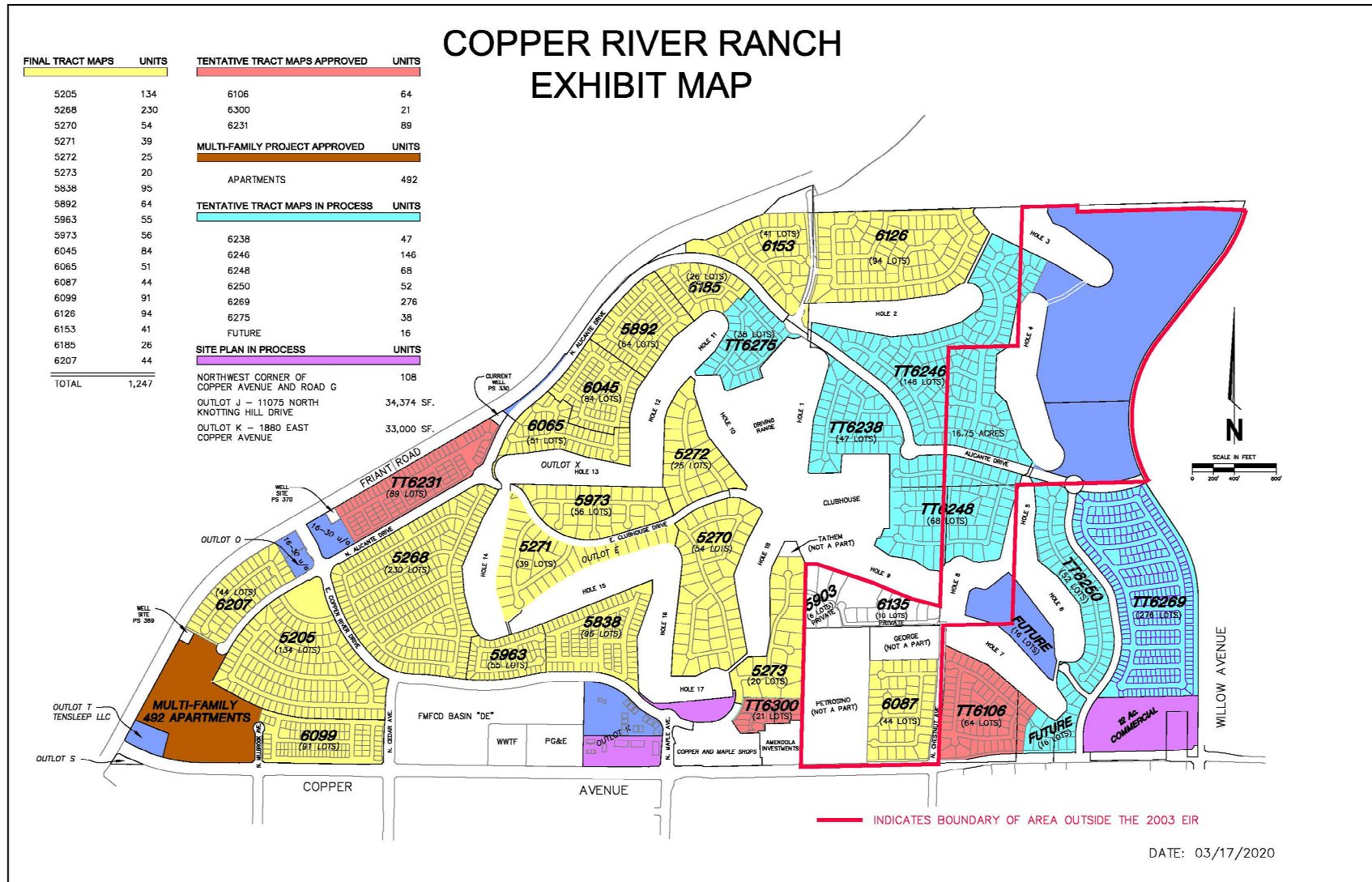
**This impact is considered less than significant with mitigation.**

- Noise levels from new stationary noise sources associated with proposed Commercial Community (CC) land uses within the project site could potentially impact existing and new proposed sensitive receptors (residential land uses). Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures. **This impact is considered less than significant with mitigation.**
- A noise impact could occur if new proposed sensitive receptors (residential land uses) are located within the cumulative 65 dB  $L_{dn}$  traffic noise contours. Based upon the conceptual Land Use Plan (Figure 1) and the distances to the 65 dB  $L_{dn}$  contour (Table X), noise impacts could occur along Friant Road, Copper Avenue and Willow Avenue. Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, project design and the construction of berms and sound walls. **This impact is considered less than significant with mitigation.**

## **7. SOURCES CONSULTED**

1. City of Fresno Municipal Code, October 2020.
2. City of Fresno General Plan, December, 2014.
3. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013.
4. Federal Highway Administration, *Traffic Noise Model, Version 2.5*, April 14, 2004

FIGURE 1: PROJECT LAND USE PLAN

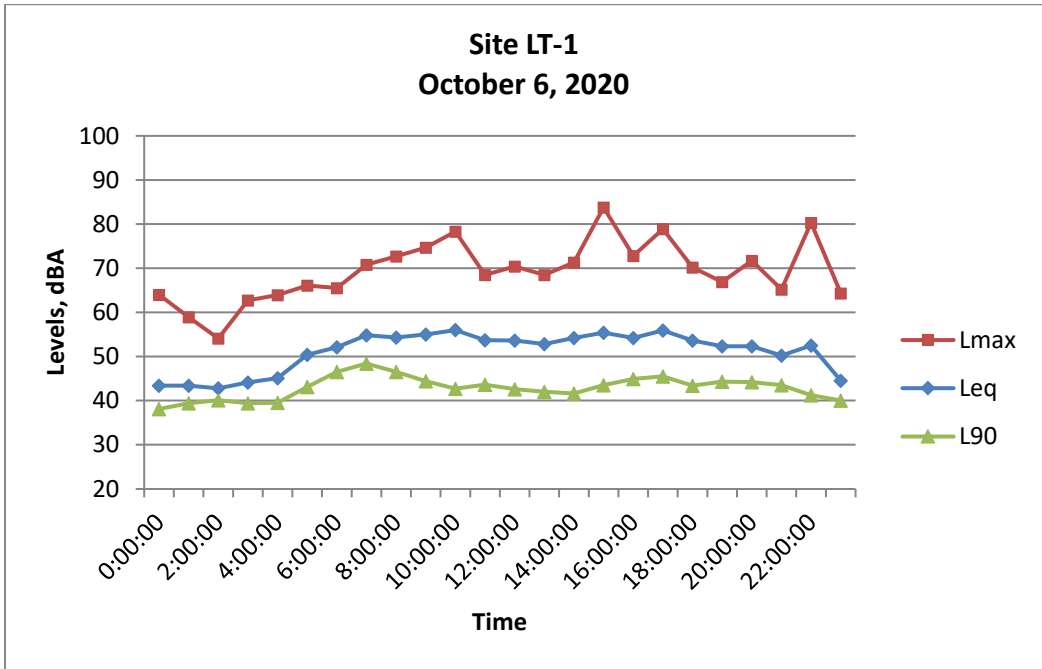




[illegible]

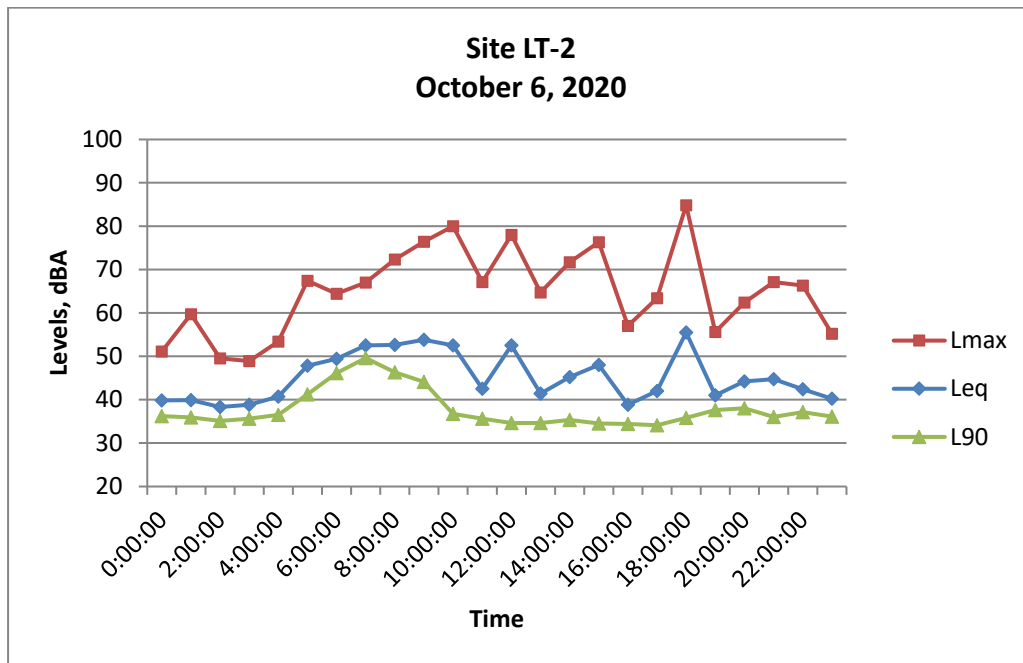


FIGURE 3: HOURLY NOISE LEVELS AT SITE LT-1

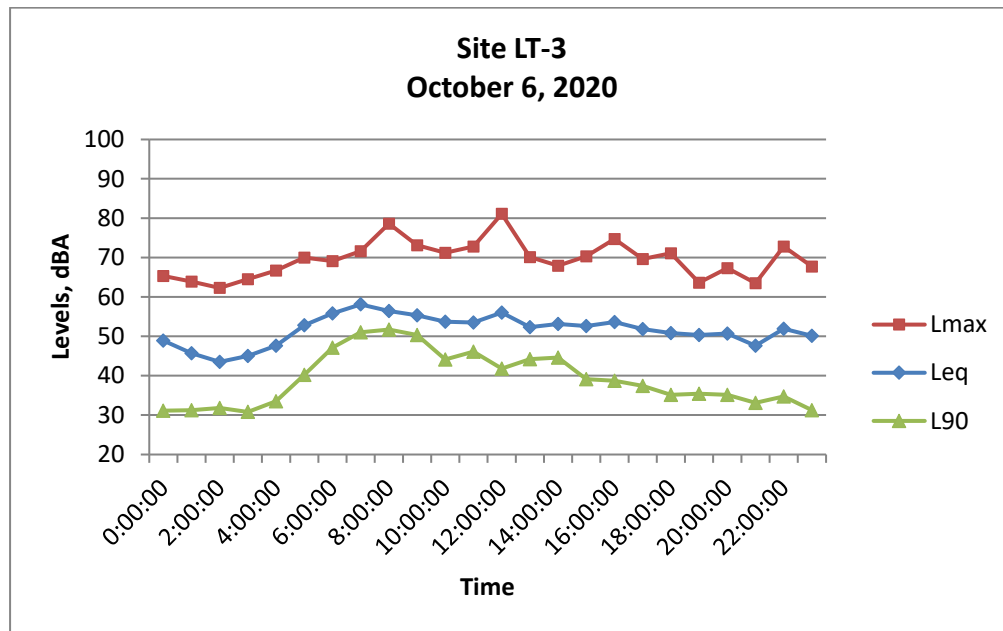




**FIGURE 4: HOURLY NOISE LEVELS AT SITE LT-2**

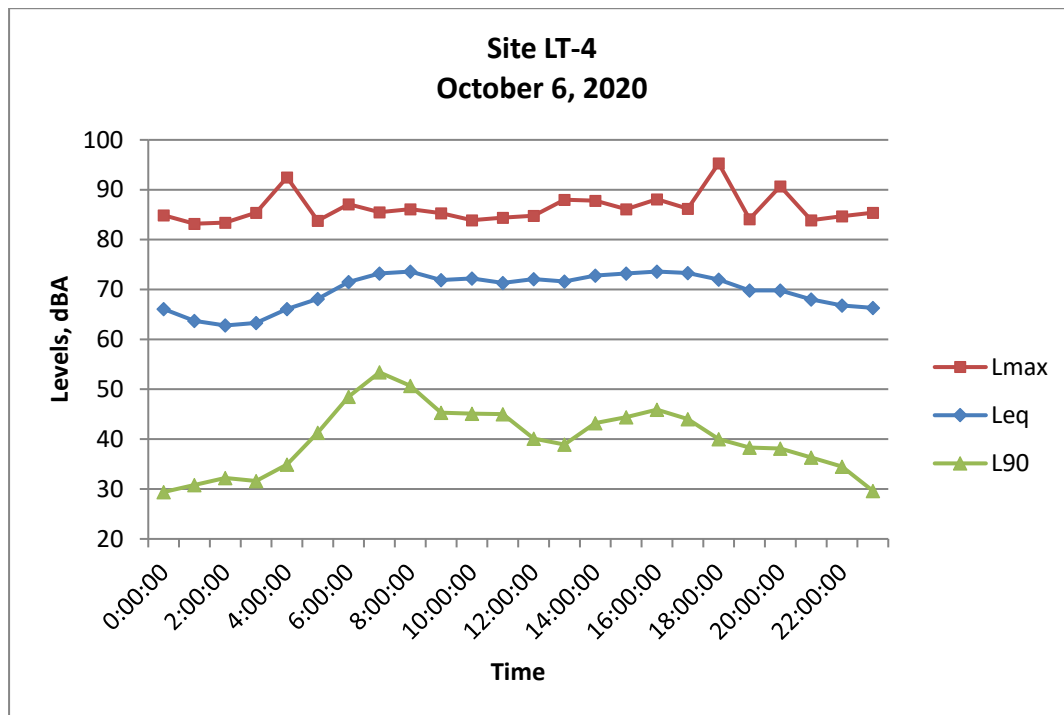


**FIGURE 5: HOURLY NOISE LEVELS AT SITE LT-3**





**FIGURE 6: HOURLY NOISE LEVELS AT SITE LT-4**





[illegible]

## APPENDIX A-1

### ACOUSTICAL TERMINOLOGY

<b>AMBIENT NOISE LEVEL:</b>	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
<b>CNEL:</b>	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
<b>DECIBEL, dB:</b>	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
<b>DNL/L<sub>dn</sub>:</b>	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
<b>L<sub>eq</sub>:</b>	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L <sub>eq</sub> is typically computed over 1, 8 and 24-hour sample periods.
<b>NOTE:</b>	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L <sub>eq</sub> represents the average noise exposure for a shorter time period, typically one hour.
<b>L<sub>max</sub>:</b>	The maximum noise level recorded during a noise event.
<b>L<sub>n</sub>:</b>	The sound level exceeded "n" percent of the time during a sample interval (L <sub>90</sub> , L <sub>50</sub> , L <sub>10</sub> , etc.). For example, L <sub>10</sub> equals the level exceeded 10 percent of the time.

## ACOUSTICAL TERMINOLOGY

**NOISE EXPOSURE  
CONTOURS:**

Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

**NOISE LEVEL  
REDUCTION (NLR):**

The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of “noise level reduction” combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

**SEL or SENEL:**

Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

**SOUND LEVEL:**

The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

**SOUND TRANSMISSION  
CLASS (STC):**

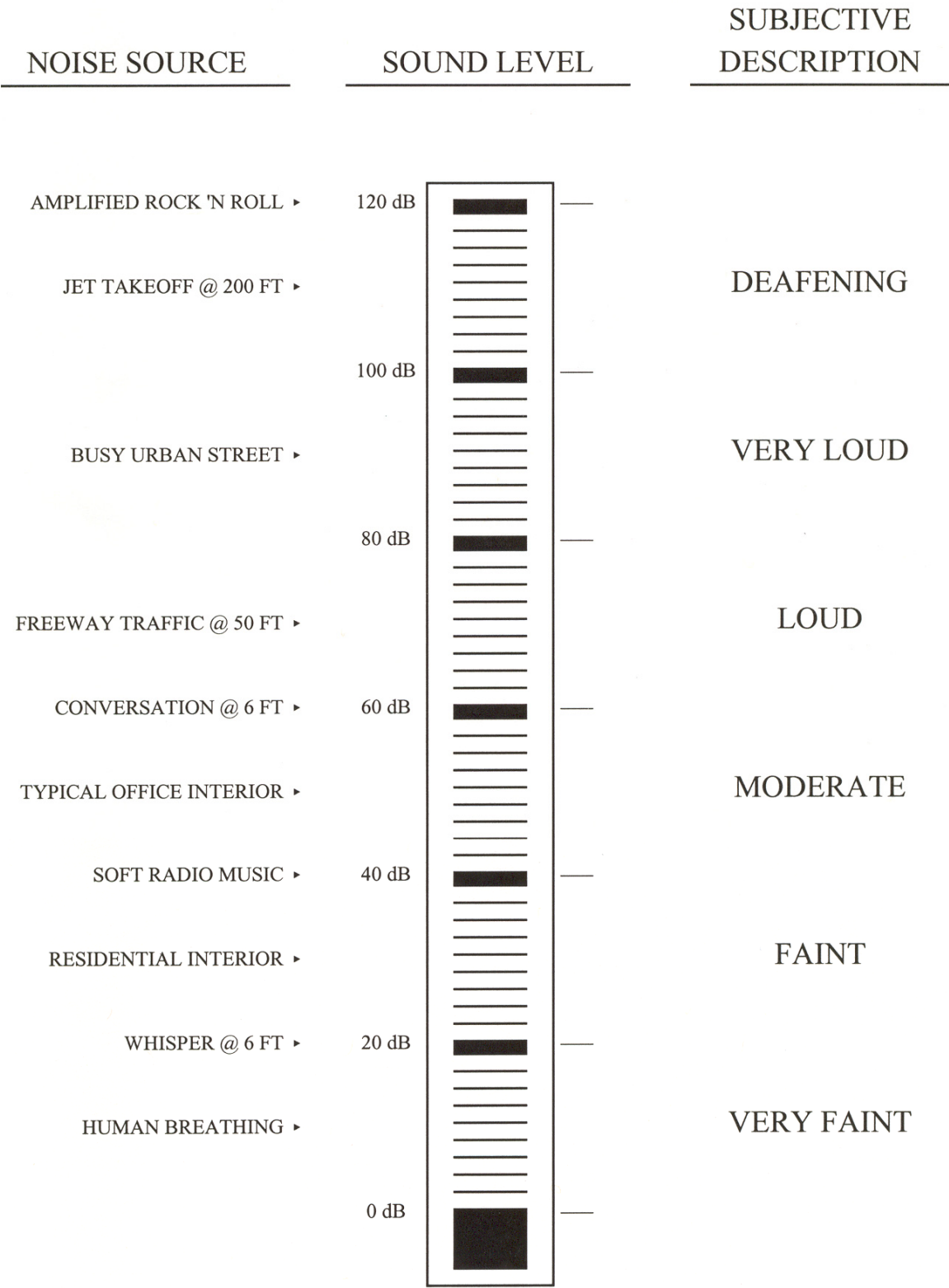
The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.



## **APPENDIX C**

### **TRAFFIC NOISE MODELING CALCULATIONS**

APPENDIX B  
EXAMPLES OF SOUND LEVELS



WJV Acoustics, Inc  
FHWA-RD-77-108  
Calculation Sheets  
December 3, 2020

Project #:	
Description:	
Ldn/Cnel:	
Site Type:	

20-034
Existing
Ldn
Soft

**Contour Levels (dB)**

60	65	70	75
----	----	----	----

[illegible]

**WJV Acoustics, Inc**  
**FHWA-RD-77-108**  
**Calculation Sheets**  
**December 3, 2020**

Project #:	20-034
Description:	Existing + project
Ldn/Cnel:	Ldn
Site Type:	Soft

**Contour Levels (dB)**

60	65	70	75					
----	----	----	----	--	--	--	--	--

[illegible]

# Appendix G

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## Traffic Impact Analysis



# Draft Traffic Impact Analysis Report

**Copper River Ranch**  
**(State Clearinghouse #2000021003)**

**Located on the Northwest Quadrant of  
Willow Avenue and Copper Avenue**

**In the City of Fresno, California**

***Prepared for:***

Crawford & Bowen Planning, Inc.  
113 N. Church Street, Suite 302  
Visalia, CA 93291

April 30, 2021

Project No. 004-128



***Traffic Engineering, Transportation Planning, & Parking Solutions***

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Phone: (559) 570-8991

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*Traffic Engineering, Transportation Planning, & Parking Solutions*

## Draft Traffic Impact Analysis Report

**For the Copper River Ranch Project located on the Northwest Quadrant of Willow Avenue and Copper Avenue (State Clearinghouse #2000021003)**

In the City of Fresno, CA

April 30, 2021

This Draft Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

---

Jose Luis Benavides, PE, TE

President



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## Introduction and Summary

### Introduction

This Report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the Subsequent Environmental Impact Report (SEIR) for the Copper River Ranch (Project) generally located on the northwest quadrant of Willow Avenue and Copper Avenue in the City of Fresno. A notice of preparation (NOP) for a Draft SEIR for the Project was provided to responsible agencies, interested parties and organizations on July 31, 2020. The original Project EIR No. 10126 approved in 2003, hereinafter referred to as Project EIR (2003), analyzed the traffic impacts associated with the development of a 0.37-acre park-n-ride lot (27 parking spaces), 2,837 residential units, a 60-room hotel, a 2.61-acre City park, 249,113 square feet (approximately 60 acres) of mixed-use land uses, and a 3.30-acre wastewater treatment plant in the general area bound by Friant Road, Silaxo Avenue alignment, Willow Avenue and Copper Avenue. Since its approval, the Project has been in a state of development and is now proposing land use changes within the already existing Project development as well to develop an additional 109 acres located adjacent to and east of the existing Project development. Based on information provided to JLB, the Project proposes various general plan amendments/rezones. The planned development of the additional 109 acres will increase the Project's residential unit count by 441 housing units, add 5,310 square feet of mixed-use commercial land uses, and add 25.30 acres of park space. At buildout, the Project proposes to construct a total of 3,278 residential units (2,429 single-family and 849 multi-family residential units), and develop 254,423 square feet of mixed-use commercial land uses in addition to a park-n-ride lot (23 parking spaces), 28.80 acres of park space, and a 3.30-acre wastewater treatment plant. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term and long-term roadway and circulation needs, determine potential roadway improvement measures, and identify any critical traffic issues that should be addressed in the on-going planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project and a Vehicle Miles Traveled Analysis. The Scope of Work was prepared via consultation with City of Fresno, City of Clovis, Fresno County, Madera County and Caltrans staff.

## Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Fresno, City of Clovis, Fresno County and Caltrans, and the City of Fresno policy on Vehicle Miles Traveled (VMT).

### *Existing Traffic Conditions*

- Based on a review of the collision reports during the most recent five-year period, a total of 92 collisions were reported within the influence zone of the study intersections. Considering the inherent factors of these collision reports, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified, with the exception of Auberry Road and Copper Avenue.
  - The intersection of Auberry Road and Copper Avenue experienced one (1) fatality as a result of a broadside collision caused by a right-of-way violation. After thorough review of the data contained within the collision reports, installation of a traffic signal control would reduce the number of broadside collisions. At the time of the preparation of this Report, Fresno County had prepared construction documents for installation of a traffic signal control that would reduce the number of broadside collisions experienced at the intersection. It is worth noting that while installation of a traffic signal control is expected to reduce broadside collisions, it may increase the number of rear-end collisions.
- At present, the intersections of Willow Avenue and Copper Avenue and Chestnut Avenue and Behymer Avenue exceeds their LOS thresholds during the AM peak period only. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection is currently operating at LOS F; however, Caltrans' State Route 41 TCR projects LOS F operations for this intersection and the *Fresno General Plan* Circulation Element has made appropriate findings to designate the maximum number of lanes on Friant Road to three (3) in each direction. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable. Additional details of this decision are presented later in this Report.

### *Existing plus Project Traffic Conditions*

- JLB analyzed the location of the existing and proposed roadways and access points relative to the existing and proposed roadways and access points in the vicinity of Project site. A review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway network.
- Per Project EIR (2003), the existing Project development was estimated to generate a maximum of 33,935 daily trips, 2,062 AM peak hour trips and 3,167 PM peak hour trips.
- At buildout, the proposed Project is estimated to generate a maximum of 46,161 daily, 3,161 AM peak hour and 4,281 PM peak hour total driveway trips.

- Overall, the proposed Project is estimated to yield 12,226 more daily, 1,099 more AM peak hour and 1,114 more PM peak hour trips.
- Considering the Project components that remain for construction only, the proposed Project is estimated to generate a maximum of 32,445 daily, 2,174 AM peak hour and 2,856 PM peak hour total driveway trips.
- This TIA does not consider reductions in the Project's anticipated trip generation as a result of internal capture or pass-by trips. Since internal capture and pass-by trips are not deducted from the Project's estimated maximum trip generation, this TIA represents a worst-case-scenario.
- It is recommended that the Project implement bicycle facilities consistent with the Fresno ATP within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement Class II Bikeways along Alicante Drive and Maple Avenue. Moreover, it is recommended that the Project implement Class II Bikeways along Winery Avenue-Road 'G'. Adjacent to the Project site, it is recommended that the Project implement Class I Bikeways along its frontage to Copper Avenue and Willow Avenue. Similarly, it is recommended that the Project implement Class II Bikeways along its frontage to Willow Avenue and Copper Avenue.
- It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno ATP within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement pedestrian sidewalks along remaining and future portions of Alicante Drive. Moreover, it is recommended that the Project implement pedestrian sidewalks along Winery Avenue-Road 'G'. Adjacent to the Project site, it is recommended that the Project implement pedestrian walkways along its frontage to Friant Road and Copper Avenue. Similarly, it is recommended that the Project implement Class I Bike Paths along its frontage to Willow Avenue and Copper Avenue.
- Based on the VMT results of the Fresno COG ABM, Project components containing residential land uses (subject to VMT analysis) are projected to exceed the City's VMT threshold. Considering all feasible VMT mitigation measures identified mitigate effects to the maximum extent feasible, the Project's VMT impacts for residential land uses are significant but unavoidable.
- Based on the VMT results of the Fresno COG ABM, Project components containing retail land uses (subject to VMT analysis) are projected to reduce the Regional VMT. Therefore, there are no impacts to VMT associated with retail land uses.
- Most of the areas are well-developed with walkways and intersection controls, but there are a few exceptions. Therefore, it is recommended that the CUSD work with the City of Fresno to implement a Safe Routes to School plan and seek grant funding to help build walkways where they are lacking within a one-mile radius of the existing school sites.
- Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, the modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for this intersection are presented later in this Report.
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection is projected to operate at LOS F; however, Caltrans' State Route 41 TCR projects LOS F operations for this intersection and the *Fresno General Plan* Circulation Element has made

appropriate findings to designate the maximum number of lanes on Friant Road to three (3) in each direction. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable. Additional details of this decision are presented later in this Report.

#### *Near Term plus Project Traffic Conditions*

- The total trip generation for the Near Term Projects is 41,306 weekday daily trips, 2,851 weekday AM peak hour trips and 3,888 weekend PM peak hour trips.
- Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, the modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for this intersection
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection is projected to operate at LOS F; however, Caltrans' State Route 41 TCR projects LOS F operations for this intersection and the *Fresno General Plan* Circulation Element has made appropriate findings to designate the maximum number of lanes on Friant Road to three (3) in each direction. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable. Additional details of this decision are presented later in this Report.

#### *Cumulative Year 2035 No Project Traffic Conditions*

- Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue and Friant Road and Audubon Drive are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection is projected to operate at LOS F; however, Caltrans' State Route 41 TCR projects LOS F operations for this intersection and the *Fresno General Plan* Circulation Element has made appropriate findings to designate the maximum number of lanes on Friant Road to three (3) in each direction. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable. Additional details of this decision are presented later in this Report.

### *Cumulative Year 2035 plus Project Traffic Conditions*

- Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Alicante Drive, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue, Friant Road and Audubon Drive and Fresno Street and Friant Road are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- Under this scenario, the intersections of Friant Road and Audubon Drive, and Fresno Street and Friant Road are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the addition of lanes and modification of traffic control mechanisms is recommended. However, given existing constraints and the designation of an ultimate six-lane facility on Friant Road the recommended improvements fall short of meeting the City's target LOS. Therefore, the traffic impacts at these intersections are considered adverse but unavoidable.
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection is projected to operate at LOS F; however, Caltrans' State Route 41 TCR projects LOS F operations for this intersection and the *Fresno General Plan* Circulation Element has made appropriate findings to designate the maximum number of lanes on Friant Road to three (3) in each direction. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable. Additional details of this decision are presented later in this Report.

### *Queuing Analysis*

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

### *Prior EIR Mitigation Measures*

- The current Fresno General Plan included the appropriate findings to designate the maximum number of lanes on Friant Road south of Audubon Drive to three (3) in each direction. As a result, further changes to the segments of Friant Road between the SR 41 SB Off-Ramp and Audubon Drive would no longer be necessary as three or more lanes in each direction are currently in place. Therefore, these segments of Friant Road should be removed as mitigation measures of the Project, and that the Project's traffic impacts be considered significant and unavoidable.

## Scope of Work

The TIA focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On August 21, 2020, a Draft Scope of Work for the preparation of a Traffic Impact Analysis for this Project was provided to the City of Fresno, Fresno County, Caltrans and Madera County for their review and comment. The Draft Scope of Work was based on communication with City of Fresno staff and the Traffic Impact Analysis Guidelines of lead and responsible agencies. Any comments to the proposed Scope of Work were to be provided by September 11, 2020.

On August 28, 2020, Caltrans responded to the Draft Scope of Work. Caltrans requested that the TIA include the State Route 41 at Friant Road interchange and fair share, if applicable. On September 9, 2020, Fresno County responded and approved the Draft Scope of Work as presented. On September 18, 2020, the City of Fresno responded to the Draft Scope of Work. The City of Fresno requested that the TIA include the intersections of Friant Road and Audubon Drive, Fresno Street and Friant Road, and Blackstone Avenue and Nees Avenue in addition to the State Route 41 and Friant Road interchange intersections. In addition, the City of Fresno requested that the TIA include the CEMEX Rockfield Modification Project as an approved project in the vicinity and a discussion on the level of bicycle use on Friant Road and suggested improvements. On September 22, 2020, the City of Clovis responded to the Draft Scope of Work. The City of Clovis requested that the TIA include the intersection of Willow Avenue and International Avenue and account for the signalization of Auberry Road and Copper Avenue currently under design by Fresno County. On November 10, 2020, the Madera County responded and approved the Draft Scope of Work as presented.

Based on the comments received, the TIA includes the additional study facilities requested by Caltrans, the City of Clovis and the City of Fresno in addition to the CEMEX Project and a discussion on bicycle use along Friant Road with suggested improvements as requested by the City of Fresno. However, as transportation improvements were not identified for any of the Caltrans study facilities, and as a result a fair share analysis was not necessary. The Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.



## Study Facilities

The existing intersection peak hour turning movement and segment volume counts were conducted at the study intersections and segments in 2018, 2019 and 2020, while schools in the vicinity of the proposed Project site were in session. Expansion factors as recommended by the City of Fresno were applied to new traffic counts affected by COVID-19 restrictions. JLB reviewed historical and new traffic counts affected by COVID-19-related restrictions for the remaining intersections. Based on this review, new traffic counts (affected by restrictions) were lower than historical traffic counts. Therefore, the remaining new traffic counts (affected by restrictions) were expanded by distinctive rates as recommended by the City of Fresno for the AM and PM peak periods. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study intersections are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

### Study Intersections

<b>Roadways</b>	<b>Count Date</b>	<b>Adjustment</b>
1. Friant Road / Willow Avenue-Birkhead Avenue	02-26-2019	None
2. Willow Avenue / New Full Access (Future)	N/A	N/A
3. Willow Avenue / Alicante Drive (Future)	N/A	N/A
4. Friant Road / Copper River Drive	09-01-2020	None
5. Friant Road / Copper Avenue	12-13-2018	None
6. Millbrook Avenue / Copper Avenue	02-26-2019	None
7. Cedar Avenue / Copper Avenue	09-01-2020	+25%
8. Maple Avenue / Copper Avenue	09-01-2020	+25%
9. Chestnut Avenue / Copper Avenue	02-26-2019	None
10. Willow Avenue / Copper Avenue	02-26-2019	None
11. Peach Avenue / Copper Avenue	09-01-2020	+Varied
12. Auberry Road / Copper Avenue	09-01-2020	+Varied
13. Millbrook Avenue / Olympic Avenue	11-08-2018	None
14. Cedar Avenue / Olympic Avenue	11-08-2018	None
15. Chestnut Avenue / International Avenue	02-26-2019	None
16. Willow Avenue / International Avenue	09-29-2020	+20%
17. Chestnut Avenue / Behymer Avenue	02-26-2020	None
18. Sommerville Drive / Chestnut Avenue	09-01-2020	+25%
19. Friant Road / Audubon Drive	01-15-2020	None
20. Fresno Street / Friant Road	01-15-2020	None
21. State Route 41 Northbound (NB) Off-Ramp / Friant Road	10-07-2020	+Varied
22. State Route 41 Southbound (SB) Off-Ramp / Friant Road	10-07-2020	+Varied
23. Blackstone Avenue / Nees Avenue	09-18-2020	+14%

## Study Scenarios

### *Existing Traffic Conditions*

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in 2018, 2019 and 2020 that were adjusted as noted in the aforementioned section.

### *Existing plus Project Traffic Conditions*

This scenario evaluates the Existing plus Project Traffic Conditions based on traffic volumes obtained by adding the Project Only Trips to the Existing Traffic Conditions scenario. The Project Only Trips to the study facilities were developed based on existing travel patterns, the Fresno Council of Governments (Fresno COG) Project Select Zone, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, and the *Fresno General Plan* Circulation Element in the vicinity of the proposed Project site. The Fresno COG Project Select Zone results are contained in Appendix C.

### *Near Term plus Project Traffic Conditions*

This scenario evaluates the Near Term plus Project Traffic Conditions based on traffic volumes obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario. It is worth noting that this scenario assumes construction of the Near Term Projects located within the general area of the proposed Project site. As a result, it is expected that Near Term Projects will interact with the proposed Project land uses (e.g., commercial/office spaces). However, this TIA does not account for reductions in trip generation as a result of internal capture or pass-by trip reductions.

### *Cumulative Year 2035 No Project Traffic Conditions*

This scenario evaluates the Cumulative Year 2035 No Project Traffic Conditions based on traffic volumes obtained by subtracting the 2035 Project Only Trips from the Cumulative Year 2035 plus Project Traffic Conditions scenario.

### *Cumulative Year 2035 plus Project Traffic Conditions*

This scenario evaluates the Cumulative Year 2035 plus Project Traffic Conditions based on traffic volumes obtained from using a combination of the Fresno COG activity-based model (ABM) (Base Year 2019 and Cumulative Year 2035) and existing traffic counts. Under this scenario, the increment method, as recommended by the Model Steering Committee was utilized to determine the Cumulative Year 2035 plus Project traffic volumes. The Fresno COG ABM results are contained in Appendix C. It should be noted that by the year 2035, an additional major street will be implemented within the Project site resulting in changes in travel patterns and volume distributions; however, existing traffic volumes were not reduced by the redirected traffic as it is difficult to predict with a large degree of accuracy their current travel patterns. As a result, the findings yielded by this approach would in effect be considered conservative. Specifically, some of the traffic projected to utilize Alicante Drive and Willow Avenue is expected to shift to Willow Avenue via the easterly extension of Alicante Drive and another connection to Willow Avenue to the north of Alicante Drive which from herein on will be named "New Full Access". The 2035 Project Only Trips to the study facilities were developed based on the potential changes to the roadway network, engineering judgement, knowledge of the study area, and the *Fresno General Plan* Circulation Element in the vicinity of the proposed Project site.

## LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from “A” to “F”, with “A” indicating no congestion of any kind and “F” indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6 methodologies do not allow the analysis of U-turns. Lane configurations not reflective of existing conditions are a result of software limitations and thus represent a worst-case scenario. For example, at an all-way stop controlled intersection with one left-turn lane, two through lanes and one right-turn lane on an approach would likely be coded as one left, one through and one through-right as HCM 6th edition does not allow the analysis of more than three lanes per approach. With the exception of the analysis of roundabouts, Synchro software was used to define LOS for all study intersections in this study. At roundabouts, Sidra Intersection software was utilized to define the LOS. Details regarding these calculations are included in Appendix D.

Appendix G of the CEQA Guidelines asks whether a project would “conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.” As the City’s currently adopted General Plan Circulation Element includes an LOS standard, to ensure that a project is consistent with the General Plan policy, an LOS analysis may be required at the request of the City Traffic Engineer to determine necessary roadway infrastructure improvements and capacity. The methodology was prepared in general conformance with City of Fresno requirements, the County of Fresno Guidelines for the Preparation of traffic Impact Studies, City of Clovis Transportation Impact Analysis Guidelines and *Caltrans Guide for the Preparation of Traffic Impact Studies*.

## LOS Thresholds

The *Fresno General Plan* has established various degrees of acceptable LOS on its major streets, which are dependent on four (4) Traffic Impact Zones (TIZ) within the City (City of Fresno Development and Resource Management Department, 2014). The standard LOS threshold for TIZ I is LOS F, that for TIZ II is LOS E, that for TIZ III is LOS D, and that for TIZ IV is LOS E. Additionally, the General Plan MEIR made findings of overriding consideration to allow a lower LOS threshold than that established by the underlying TIZ’s. For those cases in which an LOS criterion for a roadway segment differs from that of the underlying TIZ, such criteria are identified in the roadway description. As most study facilities fall within TIZ III, LOS D is used to evaluate the potential LOS impacts to intersections within this TIA pursuant to the *Fresno General Plan*.

The *Clovis General Plan* has established LOS D as the acceptable level of traffic congestion on most major streets (City of Clovis, 2014). Therefore, LOS D is used to evaluate the potential LOS impacts to City of Clovis roadway facilities pursuant to the *Clovis General Plan*.

The Fresno County *General Plan Update* has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City (Fresno

County, 2000). For those areas that fall within the SOI of a City, the LOS threshold of the City is used in this report. LOS C is used to evaluate the potential LOS impacts to Fresno County intersections that fall outside the City of Fresno SOI. In this case, all study facilities fall within the City of Fresno SOI, therefore, the City of Fresno LOS is utilized.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the *Guide for The Preparation of Traffic Impact Studies* dated December 2002 (California Department of Transportation, 2002). However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. Furthermore, the Caltrans' State Route 41 Transportation Concept Report (TCR) has established LOS F as the ultimate concept LOS for State Route 41 as an eight-lane freeway in this area of the City of Fresno. In this TIA, a couple of facilities fall within Caltrans' jurisdiction. Therefore, LOS F was utilized as the LOS impacts for study intersections within Caltrans' jurisdiction. Furthermore, Caltrans has also shifted to VMT as the criteria of significance traffic impacts for development projects.

## VMT Regulatory Settings and Criteria of Significance

Senate Bill (SB) 743 requires that relevant CEQA analysis of transportation impacts be conducted using a metric known as vehicle miles traveled (VMT) instead of Level of Service (LOS). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roads. If the project adds excessive car travel onto our roads, the project may cause a significant transportation impact.

The State CEQA Guidelines were amended to implement SB 743, by adding Section 15064.3. Among its provisions, Section 15064.3 confirms that, except with respect to transportation projects, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, LOS measures of impacts on traffic facilities are no longer a relevant CEQA criteria for transportation impacts.

CEQA Guidelines Section 15064.3(b)(4) states that "[a] lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revision to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section."

On June 25, 2020, the City of Fresno adopted CEQA Guidelines for Vehicle Miles Traveled Thresholds pursuant to Senate Bill 743 to be effective of July 1, 2020. The thresholds described therein are referred to herein as the City of Fresno VMT Thresholds. The City of Fresno VMT Thresholds document was prepared and adopted consistent with the requirements of CEQA Guidelines Sections 15064.3 and 15064.7. The December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (TA) published by the Governor's Office of Planning and Research (OPR), was utilized as a reference and guidance document in the preparation of the Fresno VMT Thresholds.

The City of Fresno VMT Thresholds adopted a screening standard and criteria that can be used to screen out qualified development projects that meet the adopted criteria from needing to prepare a detailed VMT Analysis. These criteria may be size, location, proximity to transit, of trip making potential. In general development projects that are consistent with the City's General Plan and Zoning and that that meet one or more of the following criteria can be screened out from a quantitative VMT analysis.

1. Project Located in a Transit Priority Area/High Quality Transit Corridor (within 0.5 miles of a transit stop).
2. Project is Local-serving Retail of less than 50,000 square feet.
3. Project is a Low Trip Generator (Less than 500 average daily trips)
4. Project has a High Level of Affordable Housing Units
5. Project is an institutional/Government and Public Service Uses
6. Project is located in a Low VMT Zone

This screening tool is consistent with the OPR December 2018 Guidance referenced above. The screening tool includes an analysis of those portions of the City that satisfy the standard of reducing VMT by 13%



from existing per capita and per employee VMT averages within the relevant region. The relevant region adopted by the City of Fresno VMT Thresholds is Fresno County.

However, the City of Fresno VMT Thresholds Section 3.1 regarding Development Projects states that "If a project constitutes a General Plan Amendment (GPA) or a Zone Change (ZC), none of the screening criteria may apply". Since this particular Project includes both a General Plan Amendment and a Zone Change, it does not meet the screening criteria. As such, a quantitative VMT analysis is required, and such was prepared utilizing the Fresno COG Activity Based Model.

For projects that are not screened out, a quantitative analysis of VMT impacts must be prepared and compared against the adopted VMT thresholds of significance. The Fresno VMT Thresholds document includes thresholds of significance for development projects, transportation projects, and land use plans. These thresholds of significance were developed using the County of Fresno as the applicable region, and the required reduction of VMT (as adopted in the Fresno VMT Thresholds) corresponds to Fresno County's contribution to the statewide GHG emission reduction target. In order to reach the statewide GHG reduction target of 15%, Fresno County must reduce its GHG emissions by 13%. The method of reducing GHG by 13% is to reduce VMT by 13% as well.

VMT is simply the product of a number of trips and those trips' lengths. The first step in a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The *CEQA Guidelines for Vehicle Miles Traveled Thresholds* for the City of Fresno provide that the Fresno County average VMT per Capita (appropriate for residential land uses) and Employee (appropriate for office land uses) are 16.1 and 25.6, respectively. The City's threshold targets a 13% reduction in VMT for residential and office land uses.

The City's adopted thresholds for development projects correspond to the regional thresholds set by the Fresno Council of Governments (COG). For residential and non-residential (except retail) development projects, the adopted threshold of significance is a 13% reduction, which means that projects that generate VMT in excess of a 13% reduction from the existing regional VMT per capita or per employee would have a significant environmental impact. Projects that reduce VMT by more than 13% are less than significant. For retail projects, the adopted threshold is any net increase in Regional VMT compared to the existing Regional VMT.

Quantitative assessments of the VMT generated by a development project are determined using the COG Activity Based Model (ABM), which is a tour-based model.

For mixed use projects, the City of Fresno VMT Thresholds state that the VMT can be estimated based on each component of the project, independently, after taking credit for internal trip capture. It also confirms that mixed use projects must use the Fresno COG's Activity Based Model. The VMT per capita (for the residential component) and the total VMT (for the retail component) is then compared against the relevant threshold.

So, the target VMT for residential and office land uses are  $(16.1 \times (1 - .13) = 14.0)$  14.0 VMT per capita and  $(25.6 \times (1 - .13) = 22.3)$  22.3 VMT per employee, respectively. In addition, for retail land uses the Regional No Project VMT was provided as 23,503,505 by the Fresno COG ABM. The City's threshold targets a net zero (0) increase in Regional VMT for retail land uses (City of Fresno, 2020).

## Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time consistent with the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) based on approach speeds (California Department of Transportation, 2020b)
- Yellow time of 3.2 seconds for left-turn phases
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- All new or modified traffic signal controls utilize protective left-turn phasing
- At existing intersections, the greater heavy vehicle factor between the observed and a minimum value of 3 percent was utilized under all scenarios. For future intersections, a minimum heavy vehicle factor of 3 percent was utilized.
- The number of observed pedestrians at existing intersections was utilized under all study scenarios.
- An average of 3 pedestrian calls per hour at signalized intersections
- An average of 10 pedestrian calls per hour at the intersections of Friant Road and Copper River Drive, Millbrook Avenue and Olympic Avenue, Chestnut Avenue and International Avenue, Willow Avenue and International Avenue and Chestnut Avenue and Behymer Avenue
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios.
- For the Cumulative Year 2035 scenario, the following PHF's were utilized to reflect school traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHF's tend to increase to 0.90 or higher in urban settings. The PHF's were established based on historical traffic counts collected by JLB for intersections in proximity of school sites.
  - For the intersection of Millbrook Avenue and Olympic Avenue, Chestnut Avenue and International Avenue, Willow Avenue and International Avenue and Chestnut Avenue and Behymer Avenue, the following PHF's were utilized:
    - A PHF of 0.86, or the existing PHF if higher, is utilized during the AM peak.
    - A PHF of 0.90, or the existing PHF if higher, is utilized during the PM peak.
  - A PHF of 0.92, or the existing PHF if higher, is utilized for all remaining study intersections.

## Existing Traffic Conditions

### Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

**Friant Road** is an existing north-south four-lane divided expressway adjacent to the proposed Project site. In this area, Friant Road exists as a four-lane divided expressway between North Fork Road and Fort Washington Road, a six-lane divided expressway between Fort Washington Road and Audubon Drive, a six-lane divided super arterial between Audubon Drive and State Route 41 Southbound Off-Ramp, and a six-lane divided arterial between State Route 41 Southbound Off-Ramp and Nees Avenue. South of Nees Avenue, Friant Road transitions into Blackstone Avenue. The *Fresno General Plan* Circulation Element designates Friant Road as a four-lane scenic expressway between North Fork Road and Fort Washington Road, a six-lane scenic expressway between Fort Washington Road and Audubon Drive, a six-lane super arterial between Audubon Drive and State Route 41 Southbound Off-Ramp, and a six-lane divided arterial between State Route 41 Southbound Off-Ramp and Nees Avenue.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp. However, City Council made the appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.

**Willow Avenue** is an existing north-south two-lane undivided roadway adjacent to the proposed Project site. In this area, Willow Avenue extends south of Friant Road through the City of Fresno SOI. Willow Avenue is a two-lane super arterial between Friant Road and Copper Avenue, a predominantly four-lane divided super arterial between Copper Avenue and International Avenue and predominantly four- to five-lane divided super arterial between International Avenue and Beverly Drive before entering the City of Clovis SOI. The *Fresno General Plan* Circulation Element designates Willow Avenue as a two-lane super arterial between Friant Road and Copper Avenue, a four-lane super arterial between Copper Avenue and International Avenue, a six-lane super arterial between International Avenue and Herndon Avenue, a four-lane super arterial between Herndon Avenue and Escalon Avenue, and a six-lane super arterial between Escalon Avenue and Beverly Drive.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Willow Avenue would exceed LOS D as a two-lane super arterial between Friant Road and Copper Avenue. However, City Council made the appropriate findings to designate LOS F as the LOS threshold for this segment of Willow Avenue. Based on discussions with City staff, it was determined that this segment of Willow Avenue is planned as a four-lane super arterial. As a result, the Project proposes to develop Willow Avenue from Copper Avenue to the Project's northern limits with two (2) southbound lanes along its frontage to Willow Avenue.

**New Full Access** is a future east-west collector within the proposed Project site. In this area, a New Full Access located approximately 600 feet north of Alicante Drive will connect the proposed Winery Avenue-Road 'G' roadway located within the proposed Project site to Willow Avenue. The New Full Access is expected to be constructed as a two-lane undivided roadway by year 2035.

**Alicante Drive** is an existing east-west two-lane divided collector within the proposed Project site. In this area, Alicante Drive exists as a two-lane divided collector between Copper River Drive and Willow Avenue. The *Fresno General Plan* Circulation Element designates Alicante Drive as a two-lane collector between Copper River Drive and Willow Avenue.

**Copper River Drive** is an existing east-west two-lane divided collector in the vicinity of the proposed Project site. In this area, Copper River Drive exists as a two-lane divided collector between Friant Road and Maple Avenue. The *Fresno General Plan* Circulation Element designates Copper River Drive as a two-lane collector between Friant Road and Maple Avenue.

**Copper Avenue** is an existing east-west four-lane divided super arterial adjacent to the proposed Project site. In this area, Copper Avenue extends east of Friant Road through the City of Fresno's eastern boundary and into the City of Clovis SOI. Copper Avenue is a four-lane divided super arterial between Friant Road and Baird Avenue and two-lane arterial east of Baird Avenue through the City of Fresno SOI. The *Fresno General Plan* Circulation Element designates Copper Avenue as a four-lane super arterial between Friant Road and Baird Avenue and a two-lane super arterial east of Baird Avenue through the City of Fresno SOI. However, City of Fresno staff has determined that Copper Avenue will be constructed as a four-lane super arterial between Friant Road and Willow Avenue by the year 2035. The *Clovis General Plan* Circulation Diagram designates Copper Avenue as an arterial through the City of Clovis SOI.

**Millbrook Avenue** is an existing north-south four-lane divided collector in the vicinity of the proposed Project site. In this area, Millbrook Avenue extends north of Copper Avenue for approximately 300 feet and southwest of Copper Avenue toward Liberty Hill Road. Millbrook Avenue is a four-lane collector divided by a two-way left-turn lane between Copper Avenue and Turnberry Avenue, a two-lane undivided collector between Turnberry Avenue and Fort Washington Road, and a two-lane undivided local road between Fort Washington Road and Liberty Hill Road. The *Fresno General Plan* Circulation Element designates Millbrook Avenue as a four-lane collector between Copper Avenue and Turnberry Avenue, a two-lane collector between Turnberry Avenue and Fort Washington Road, and a two-lane undivided local road between Fort Washington Road and Liberty Hill Road.

**Cedar Avenue** is an existing north-south four-lane divided collector in the vicinity of the proposed Project site. In this area, Cedar Avenue extends south of Copper River Drive and curves eastbound onto International Avenue and connects to Maple Avenue. Cedar Avenue is a four-lane collector divided by a two-way left-turn lane between Copper Avenue and Olympic Avenue. The *Fresno General Plan* Circulation Element designates Cedar Avenue as a four-lane collector between Copper River Drive and Olympic Avenue.

**Maple Avenue** is an existing north-south three-lane divided collector in the vicinity of the proposed Project. In this area, Maple Avenue exists as a three-lane divided collector between Copper River Drive and Copper Avenue, a three-lane divided arterial between Copper Avenue and Prestwick Avenue, and a four-lane divided arterial between Prestwick Avenue and Plymouth Avenue. The *Fresno General Plan* Circulation Element designates Maple Avenue as a two-lane collector between Copper River Drive and Copper Avenue and a four-lane arterial between Copper Avenue and Plymouth Avenue.

**Chestnut Avenue** is an existing north-south two-lane undivided local roadway adjacent to the proposed Project site. In this area, Chestnut Avenue is a two-lane undivided local roadway north of Copper Avenue, a three-lane collector divided by a two-way left-turn lane between Copper Avenue and Sherbou Way, a four-lane collector divided by a two-way left-turn lane between Sherbou Way and International Avenue, a three-lane undivided collector between International Avenue and Fox Glen Avenue, a two-lane undivided collector between Fox Glen Avenue and Behymer Avenue, and a two-lane collector divided by a two-way left-turn lane between Behymer Avenue and Sommerville Drive. The *Fresno General Plan* Circulation Element designates Chestnut Avenue as a two-lane local roadway between Copper River Drive and Copper Avenue, a four-lane collector between Copper Avenue and Behymer Avenue, and a two-lane collector between Behymer Avenue and Sommerville Drive.

**Peach Avenue** is an existing north-south two-lane undivided local roadway in the vicinity of the proposed Project site. In this area, Peach Avenue exists as a two-lane undivided local roadway between Copper Avenue and International Avenue. The *Clovis General Plan* Circulation Diagram designates Peach Avenue as collector throughout the City of Clovis SOI.

**Auberry Road** is an existing north-south two-lane undivided arterial in the vicinity of the proposed Project site. In this area, Auberry Road exists as a two-lane undivided arterial north of Copper Avenue. The *Fresno County General Plan Update* Regional Circulation Diagram designates Auberry Road as arterial throughout the City of Clovis SOI.

**Olympic Avenue** is an east-west three-lane divided collector in the vicinity of the proposed Project. In this area, Olympic Avenue exists as a three-lane collector divided by a two-way left-turn lane between Millbrook Avenue and Cedar Avenue. The *Fresno General Plan* Circulation Element designates Olympic Avenue as a collector between Millbrook Avenue and Cedar Avenue.

**International Avenue** is an existing east-west four-lane divided collector in the vicinity of the proposed Project. In this area, International Avenue extends east of Olympic Avenue through the City of Fresno's eastern boundary and into the City of Clovis SOI. International Avenue is a four-lane collector divided by a two-way left-turn lane between Olympic Avenue and Chestnut Avenue, a four-lane divided collector between Chestnut Avenue and Willow Avenue and a two-lane undivided collector between Willow Avenue and Minnewawa Avenue. The *Fresno General Plan* Circulation Element designates International Avenue as a four-lane collector between Olympic Avenue and Willow Avenue. The *Clovis General Plan* Circulation Diagram designates International Avenue as collector throughout the City of Clovis SOI.

**Behymer Avenue** is an existing east-west four-lane divided collector in the vicinity of the proposed Project site. In this area, Behymer Avenue is a two-lane collector divided by a two-way left-turn lane between Granville Avenue and Maple Avenue, a three-lane divided arterial between Maple Avenue and Sierra Vista Drive-Whitney Avenue, and a four-lane divided arterial between Sierra Vista Drive-Whitney Avenue and Willow Avenue. The *Fresno General Plan* Circulation Element designates Behymer Avenue as a two-lane collector between Granville Avenue and Maple Avenue and a four-lane arterial between Maple Avenue and Willow Avenue.

**Sommerville Drive** is an existing predominantly north-south four-lane divided arterial in the vicinity of the proposed Project site. In this area, Somerville Drive exists as a four-lane divided arterial between Behymer Avenue and Plymouth Avenue, a three-lane divided arterial between Plymouth Avenue and Woodrow Avenue alignment, and a four-lane divided arterial between Woodrow Avenue alignment and Shepherd Avenue. Somerville Drive transitions into Maple Avenue north of Behymer Avenue. South of Shepherd Avenue, Somerville Drive transitions into Chestnut Avenue. The *Fresno General Plan* Circulation Element designates Somerville Drive as a four-lane arterial between Behymer Avenue and Shepherd Avenue.

**Audubon Drive** is an existing east-west four-lane scenic roadway in the vicinity of the proposed Project site. In this area, Audubon Drive exists as a two-lane scenic collector divided by a two-way left-turn lane between Nees Avenue and Del Mar Avenue, a four-lane divided scenic collector between Del Mar Avenue and Friant Road, and a four-lane scenic arterial between Friant Road and Omaha Avenue. South of Omaha Avenue, Audubon Drive transitions into First Street. The *Fresno General Plan* Circulation Element designates Audubon Drive as a two-lane scenic collector divided by a two-way left-turn lane between Nees Avenue and Del Mar Avenue, a four-lane divided scenic collector between Del Mar Avenue and Friant Road, and a four-lane scenic arterial between Friant Road and Omaha Avenue.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Audubon Drive would exceed LOS D as a two-lane facility between Nees Avenue and Del Mar Avenue. However, City Council made the appropriate findings to designate LOS F as the LOS threshold for this segment of Audubon Drive.



**Fresno Street** is an existing north-south four-lane divided arterial in the vicinity of the proposed Project site. In this area, Fresno Street extends south of Friant Road toward Divisadero Street and continues southwest to connect to California Avenue. Fresno Street is a two-lane divided local roadway north of Friant Road, a four-lane divided arterial between Friant Road and Howard Street, a five-lane divided arterial between Howard Street and Herndon Avenue, a four-lane divided collector between Herndon Avenue and Bullard Avenue, a four-lane collector divided by a two-way left-turn lane between Bullard Avenue and Shaw Avenue, a four-lane divided collector between Shaw Avenue and Santa Ana Avenue, a four-lane undivided collector between Santa Ana Avenue and McKinley Avenue, a four-lane collector divided by a two-way left-turn lane between McKinley Avenue and Floradora Avenue, a four-lane divided collector between Floradora Avenue and Illinois Avenue, a four-lane divided collector between Illinois Avenue and "G" Street, a four-lane divided arterial between "G" Street and Collins Avenue, a four-lane arterial divided by a two-way left-turn lane between Collins Avenue and Klette Avenue, a four-lane divided arterial between Klette Avenue and Martin Avenue, and a four-lane arterial divided by a two-way left-turn lane between Martin Avenue and California Avenue. The *Fresno General Plan* Circulation Element designates Fresno Street as a local roadway north of Friant Road, a four-lane arterial between Friant Road and Howard Street, a five-lane arterial between Howard Street and Herndon Avenue, a five-lane collector between Herndon Avenue and Palo Alto Avenue, a four-lane collector between Palo Alto Avenue and Divisadero Street, a four-lane arterial between Divisadero Street and California Avenue. Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Fresno Street would exceed LOS D as a five-lane facility between Herndon Avenue and Palo Alto Avenue. However, City Council made the appropriate findings to designate LOS F as the LOS threshold for this segment of Fresno Street. Moreover, the *Fresno General Plan* Circulation Element acknowledged that Fresno Street would exceed LOS D as a four-lane facility between Palo Alto Avenue and Sierra Avenue. However, City Council made the appropriate findings to designate LOS E as the LOS threshold for this segment of Fresno Street.

**State Route (SR) 41** is an existing north-south four-lane freeway in the vicinity of the proposed Project site. State Route 41 serves as the principal connection to various metropolitan areas within the Central San Joaquin Valley and California Central Coast. In this area, State Route 41 connects to Friant Road. The Caltrans' State Route 41 TCR identifies State Route 41 in this area as a four-lane freeway with planned auxiliary lanes and acknowledged that State Route 41 would operate at LOS F with no improvements.

**State Route 41 Northbound Off-Ramp at Friant Road** is an existing northbound five-lane freeway off-ramp in the vicinity of the proposed Project site. The Caltrans' State Route 41 TCR acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line. However, the TCR made the appropriate findings to designate LOS F as the criteria of significance for this segment of State Route 41.

**State Route 41 Southbound Off-Ramp at Friant Road** is an existing southbound single-lane freeway off-ramp in the vicinity of the proposed Project site. The Caltrans' State Route 41 TCR acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line. However, the TCR made the appropriate findings to designate LOS F as the criteria of significance for this segment of State Route 41.

**Blackstone Avenue** is an existing north-south six-lane divided arterial in the vicinity of the proposed Project site. In this area, Blackstone Avenue is a six-lane divided arterial between Nees Avenue and Hedges Avenue. South of Hedges Avenue, Blackstone Avenue splits into two (2) three-lane one-way collectors known as Blackstone Avenue and Abby Street (located approximately 300 feet apart). Blackstone Avenue and Abby Street exist as three-lane one-way collectors between Hedges Avenue and Stanislaus Street and Divisadero Street, respectively. The *Fresno General Plan* Circulation Element designates Blackstone Avenue as a six-lane arterial between Nees Avenue and Hedges Avenue and two (2) three-lane one-way arterials between Hedges Avenue and Divisadero Street also known as Blackstone Avenue and Abby Street.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Abby Street would exceed LOS D as a two-lane facility between Hedges Avenue and Olive Avenue. However, City Council made the appropriate findings to designate LOS E as the LOS threshold for this segment of Abby Street.

**Nees Avenue** is an existing east-west four-lane divided arterial in the vicinity of the proposed Project site. In this area, Nees Avenue extends east of Palm Avenue through the City of Fresno's eastern boundary and into the City of Clovis SOI. Nees Avenue is a four-lane divided arterial between Palm Avenue and Willow Avenue, and a two- to four-lane divided arterial between Willow Avenue and Locan Avenue. The *Fresno General Plan* Circulation Element designates Nees Avenue as a four-lane arterial between Palm Avenue and Willow Avenue. The *Clovis General Plan* Circulation Diagram designates Nees Avenue as an arterial between Willow Avenue and Temperance Avenue and a collector between Temperance Avenue and Owens Mountain Parkway.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Nees Avenue would exceed LOS D as a four-lane facility between Blackstone Avenue and Fresno Street and between First Street and Millbrook Avenue. However, City Council made the appropriate findings to designate LOS E as the LOS threshold for this segment of Nees Avenue.

## Collision Analysis

JLB conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to obtain collision reports for the most recent five-year period (January 1, 2015 to December 31, 2019). The SWITRS "is a database that serves as a means to collect and process data gathered from a collision scene. The internet SWITRS application is a tool by which CHP staff and members of its Allied Agencies throughout California can request various types of statistical reports in an electronic format." All collision reports between January 1, 2015 and December 31, 2019 were included in the collision analysis. In the five-year period, a total of 92 collisions were reported within the influence zone (assumed to be within 250 feet) of the study intersections. The SWITRS collision data are found in Appendix E.

Table I summarizes the type of collision, severity, violation, and identifies involvement with another vehicle, a pedestrian/bicyclist or a fixed object. Based on the five-year collision data contained within SWITRS, most study intersections have experienced a low number and severity of collisions per year with a few exceptions. These exceptions are noted and discussed below.

- Friant Road / Copper River Drive
  - This intersection experienced a total of one (1) reported other (1) type of collision during the five-year period. This collision was caused by driving under the influence (1), involved a pedestrian/bicyclist (1), and resulted in a fatality (1).
  - The fatality experienced at this intersection was due to driving under the influence. Considering the inherent factors of this fatality, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified. Therefore, the number of correctable collisions experienced is less than significant.
- Friant Road / Copper Avenue
  - This intersection experienced a total of four (4) reported broadside (1), hit object (2) and other (1) type of collisions during the five-year period. These collisions were caused by driving at an unsafe speed (1) and other (3), involved a motor vehicle (1) and fixed object (3), and resulted in a fatality (1) and property damage only (3).
  - The fatality experienced at this intersection was a result of a broadside collision caused by an unknown (other) violation. Considering the inherent factors of this fatality, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified. Therefore, the number of correctable collisions experienced is less than significant.

- Auberry Road / Copper Avenue
  - This intersection experienced a total of 17 reported broadside (8), rear end (1), head-on (1), hit object (4), sideswipe (2) and other (1) type of collisions during the five-year period. These collisions were caused by violations of traffic signals and signs (3), right-of-way (9), driving at an unsafe speed (3), improper turning (1) and other (1), involved a pedestrian/bicyclist (1), a motor vehicle (12) and fixed object (4), and resulted in a fatality (1), other visible injury (3), complaint of pain (6) and property damage only (7).
  - The fatality experienced at this intersection was a result of a broadside collision caused by a right of way violation.
  - After thorough review of the data contained within the collision reports, installation of a traffic signal control would reduce the number of broadside collisions. At the time of the preparation of this Report, Fresno County had prepared construction documents for installation of a traffic signal control that would reduce the number of broadside collisions experienced at the intersection. It is worth noting that while installation of a traffic signal control is expected to reduce broadside collisions, it may increase the number of rear-end collisions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - This intersection experienced a total of 26 reported broadside (1), rear-end (20), hit object (3) and other (2) type of collisions during the five-year period. These collisions were caused by driving at an unsafe speed (15), improper turning (1), driving under the influence (2) and other (8), involved a motor vehicle (22), a fixed object (3) and other (1), and resulted in other visible injury (3), complaint of pain (5) and property damage only (18).
  - Throughout the five-year period, this intersection experienced a total of 10 collisions in 2016.
  - This intersection has a lower base rate, fatality rate, and fatality plus injury rate when compared to statewide averages of similar intersections.
  - Considering the data contained within the collision report, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified. Therefore, the number of correctable collisions experienced is less than significant.
- State Route 41 Southbound Off-Ramp / Friant Road
  - This intersection experienced a total of 24 reported rear-end (8), hit object (7), sideswipe (7) and other (2) type of collisions during the five-year period. These collisions were caused by driving at an unsafe speed (10), improper turning (6), driving under the influence (2) and other (6), involved a motor vehicle (15), a fixed object (8) and other (1), and resulted in other visible injury (1), complaint of pain (3) and property damage only (20).
  - Throughout the five-year period, this intersection experienced a total of eight (8) collisions in 2018.
  - This intersection has a higher base rate, but lower fatality rate and fatality plus injury rate when compared to statewide averages of similar intersections.
  - Considering the data contained within the collision report, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified. Therefore, the number of correctable collisions experienced is less than significant.

**Table I: Five-Year (2015-2019) Intersection Collision Analysis**

ID	Intersection	Number of Collisions	Type of Collision						Severity					Type of Violation								Motor Vehicle Involved with...			
			Broadside	Rear End	Head-On	Hit Object	Sideswipe	Other	Fatal	Severe Injury	Other Visible Injury	Complaint of Pain Injury	Property Damage Only	Traffic Signals & Signs	Right of Way	Unsafe Speed	Improper Turning	Driving Under Influence	Too Close	Pedestrian Violation	Other	Pedestrian/Bicyclist	Other Motor Vehicle	Fixed Object	Other
1	Friant Road / Willow Avenue	6	3	-	-	-	2	1	-	-	4	-	2	-	3	-	2	-	-	-	1	1	4	-	1
4	Friant Road / Copper River Drive	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
5	Friant Road / Copper Avenue	4	1	-	-	2	-	1	1	-	-	-	3	-	-	1	-	-	-	-	3	-	1	3	-
6	Millbrook Avenue / Copper Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Cedar Avenue / Copper Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Maple Avenue / Copper Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Chestnut Avenue / Copper Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Willow Avenue / Copper Avenue	2	2	-	-	-	-	-	-	1	-	-	1	-	1	-	-	1	-	-	-	-	2	-	-
11	Peach Avenue / Copper Avenue	1	-	1	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1	-	-
12	Auberry Road / Copper Avenue	17	8	1	1	4	2	1	1	-	3	6	7	3	9	3	1	-	-	-	1	1	12	4	-
13	Millbrook Avenue / Olympic Drive	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Cedar Avenue / Olympic Drive	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Chestnut Avenue / International Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Willow Avenue / International Avenue	3	1	2	-	-	-	-	-	-	1	-	2	-	-	1	-	1	-	-	-	1	2	-	-
17	Chestnut Avenue / Behymer Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Sommerville Drive / Chestnut Avenue	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Friant Road / Audubon Drive	4	-	2	-	1	-	1	-	1	1	-	2	-	-	1	-	1	-	-	2	1	2	1	-
20	Fresno Street / Friant Road	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-
21	State Route 41 NB Off-Ramp / Friant Road	26	1	20	-	3	-	2	-	-	3	5	18	-	-	15	1	2	-	-	8	-	22	3	1
22	State Route 41 SB Off-Ramp / Friant Road	24	-	8	-	7	7	2	-	-	1	3	20	-	-	10	6	2	-	-	6	-	15	8	1
23	Blackstone Avenue / Nees Avenue	3	-	1	-	-	1	1	-	-	-	2	1	-	-	1	-	-	-	-	2	1	2	-	-

## Traffic Signal Warrants

The CA MUTCD indicates that an engineering study of traffic conditions, pedestrian characteristics and physical features of an intersection shall be conducted to determine whether installation of traffic signal controls are justified. The CA MUTCD provides a total of nine (9) warrants to evaluate the need for traffic signal controls. These warrants include 1) Eight-Hour Vehicular Volume, 2) Four-Hour Vehicular Volume, 3) Peak Hour, 4) Pedestrian Volume, 5) School Crossing, 6) Coordinated Signal System, 7) Crash Experience, 8) Roadway Network and 9) Intersection Near a Grade Crossing. Signalization of an intersection may be appropriate if one or more of the signal warrants is satisfied. However, the CA MUTCD also states that “[t]he satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic control signal” (California Department of Transportation, 2020b).

If traffic signal warrants are satisfied when an LOS threshold impact is identified at an unsignalized intersection, then installation of a traffic signal control may serve as an improvement measure. For instances where traffic signal warrants are satisfied, a traffic signal control is not considered to be the default improvement measure. Since installation of a traffic signal control typically requires construction of additional lanes, an attempt was first made to improve the intersection approach lane geometrics in order to improve its LOS while maintaining the existing intersection controls. If the additional lanes did not result in acceptable LOS at the intersection, then in those cases implementation of a traffic signal control would be considered.

Warrants 1, 2 and 3 were prepared for the unsignalized intersections under the Existing Traffic Conditions scenario. These warrants are contained in Appendix M. Under this scenario, no unsignalized study intersection satisfies Warrant 1. Under this scenario, the following intersections satisfy Warrant 2: Millbrook Avenue and Copper Avenue, Chestnut Avenue and Copper Avenue, Willow Avenue and Copper Avenue, and Auberry Road and Copper Avenue. Under this scenario, the following intersections satisfy Warrant 3: a) During the AM peak period only: Millbrook Avenue and Copper Avenue, Chestnut Avenue and Copper Avenue, and Chestnut Avenue and Behymer Avenue; b) During the PM peak period only: no unsignalized study intersection; and c) During both peak periods: Willow Avenue and Copper Avenue and Auberry Road and Copper Avenue.

Based on the traffic signal warrants, operational analysis and engineering judgement, it is recommended that the City consider implementing a traffic signal control at the intersections of Willow Avenue and Copper Avenue and Chestnut Avenue and Behymer Avenue. It is worth noting that the intersections of Millbrook Avenue and Copper Avenue, Chestnut Avenue and Copper Avenue, Willow Avenue and Copper Avenue, Auberry Road and Copper Avenue and Millbrook Avenue and Olympic Avenue are projected to be controlled by a traffic signal by the end of 2021. The intersections of 1) Millbrook Avenue and Copper Avenue and 2) Millbrook Avenue and Olympic Avenue have finalized its construction documents and are currently in the bidding stage. The developer that is required to construct these two signals is the owner of the Copper River Apartments generally located at the northeast quadrant of Friant Road and Copper Avenue. Both of these intersections are projected to be signalized by the end of 2021. The intersection of Chestnut Avenue and Copper Avenue is currently under construction by the Developer of Tract 6106 located at the northeast corner of Chestnut Avenue and Copper Avenue. The intersection of Willow Avenue and Copper Avenue is going into construction in the summer of 2021 by the Developer of Tract



6249 located at the southwest quadrant of Willow Avenue and Copper Avenue. The intersection of Auberry Road and Copper Avenue will be constructed in the summer of 2021 by the County of Fresno. However, it is not recommended that the City consider implementing traffic signal controls at the remaining unsignalized study intersections especially since these operate at acceptable LOS during both peak periods.

## Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing Traffic Conditions turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix F. Table II presents a summary of the Existing peak hour LOS at the study intersections.

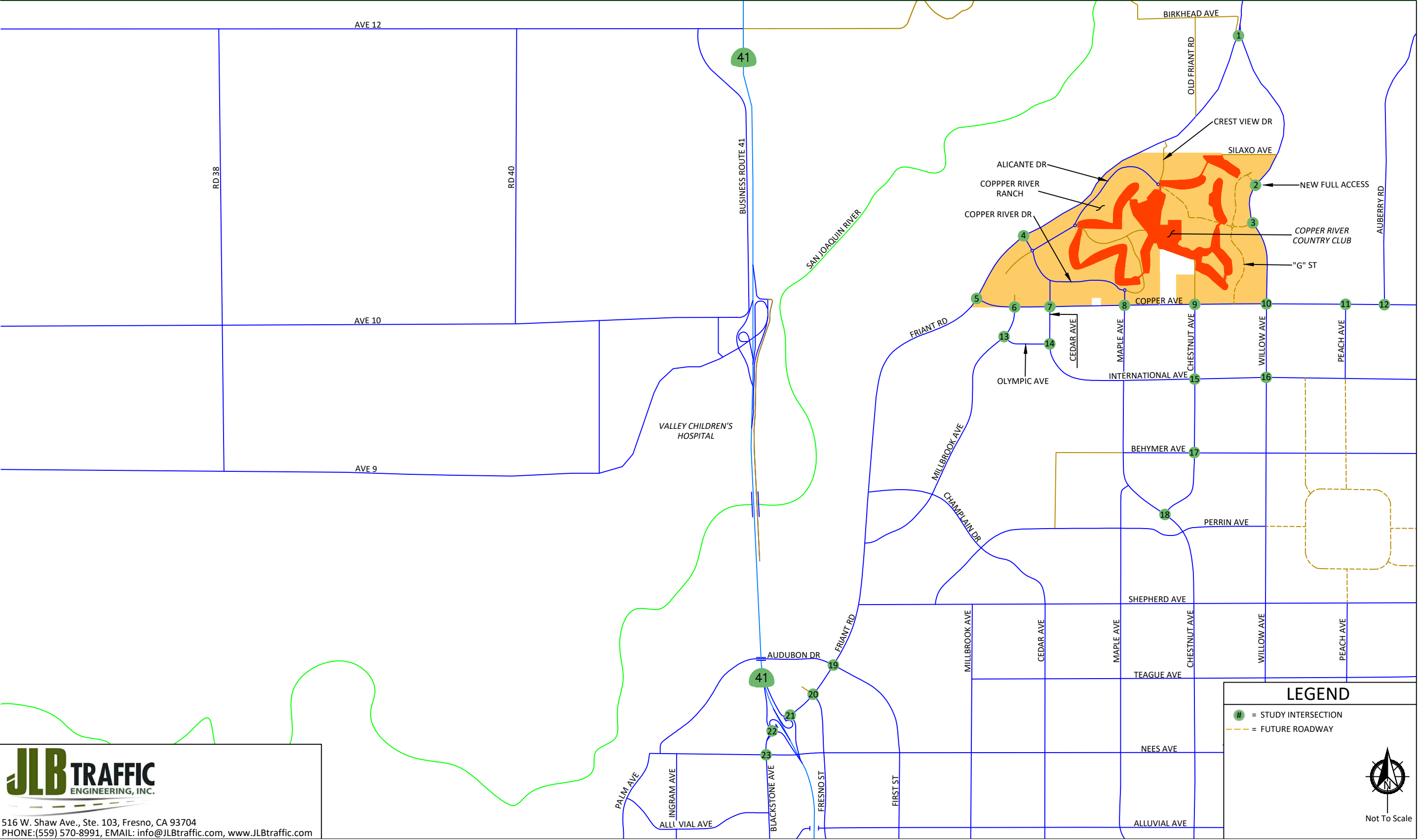
At present, the intersections of Willow Avenue and Copper Avenue and Chestnut Avenue and Behymer Avenue exceed their LOS thresholds during the AM peak period only. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.

- Willow Avenue / Copper Avenue
  - Add an eastbound left-turn lane;
  - Modify the eastbound left-through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through lane to a through-right lane;
  - Remove the westbound right-turn lane;
  - Add a northbound left-turn lane;
  - Modify the northbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protective left-turn phasing in all directions.
- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
    - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

**Table II: Existing Intersection LOS Results**

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Friant Road / Willow Avenue	Two-Way Stop	24.1	C	20.8	C
2	Willow Avenue / New Full Access	Does Not Exist	-	-	-	-
3	Willow Avenue / Alicante Drive	Does Not Exist	-	-	-	-
4	Friant Road / Copper River Drive	Traffic Signal	17.9	B	7.0	A
5	Friant Road / Copper Avenue	Traffic Signal	12.3	B	8.7	A
6	Millbrook Avenue / Copper Avenue	Two-Way Stop	17.9	C	12.6	B
7	Cedar Avenue / Copper Avenue	Traffic Signal	13.7	B	12.9	B
8	Maple Avenue / Copper Avenue	Traffic Signal	21.5	C	16.5	B
9	Chestnut Avenue / Copper Avenue	All-Way Stop	29.8	D	12.3	B
10	Willow Avenue / Copper Avenue	All-Way Stop	<b>41.4</b>	<b>E</b>	15.5	C
		Traffic Signal (Improved)	23.0	C	23.4	C
11	Peach Avenue / Copper Avenue	One-Way Stop	12.6	B	0	A
12	Auberry Road / Copper Avenue	One-Way Stop	17.0	C	17.9	C
13	Millbrook Avenue / Olympic Avenue	All-Way Stop	22.4	C	9.1	A
14	Cedar Avenue / Olympic Avenue	All-Way Stop	18.9	C	9.6	A
15	Chestnut Avenue / International Avenue	Traffic Signal	52.6	D	26.2	C
16	Willow Avenue / International Avenue	Traffic Signal	44.0	D	20.9	C
17	Chestnut Avenue / Behymer Avenue	All-Way Stop	<b>73.8</b>	<b>F</b>	15.8	C
		Traffic Signal (Improved)	29.6	C	23.6	C
18	Sommerville Drive / Chestnut Avenue	All-Way Stop	9.9	A	10.7	B
19	Friant Road / Audubon Drive	Traffic Signal	43.5	D	53.0	D
20	Fresno Street / Friant Road	Traffic Signal	26.6	C	47.7	D
21	State Route 41 NB Off-Ramp / Friant Road	Traffic Signal	96.9	F	>120.0	F
22	State Route 41 SB Off-Ramp / Friant Road	Traffic Signal	18.7	B	13.2	B
23	Blackstone Avenue / Nees Avenue	Traffic Signal	27.6	C	44.7	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls  
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.



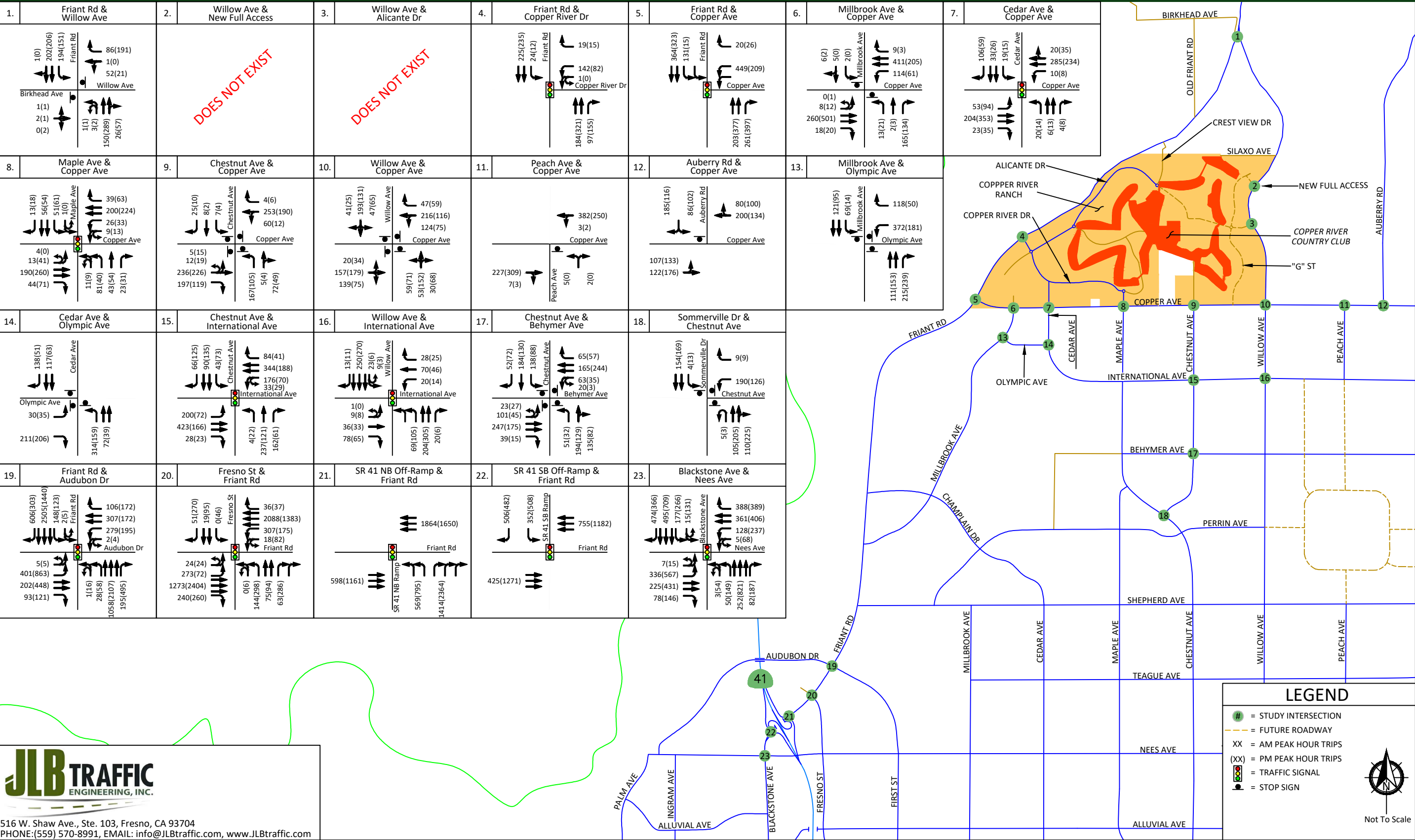
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Copper River Ranch SEIR - City of Fresno  
Existing - Traffic Volumes, Geometrics and Controls

Figure 2



## Existing plus Project Traffic Conditions

### Project Description

The original Project EIR (2003) analyzed the traffic impacts associated with the development of a 0.37-acre park-n-ride lot (27 parking spaces), 2,837 residential units, a 60-room hotel, a 2.61-acre City park, 249,113 square feet (approximately 60 acres) of mixed-use land uses, and a 3.30-acre wastewater treatment plant in the general area bound by Friant Road, Silaxo Avenue alignment, Willow Avenue and Copper Avenue. Since its approval, the Project has been in a state of development and is now proposing land use changes within the already existing Project development as well to develop an additional 109 acres located adjacent to and east of the existing Project development. Based on information provided to JLB, the Project proposes various general plan amendments/rezones. The planned development of the additional 109 acres will increase the Project's residential unit count by 441 housing units, add 5,310 square feet of mixed-use commercial land uses, and add 25.30 acres of park space. At buildout, the Project proposes to construct a total of 3,278 residential units (2,429 single-family and 849 multi-family residential units), and develop 254,423 square feet of mixed-use commercial land uses in addition to a park-n-ride lot (27 parking spaces), 28.80 acres of park space, and a 3.30-acre wastewater treatment plant.

### Project Access

Based on the conceptual Project Site Plan, access to and from the Project site will be from existing and proposed public roadways and access points located along the east side of Friant Road, north side of Copper Avenue and west side of Willow Avenue. At present, the Project site can access Friant Road via Crest View Drive and Copper River Drive. The intersection of Friant Road and Crest View Drive is controlled by a two-way stop on Crest View Drive and allows full access. The intersection of Friant Road and Copper River Drive is controlled by a traffic signal and allows full access. Moreover, the Project site can access Copper Avenue via Millbrook Avenue, Cedar Avenue, Maple Avenue, and Chestnut Avenue. The intersection of Millbrook Avenue and Copper Avenue is controlled by a two-way stop on Millbrook Avenue and allows full access. However, this intersection is projected to be controlled by a traffic signal by the year 2021 as a result of development of components of the original 2003 Project. The intersection of Cedar Avenue and Copper Avenue is controlled by a traffic signal and allows full access. The intersection of Maple Avenue and Copper Avenue is also controlled by a traffic signal and allows full access. The intersection of Chestnut Avenue and Copper Avenue is controlled by an all-way stop and allows full access. However, this intersection is projected to be controlled by a traffic signal by the year 2021 as a result of development of a project previously reviewed and approved by the City of Fresno.



In the future, Winery Avenue-Road 'G' will provide another access to Copper Avenue. The intersection of Winery Avenue-Road 'G' and Copper Avenue will be controlled by a one-way stop on Winery Avenue-Road 'G' and allow limited (left-in, right-in, right-out) access only. It is worth noting that the intersection of Winery Avenue-Road 'G' and Copper Avenue is under construction at the time of the preparation of this Report. In addition, Alicante Drive will extend east of Crest View Drive to provide access to Willow Avenue. The intersection of Willow Avenue and Alicante Drive will be controlled by a one-way stop on Alicante Drive and allow full access. It is worth noting that the intersection of Willow Avenue and Alicante Drive is under construction at the time of the preparation of this Report. Lastly, the proposed New Access Road will provide another connection to Willow Avenue between Silaxo Road and Alicante Drive. The intersection of Willow Avenue and New Access Road will be controlled by a one-way stop on New Access Road and allow full access.

Moreover, the mixed-use components located near the intersections of Maple Avenue and Copper Avenue and Willow Avenue and Copper Avenue are expected to have direct access to Copper Avenue and Willow Avenue. It is worth noting that most driveways along the north side of Copper Avenue have been permitted with the exception of the mixed-use component located at the northwest corner of Willow Avenue and Copper Avenue. For purposes of this Report, it is assumed that the aforementioned component is permitted with limited access to the west side of Willow Avenue and the north side of Copper Avenue. Traffic impacts related to access points that do not currently exist will need to be assessed by a site-specific entitlement application(s).

JLB analyzed the location of the existing and proposed roadways and access points relative to the existing and proposed roadways and access points in the vicinity of Project site. A review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway network.

## Project Trip Generation

Per Project EIR (2003) and the Traffic Impact Study (TIS) prepared by TPG Consulting, Inc. (TPG), the original Project trip generation rates were obtained from the Trip Generation Manual and corresponding software (version 5) published by the Institute of Transportation Engineers (ITE). Table III presents the trip generation of the Project as presented in TIS for Project EIR (2003) with trip generation rates for a 0.37-acre Park-N-Ride Lot (27 parking spaces), 1,084 units of Single-Family Detached Housing, 1,753 units of Multifamily Housing, a 60-room hotel, a 2.61-acre City park, a 9,670 square-foot Specialty Retail Center, 235,443 square feet of Shopping Center, a 4,000 square-foot Deli and a 3.30-acre wastewater treatment plant. Per Project EIR (2003), the existing Project development was estimated to generate a maximum of 33,935 daily trips, 2,062 AM peak hour trips and 3,167 PM peak hour trips (TPG Consulting, Inc., 2004).

**Table III: Project Trip Generation - Project EIR (2003)**

Land Use	Size	Unit	Daily Trips	AM (7-9) Peak Hour			PM (4-6) Peak Hour		
				In	Out	Total	In	Out	Total
Park-N-Ride Lot	27	p.s.	138	16	6	22	5	13	18
Single-Family Detached Housing	1,084	d.u.	10,374	206	607	813	694	401	1,095
Apartments	1,753	d.u.	11,780	175	719	894	701	386	1,087
Hotel	60	o.r.	490	20	13	33	19	17	36
City Park	2.61	ac.	4	0	0	0	0	0	0
Specialty Retail Center	9.670	k.s.f.	429	0	0	0	12	15	27
Shopping Center	235.443	k.s.f.	10,110	149	95	244	425	459	884
Deli	4.000	k.s.f.	600	32	22	54	5	13	18
Wastewater Treatment Plant	3.30	ac.	10	1	1	2	1	1	2
<b>Total</b>			<b>33,935</b>	<b>599</b>	<b>1,463</b>	<b>2,062</b>	<b>1,862</b>	<b>1,305</b>	<b>3,167</b>

Note: p.s. = parking space  
ac. = acre  
d.u. = dwelling unit  
o.r. = occupied room  
k.s.f. = thousand square feet

Trip generation rates for the proposed Project were obtained from the 10th Edition of the Trip Generation Manual published by the ITE (Institute of Transportation Engineers, 2017). Appendix G contains a breakdown of the trip generation rates utilized for the various Project components. Table IV presents a summary of the trip generation for the proposed Project as amended by the SEIR with trip generation rates for a 0.37-acre Park-N-Ride Lot (23 parking spaces), 2,429 units of Single-Family Detached Housing, 849 units of Multifamily Housing, 28.80 acres of City park, 254,423 square feet of Shopping Center and a 3.30-acre wastewater treatment plant. At buildout, the proposed Project is estimated to generate a maximum of 46,164 daily, 3,163 AM peak hour and 4,281 PM peak hour total driveway trips.

**Table IV: Project Trip Generation - Project SEIR (2021)**

Land Use	Size	Unit	Daily Trips	AM (7-9) Peak Hour			PM (4-6) Peak Hour		
				In	Out	Total	In	Out	Total
Park-N-Ride Lot	23	p.s.	65	8	2	10	2	8	10
Single-Family Detached Housing	2,429	d.u.	22,930	445	1,352	1,797	1,517	888	2,405
Apartments	849	d.u.	6,215	89	301	390	299	176	475
City Park	28.80	ac.	22	1	0	1	2	1	3
Shopping Center	254.423	k.s.f.	16,924	541	422	963	656	730	1,386
Wastewater Treatment Plant	3.30	ac.	8	2	0	2	0	2	2
<b>Total</b>			<b>46,164</b>	<b>1,086</b>	<b>2,077</b>	<b>3,163</b>	<b>2,476</b>	<b>1,805</b>	<b>4,281</b>

Note: p.s. = parking space  
d.u. = dwelling unit  
ac. = acre  
k.s.f. = thousand square feet

Compared to the Project EIR (2003), the proposed Project is estimated to yield 12,229 more daily, 1,100 more AM peak hour and 1,114 more PM peak hour trips. A trip generation comparison of the Project EIR (2003) and Project SEIR (2021) is summarized in Table V.

**Table V: Trip Generation Comparison**

Project	Daily	AM (7-9) Peak Hour			PM (4-6) Peak Hour		
	Total	In	Out	Total	In	Out	Total
Total Project EIR (2003)	33,935	599	1,463	2,062	1,862	1,305	3,167
Total Project SEIR (2021)	46,164	1,086	2,077	3,163	2,476	1,805	4,281
<b>Total Difference</b>	<b>12,229</b>	<b>487</b>	<b>614</b>	<b>1,101</b>	<b>614</b>	<b>500</b>	<b>1,114</b>

Since the Project has been in a state of development since its approval, Table VI below presents a summary of the anticipated maximum trip generation of the Project components that remain to be built. Table VI presents a summary of the trip generation of the Project components that remain to be built with trip generation rates for 1,270 units of Single-Family Detached Housing, 849 units of Multifamily Housing, 25.30 acres of City park and 192,273 square feet of Commercial. At buildout, the proposed Project which remains to be built is estimated to generate a maximum of 32,452 daily, 2,173 AM peak hour and 2,858 PM peak hour total driveway trips.

**Table VI: Project Trip Generation - Remain to be Built**

Land Use	Size	Unit	Daily Trips	AM (7-9) Peak Hour			PM (4-6) Peak Hour		
				In	Out	Total	In	Out	Total
Single-Family Detached Housing	1,270	d.u.	11,987	233	705	938	792	466	1,258
Apartments	849	d.u.	6,215	89	301	390	299	176	475
City Park	25.30	ac.	20	1	0	1	2	1	3
Commercial	192.273	k.s.f.	14,230	464	380	844	539	583	1,122
<b>Total</b>			<b>32,452</b>	<b>787</b>	<b>1,386</b>	<b>2,173</b>	<b>1,632</b>	<b>1,226</b>	<b>2,858</b>

Note: d.u. = dwelling unit  
ac. = acre  
k.s.f. = thousand square feet

It is worth noting that this TIA does not consider reductions in the Project's anticipated trip generation as a result of internal capture or pass-by trips. Internal capture trip reductions are typically applied to account for the interaction between various individual land uses included as part of the Project. For example, in a mixed-use development containing offices and shops, trips made by the office workers to the shops within the site are defined as internal, or captured, trips within the site. Pass-by trip reductions are typically applied to account for those vehicles already on the road that the Project may attract. Typically, internally captured trips and pass-by trips are deducted from the total number of driveway trips. Since internal capture and pass-by trips are not deducted from the Project's estimated maximum trip generation, this TIA represents a worst-case-scenario.

## Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, the Fresno COG Project Select Zone, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, and the *Fresno General Plan* Circulation Element in the vicinity of the Project. The Project's trip generation data was provided to Fresno COG in order to conduct a Project-specific Select Zone analysis using the Fresno COG ABM (Base Year 2021 and Cumulative Year 2035). The Fresno COG Project Select Zone results are contained in Appendix C. Figure 3 illustrates the Project Only Trips at the study intersections assuming immediate buildout by the year 2022. Similarly, Figure 4 illustrates the Project Only Trips at various Project driveways.

## Roadway Network

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with a few exceptions. This scenario assumes that the intersections of Millbrook Avenue and Copper Avenue, Chestnut Avenue and Copper Avenue, Willow Avenue and Copper Avenue, Auberry Road and Copper Avenue, and Millbrook Avenue and Olympic Avenue are controlled by a traffic signal by the year 2021. All of these intersections are in the final stages of construction documents for intersection improvements and signalizations or have approved construction documents and have commenced construction. Figure 5 illustrates the assumed intersection geometrics and traffic controls for these intersections under the Existing plus Project scenario.

## Active Transportation Plan

The Fresno Active Transportation Plan (ATP) is an extensive guide detailing the conception for active transportation in the City of Fresno that was adopted in December 2016. This ATP aims to improve the safety, increase non-motorized trips, improve access and fill in gaps in networks for Fresno's pedestrians and bicyclists. In order to achieve these goals for active transportation, this ATP proposes a comprehensive network of citywide bikeways, trails and sidewalks. The recommended network would add 166 miles of Class I Bike Paths, 691 miles of Class II Bike Lanes, 69 miles of Class III Bike Routes, 21 miles of Class IV Separated Bikeways and 661 miles of sidewalks. This ATP also recommends bicycle detection at traffic signals, destination signage, bicycle parking, showers and changing facilities and bikeway maintenance. This network will be constructed in conjunction with adjacent land developments, roadway maintenance and active transportation infrastructure projects using funds from different local, state and federal sources.

## Bikeways

The Fresno *Active Transportation Plan (ATP)* classifies bicycle facilities into the following types:

- Class I Bikeway (Bike Path) – Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized.
- Class II Bikeway (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway.
- Class III Bikeway (Bike Route) – Provides a shared use with pedestrians or motor vehicle traffic, typically on lower volume roadways.
- Class IV Bikeways (Separated Bikeways) – Provides a protected lane for one-way bike travel (one-way cycle track) and protected lanes for two-way bike travel (two-way cycle track) on a street or highway.

A combination of Class I (Bike Path) and Class II (Bike Lane) Bikeways exist within, adjacent to and in the vicinity of the Project site. Within the Project site, Class II Bikeways exist along portions of Alicante Drive, Clubhouse Drive, Copper River Drive and Cedar Avenue. Adjacent to the Project site, Class II Bikeways exist only along portions of Friant Road, Copper Avenue and Willow Avenue, and Class I Bikeways exist only along portions of Copper Avenue. In the vicinity of the Project site, Class II Bikeways exist along portions of Friant Road, Millbrook Avenue, Cedar Avenue, Maple Avenue, Chestnut Avenue, Willow Avenue, Olympic Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive, Fresno Street and Nees Avenue. In the vicinity of the Project site, similarly, Class I Bikeways exist along portions of Friant Road, Copper Avenue, Willow Avenue, Audubon Drive, Fresno Street and Nees Avenue.

The Fresno *ATP* recommends that a combination of Class I and Class II Bikeways be implemented within, adjacent to and in the vicinity of the proposed Project (City of Fresno, 2016). Within the Project site, Class II Bikeways are recommended along remaining and future portions of Alicante Drive. Adjacent to the Project site, Class II Bikeways are recommended along remaining portions of Copper Avenue and Willow Avenue, and Class I Bikeways are recommended along remaining portions of Copper Avenue and Willow Avenue. In the vicinity of the Project site, Class II Bikeways are recommended along remaining portions of Chestnut Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive and Nees

Avenue. In the vicinity of the Project site, similarly, Class I Bikeways are recommended along remaining portions of Willow Avenue and Audubon Drive.

The Fresno *ATP* evaluated the Bicycle Level of Traffic Stress (LTS) for on-street bikeway travel throughout the City. Criteria for Bicycle LTS span from LTS 1 to LTS 4, with LTS 1 being the least stressful for cyclists and LTS 4 being the most stressful for cyclists. The Fresno *ATP* identified portions of Friant Road, Copper Avenue, Willow Avenue, Alicante Drive, Millbrook Avenue, Cedar Avenue, Maple Avenue, Chestnut Avenue, International Avenue, Behymer Avenue, Sommersville Drive, Audubon Drive, Fresno Street, Blackstone Avenue and Nees Avenue comprise the highest bicycle LTS so that only “riders that are ‘strong and fearless’ feel safe” (City of Fresno, 2016). Moreover, the Fresno *ATP* identified priority bicycle network facilities to equitably serve all Fresno neighborhoods. In the vicinity of the Project site, priority bicycle network facilities include a) the north side of Copper Avenue between Friant Road and Willow Avenue, b) the west side of Friant Road between Willow Avenue and Audubon Drive, and c) the north side of Audubon Drive west of Friant Road. The Fresno *ATP* recommends improved traffic control or crossing treatments for priority bicycle network facilities with high traffic volume, high-speed roadways “to improve the LTS and make travel more comfortable for the ‘interested, but concerned’ rider” (City of Fresno, 2016, 116). The Fresno *ATP* suggests that the priority bikeway network improvement areas for the City will provide lower stress and higher quality active transportation infrastructure for bicyclists.

The Fresno *ATP* recognizes green colored pavement markings as a bicycle treatment to call attention visually to conflict areas between bicyclists and motorists. Green colored pavement markings are most effective when used sparingly and prioritized in high conflict areas. The intersection of Chestnut Avenue and Copper Avenue, currently under construction for improved traffic control, contains green pavement markings along the south side of Copper Avenue west of Chestnut Avenue.

The *Clovis General Plan* Circulation Element recommends that Class II Bike Lanes be implemented along Willow Avenue south of Copper Avenue, Copper Avenue between Willow Avenue and Sunnyside Avenue, International Avenue east of Willow Avenue, and Behymer Avenue between Willow Avenue and Sunnyside Avenue.

The Fresno County *General Plan Update* Rural Bikeways Plan recommends bikeways be implemented along Friant Road north of the City of Fresno SOI, Willow Avenue north of the City of Fresno/Clovis SOI, and Auberry Road north of the City of Clovis SOI.

It is recommended that the Project implement bicycle facilities consistent with the Fresno *ATP* within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement Class II Bikeways along Alicante Drive and Winery Avenue-Road ‘G’. Adjacent to the Project site, it is recommended that the Project implement Class I Bikeways along its frontage to Copper Avenue and Willow Avenue. Similarly, it is recommended that the Project implement Class II Bikeways along its frontage to Willow Avenue and Copper Avenue.



## Walkways

The Fresno *ATP* classifies pedestrian facilities into sidewalks and Class I Bike Paths. Pedestrian sidewalks exist within, adjacent to and in the vicinity of the Project site. Within the Project site, pedestrian sidewalks exist along portions of Alicante Drive, Clubhouse Drive, Copper River Drive, Cedar Avenue and Maple Avenue. Adjacent to the Project site, a Class I Bike Path exists along portions of Copper Avenue. In the vicinity of the Project site, pedestrian sidewalks exist along portions of Friant Road, Willow Avenue, Copper Avenue, Millbrook Avenue, Cedar Avenue, Maple Avenue, Chestnut Avenue, Olympic Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive, Fresno Street, Blackstone Avenue and Nees Avenue.

The Fresno *ATP* recommends that pedestrian sidewalks and Class I Bike Paths be implemented within, adjacent to and in the vicinity of the proposed Project. Within the Project site, pedestrian sidewalks are recommended along remaining and future portions of Alicante Drive. Adjacent to the Project site, pedestrian sidewalks are recommended along Friant Road and Copper Avenue, and Class I Bike Paths are recommended along remaining portions of Copper Avenue and Willow Avenue. In the vicinity of the Project site, pedestrian sidewalks are recommended along remaining portions of Friant Road, Maple Avenue, Chestnut Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive and Nees Avenue. In the vicinity of the Project site, similarly, Class I Bike Paths are recommended along remaining portions of Willow Avenue.

The Fresno *ATP* identified priority pedestrian network facilities to equitably serve all Fresno neighborhoods. In the vicinity of the Project site, Blackstone Avenue from Nees Avenue to Downtown Fresno was identified as one of the densest pedestrian collision areas in the City. Specifically, the Fresno *ATP* classified the segment of Blackstone Avenue between Nees Avenue and Sierra Avenue as a priority pedestrian network facility due to high frequency of pedestrian collisions. The Fresno *ATP* recommends a variety of improvements to address safety issues in these areas such as additional signage and infrastructure, pedestrian signal and timing improvements, adequate lighting for pedestrian visibility, and signage and/or physical measures to encourage pedestrians to utilize only controlled crosswalks to name a few.

It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno *ATP* within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement pedestrian sidewalks along remaining and future portions of Alicante Drive. Moreover, it is recommended that the Project implement pedestrian sidewalks along Winery Avenue-Road 'G'. Adjacent to the Project site, it is recommended that the Project implement pedestrian walkways along its frontage to Friant Road and Copper Avenue. Similarly, it is recommended that the Project implement Class I Bike Paths along its frontage to Willow Avenue and Copper Avenue.

## Transit

Fresno Area Express (FAX) is the transit operator in the City of Fresno. At present, there are no FAX transit routes that operate in the vicinity of the proposed Project. The closest is FAX Route 58, which runs on Champlain Drive and Perrin Avenue, approximately 2.7 miles southwest of the proposed Project. Route 58 operates at 60-minute intervals on weekdays and weekends and its nearest stop to the Project site is located on the southwest side of Champlain Drive approximately 100 feet southeast of Perrin Avenue. This route provides a direct connection to River Park, Kaiser Hospital, Woodward Park Regional Library and Clovis West High School. Moreover, transfer points to other FAX routes exist at Millbrook Avenue and Nees (Route 38), Fresno Street and Nees Avenue (Route 38), and Blackstone Avenue and El Paso Avenue (Routes 32, 34 and 38). It is worth noting retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Clovis Stageline Transit Service is a transit operator in the City of Clovis. At present, there are no Stageline transit routes that operate in the vicinity of the proposed Project. The closest is Stageline Route 10, which runs on Willow Avenue and Nees Avenue, approximately 3.5 miles southeast of the proposed Project. Route 10 operates at 30-minute intervals on weekdays and Saturdays and its nearest stop to the Project site is located on the south side of Nees Avenue approximately 75 feet east of Willow Avenue. This route provides a direct connection to Save Mart, Target, Peachwood Medical, Clovis Adult Education, Clovis Senior Activity Center and Fresno State University. Moreover, transfer points to FAX Routes 9, 28 and 38 exist at Cedar Avenue and Shaw Avenue.

Clovis Round Up is another transit operator in the Fresno-Clovis area. Round Up is a demand-response service available for disabled residents who call in advance to schedule trips. Service hours are from 6:15 AM to 7:15 PM on weekdays and 7:30 PM to 3:00 PM on weekends. Service to Fresno is during 7:00 AM and 4:00 PM on weekdays, while weekend service is limited to trips in Clovis only.

Fresno County Rural Transit Agency (FCRTA) is the transit operator in Fresno County. At present, Auberry Transit and Hanford-Fresno Transit, operated by Kings Area Regional Transit (KART), are routes that operate in the vicinity of the proposed Project. Auberry Transit Route, which runs on Willow Avenue and Copper Avenue, operates on weekdays between the hours of 8:00 AM and 2:30 PM. On Tuesdays, intercity service to the Fresno-Clovis area is available between 8:00 AM and 5:00 PM, but requires 24-hour advanced reservation. This route provides a direct connection to the foothill communities and the Big Sandy and Cold Springs Rancherias. Hanford-Fresno Transit Route, which runs on State Route 41, operates on weekdays. This route provides a direct connection from Hanford to the Fresno-Clovis Metropolitan Area to Yosemite. This route provides a direct connection to Valley Children's Hospital, Veterans' Hospital, and Kaiser Hospital.

Based on information provided to JLB, the Project proponent has had several discussions with Fresno FAX staff regarding the feasibility of FAX implementing a FAX route to Copper Avenue between Friant Road and Willow Avenue. Based on these discussions, FAX staff has informed the Project proponent that there is little to no transit demand for this area of the City and as a result a transit route to serve the project is not feasible in the foreseeable future. While there is little to no transit demand in this part of the City, the Project proposes to provide street infrastructure which could accommodate transit stops in the future. Therefore, it is recommended that bus bays continue to be added along unbuilt portions of Copper Avenue adjacent to the Project. The including of these bus bays will minimize future construction costs associated with the implementation of a transit route along the Copper Avenue corridor.

## Safer Sidewalks to Schools

On January 16, 2020, Fresno City Council adopted an amended resolution for a Safer Sidewalks to School Program. The Fresno City Council wishes to address the safety of students and residents around neighborhood school by adopting this program. The City Council directed staff to identify and improve vacant property along routes to neighborhood schools with sidewalks.

### *Project Specific Safe Routes to School Evaluation*

Kindergarten through 12th grade students from the Project will be served by the Clovis Unified School District (CUSD). The CUSD provides transportation for students who live in excess of an established radius zone. The zone is a radius of 1.00 mile for grades Kindergarten through 6th and 2.50 miles for grades 7th through 12th.

Based on the attendance area boundaries at the time of the preparation of this TIA, elementary school students would attend Fugman Elementary School located on the northwest corner of Cedar Avenue and Olympic Avenue. Fugman Elementary School is located 0.22 and 2.02 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that elementary school students will need to walk, bike or be driven to school.

The most direct path from the Project to the Fugman Elementary School campus can begin from the intersection of Cedar Avenue and Copper Avenue. Students may utilize a combination of local streets and major roadways, such as Alicante Drive, Clubhouse Drive and Copper River Drive, to arrive at Cedar Avenue. The intersection of Cedar Avenue and Copper Avenue is controlled by a traffic signal and contains high-visibility crosswalks on all approaches. Students may proceed to cross Cedar Avenue and Copper Avenue, as appropriate, to arrive at the southwest corner of the intersection. Once at the southwest corner of Cedar Avenue and Copper Avenue, students may proceed south along the west side of Cedar Avenue until reaching the nearest campus entrance.

Based on the attendance area boundaries at the time of the preparation of this TIA, middle school students would attend Granite Ridge Intermediate School located along the north side of International Avenue between Chestnut Avenue and Willow Avenue. Granite Ridge Intermediate School is located 0.40 and 1.78 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that middle school students will need to walk, bike or be driven to school. Similarly, high school students would attend Clovis North High School located along the north side of International Avenue between Chestnut

Avenue and Willow Avenue. Clovis North High School is located 0.40 and 1.78 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that high school students will need to walk, bike or be driven to school.

The most direct path from the Project to the Granite Ridge Intermediate School and Clovis North High School campuses can begin from either the intersection of Chestnut Avenue and Copper Avenue or Willow Avenue and Copper Avenue. Students may utilize a combination of local streets and major roadways, such as Alicante Drive, Clubhouse Drive, Copper River Drive and Winery Avenue-Road 'G' in the future, to arrive at either Chestnut Avenue or Willow Avenue. The intersection of Chestnut Avenue and Copper Avenue is controlled by an all-way stop and contains a marked crosswalk on the eastbound approach only. However, this intersection is projected to be controlled by a traffic signal by the year 2021 and contain marked crosswalks on all approaches. The intersection of Willow Avenue and Copper Avenue is controlled by an all-way stop and contains unmarked crosswalks on all approaches. However, this intersection is also projected to be controlled by a traffic signal by the year 2021. Students may proceed to either cross Chestnut Avenue and Copper Avenue, as appropriate, to arrive at the southeast corner of the intersection of Chestnut Avenue and Copper Avenue, or cross Copper Avenue along the west side of Willow Avenue to arrive at the southwest corner of the intersection of Willow Avenue and Copper Avenue. Once at the southeast corner of Chestnut Avenue and Copper Avenue, students may proceed south along the east side of Chestnut Avenue until reaching the nearest campus entrance. Similarly, once at the southwest corner of Willow Avenue and Copper Avenue, students may proceed south along the west side of Willow Avenue until reaching the nearest campus entrance.

Most of the areas are well-developed with walkways and intersection controls, but there are a few exceptions. Therefore, it is recommended that the CUSD work with the City of Fresno to implement a Safe Routes to School plan and seek grant funding to help build walkways where they are lacking within a one-mile radius of the existing school sites.

## Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Existing plus Project Traffic Conditions scenario. These warrants are contained in Appendix M. Under this scenario, the following intersections satisfy Warrant 3: a) During the AM peak period only: Chestnut Avenue and Behymer Avenue and Sommerville Drive and Chestnut Avenue; b) During the PM peak period only: no unsignalized study intersection; and c) During both peak periods: Willow Avenue and Alicante Drive.

Based on the traffic signal warrants, operational analysis and engineering judgement, it is recommended that the City consider implementing a traffic signal control at the intersection of Chestnut Avenue and Behymer Avenue. However, it is not recommended that the City consider implementing traffic signal controls at the remaining unsignalized study intersections especially since these operate at acceptable LOS during both peak periods.

## Vehicle Miles Traveled Analysis

Quantitative assessments of the VMT generated by a development project are determined using the Fresno COG ABM, which is a tour-based model. The Project's trip generation data was provided to Fresno COG in order to conduct a Project-specific VMT analysis using the Fresno COG ABM for specific Project components. Certain Project components were categorized into Groups for consistent VMT results from Fresno COG. The Groups were formed based on Project components that share similar characteristics, for example, proximity or land use type. Table VII summarizes the VMT results provided by Fresno COG for the residential Groups, respective Project components and the effects of the VMT mitigation measures. Based on Fresno COG VMT results, Project components containing residential land uses (only those subject to VMT analysis) are projected to exceed the City's VMT threshold of 14.0 VMT per capita. Considering all feasible VMT mitigation measures identified mitigate effects to the maximum extent feasible, the Project's VMT impacts for residential land uses are significant but unavoidable. Table VIII summarizes the VMT results provided by Fresno COG for the retail Groups, respective Project components and the comparison to the regional VMT. Based on Fresno COG VMT results, Project components containing retail land uses (only those subject to VMT analysis) are projected to reduce the Regional VMT. Therefore, there are no impacts to VMT associated with retail land uses.

**Table VII: Residential/Office VMT Results**

Group ID	Project Components	Fresno COG VMT Results <sup>1</sup>	# VMT Mitigation Measures <sup>2</sup>	Reduction in VMT from Mitigations <sup>2</sup>	VMT (With Mitigations)	City of Fresno VMT Threshold	Significant VMT Impact?
A	Parcel 19, Parcel 20 & Parcel 21	16.8	6, 11, 12, 15, 16, 38, 41, 46	0.7	16.1	14.0	Yes
B	Parcel 11	16.0	6, 11, 12, 15, 16, 38, 41, 46	0.7	15.3	14.0	Yes
D	TT 6275, TT 6238 & TT 6248	22.6	6, 11, 12, 15, 16, 38, 41, 46	1.0	21.6	14.0	Yes
E	TT 6246 & Parcel 16	22.9	6, 11, 12, 15, 16, 38, 41, 46	1.0	21.9	14.0	Yes
F	Parcel 14 & Parcel 15	21.4	6, 11, 12, 15, 16, 38, 41, 46	0.9	20.5	14.0	Yes
G	TT 6250, TT 6269, Parcel 7, Parcel 10 & TT 6311	20.5	6, 11, 12, 15, 16, 38, 41, 46	0.9	19.6	14.0	Yes
I	11075 N. Knotting Hill Drive	47.4	6, 11, 12, 15, 16, 38, 41, 46	2.1	45.3	22.3	Yes

Note: 1 = VMT Results per Fresno COG ABM

2 = VMT Mitigation Measures from CEQA Guidelines for Vehicle Miles Traveled Threshold (City of Fresno, 2020)

**Table VIII: Retail VMT Results**

Group ID	Project Components	Fresno COG plus Project VMT Results <sup>1</sup>	Fresno COG No Project Average Regional VMT	City of Fresno VMT Threshold	Change in Regional VMT	Significant VMT Impact?
C	Parcel 18	23,492,822	23,503,505	No Net Increase	-10,683	No
H	Parcel 10 & Parcel 12	23,498,079	23,503,505	No Net Increase	-5,426	No

Note: 1 = VMT Results per Fresno COG ABM

The VMT mitigation measures considered for this Project included those appropriate for residential land uses as noted in the *CEQA Guidelines for Vehicle Miles Traveled Threshold*. Table VII identifies the VMT mitigation measures appropriate for each Group. Appendix H presents a summary of the VMT reduction associated with each mitigation measure identified in Table VII. Table IX presents the recommended VMT reduction rates per the *CEQA Guidelines for Vehicle Miles Traveled Threshold* and the selected VMT reduction rates appropriate for the Project. The selected VMT reduction rates appropriate for the Project were based on the *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions From Greenhouse Gas Mitigation Measures* published by the California Air Pollution Control Officers Association (CAPCOA).

**Table IX: VMT Mitigation Measures**

#	VMT Mitigation Measures	VMT Reduction Range (%)	Local VMT Calculations (%)	VMT Reduction <sup>1</sup> (%)
6	Incorporate bike lane street design (on-site)	N/A	0.30 / 100 miles	0.02
11	Orient project towards transit, bicycle and pedestrian facilities	0.25, 0.50	N/A	0.25
12	Provide pedestrian network improvements	0.00 - 2.00	N/A	2.00
15	Increase destination accessibility	6.70 - 20.00	N/A	0.42
16	Provide traffic calming measures	0.25 - 1.00	N/A	0.75
38	Increase mix of uses within the project or within the project's surroundings	9.00 - 30.00	N/A	0.24
41	Locate project near bike path/bike lane	0.625	N/A	0.625
46	Park-and-ride lot (SEC of Copper Ave and Friant Rd)	0.10-0.50, 0.50	N/A	0.10

Note: 1 = VMT Reduction Rate based on engineering judgement, data provided by the developer and CAPCOA *Quantifying Greenhouse Gas Mitigation Measures*

Worth noting that VMT mitigation measures such as shifting single-occupancy vehicle trips to car- or vanpooling, provide bike parking in non-residential projects, and utilize electric or hybrid vehicles to name a few, were not accounted for in the VMT analysis for the proposed Project. It is estimated that given the design elements associated with the Project and the surrounding multi-modal environment, the Project will benefit from reductions in VMT as a result of other measures. Since these measures are not implemented without justification, only the measures presented in Table IX were considered for purposes of this analysis. The VMT mitigation measures and reduction rates presented in Table IX were determined based on the following:

- # 6 – Incorporate bike lane street design (on-site)
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban or suburban context.
  - It is recommended that the Project implement approximately 6.0 miles of bicycle facilities within and adjacent to the Project site.
  - The effectiveness of this measure will depend largely on its implementation as a stand-alone strategy or in combination with multiple design elements to strengthen street network characteristics and enhance multi-modal environments (CAPCOA 2010).
  - Since this measure will be applied in combination with other strategies, the benefits of this measure will be high.



- Within the Project, Class II Bikeways exist along portions of Alicante Drive between Via Livorno Lane and approximately 1,600 feet west of Crest View Drive, Clubhouse Drive between Alicante Drive and Queensberry Avenue, Copper River Drive between Friant Road and Maple Avenue and Cedar Avenue between Copper River Drive and Copper Avenue. It is recommended that the Project implement Class II Bikeways within the Project along the remaining lengths of Alicante Drive Maple Avenue and Winery Avenue/Road 'G'.
- # 11 – Orient project towards transit, bicycle and pedestrian facilities
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban or suburban context.
  - The Project proposes to provide street infrastructure along Copper Avenue which will accommodate transit stops in the future.
  - It is recommended that the Project implement approximately 6.0 miles of bicycle facilities within and adjacent to the Project site.
  - It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno *ATP* within and adjacent to the Project site.
  - The effectiveness of this measure will depend largely on its implementation as a stand-alone strategy or in combination with other design elements, including neighborhood design, density and diversity of development, transit accessibility and pedestrian and bicycle network improvements (CAPCOA 2010).
  - While this measure will be applied in combination with other strategies, it is oriented towards a planned transit corridor. So, the benefits of this measure will be low.
  - This measure applies if a Project is oriented towards a planned or existing transit, bicycle or pedestrian corridor.
  - This Project has connections to Class I and Class II Bikeways in the vicinity of the Project along Copper Avenue, Willow Avenue and Shepherd Avenue. Connections also exist to the nearby Lewis S. Eaton Trail and the Fresno-Clovis Rail-Trail.
  - Additionally, all major street improvements have been designed to accommodate transit.
- # 12 – Provide pedestrian network improvements
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban, suburban and rural context.
  - It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno *ATP* within and adjacent to the Project site.
  - The effectiveness of this measure requires providing a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the Project site (CAPCOA 2010).
  - While the Project has minor physical barriers (i.e., lack of direct interconnectivity between northern area and southern area of the Project site) that impede pedestrian circulation, the benefits of this measure will be high.
  - This mitigation measure provides that all the internal components of a Project are connected with each other and the larger off-site network via pedestrian paths to encourage people to walk instead of drive.

- Within the Project site, pedestrian sidewalks exist along built out portions of Alicante Drive, Clubhouse Drive, Copper River Drive, Cedar Avenue and Maple Avenue.
- Adjacent to the Project site, a Class I Bike Path exists along Copper Avenue between Friant Road and Chestnut Avenue. In the vicinity of the Project site, pedestrian sidewalks exist along portions of Friant Road, Willow Avenue, Copper Avenue, Millbrook Avenue, Cedar Avenue, Maple Avenue, Chestnut Avenue, Olympic Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive, Fresno Street, Blackstone Avenue and Nees Avenue.
- Connections also exist to the nearby Lewis S. Eaton Trail and the Fresno-Clovis Rail-Trail via a Class I Bike Path on Copper Avenue.
- # 15 – Increase destination accessibility
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban and suburban context.
  - In the future, Winery Avenue-Road 'G' will provide another access to Copper Avenue, Alicante Drive will extend east of Crest View Drive to provide access to Willow Avenue, and the proposed New Access Road will provide another connection to Willow Avenue between Silaxo Road and Alicante Drive.
  - A combination of Class I (Bike Path) and Class II (Bike Lane) Bikeways exist within, adjacent to and in the vicinity of the Project site. It is recommended that the Project implement approximately 6.0 miles of bicycle facilities within and adjacent to the Project site.
  - It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno ATP within and adjacent to the Project site.
  - The effectiveness of this measure will depend largely on the Project location and increasing potential for pedestrians to walk and bike to central locations (CAPCOA 2010).
  - VMT Mitigation Method:  $VMT\ Reduction\ (\%) = (12 - 11.75)/12 * 0.2 = 0.42\%$  (CAPCOA 2010)
    - $VMT\ Reduction\ (\%) = Center\ Distance * B$  (not to exceed 30%), where
      - Center Distance =  $(12 - Distance\ to\ downtown/job\ center\ for\ Project) / 12$
      - B = Elasticity of VMT with respect to distance to downtown or major job center [use 0.2]
  - This mitigation is measured in terms of the number of jobs or other attractions reachable within a given travel time. In this case, it is measured to the downtown Fresno area approximately 11.75 miles away.
- # 16 – Provide traffic calming measures
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban, suburban and rural contexts.
  - The effectiveness of this measure requires roadways be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features such as marked crosswalks, curb extensions, raised crosswalks, raised intersections, median islands, tight-corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others (CAPCOA 2010).
  - VMT Mitigation Method = 0.75% based on Project percentage of intersection and street traffic calming improvements (CAPCOA 2010)
    - Percentage of intersections with improvements: 100%

- Percentage of streets with improvements: 50%
- Since the Project will incorporate traffic calming features including mini-circles, median islands, planter strips with street trees and curvilinear roads, the benefits of this measure will be high. Also, on-street parking and/or NEV lanes exist on stretches of internal roadways as well.
- There are four existing roundabouts and three proposed roundabouts within the Project. The four existing roundabouts are located at the intersections of Alicante Drive and Copper River Drive, Alicante Drive and Clubhouse Drive, Crest View Drive and Alicante Drive and Maple Avenue and Copper River Drive. The three proposed roundabouts are located at the future intersections of Road 'G' and New Willow Access Road, Road 'G' and Alicante Drive and Alicante Drive and future internal road. These proposed roundabouts will be completed with the construction of the Project and its internal roads.
- # 38 – Increase mix of uses within the Project or within the project’s surroundings
  - This measure is appropriate for mixed-use projects in urban or suburban context.
  - The effectiveness of this measure will depend largely on the proximity of different types of land uses. For example, residential areas located in the same neighborhood as retail and office buildings will reduce travel outside of the neighborhood (CAPCOA 2010).
  - VMT Mitigation Method:  $VMT\ Reduction\ (\%) = 2.68 * 0.09 = 0.24\%$  (CAPCOA 2010)
    - $VMT\ Reduction\ (\%) = Land\ Use * B$  (not to exceed 30%), where
      - $Land\ Use = \frac{Percentage\ increase\ in\ land\ use\ index\ versus\ single-use\ development}{(Land\ use\ index - 0.15)} = 0.15$ 
        - $Land\ use\ index = -a/\ln(6) = 0.55$
      - $B = \text{Elasticity of VMT with respect to land use index, not to exceed } 500\% \text{ increase [use } 0.09]$
  - Since the Project offers an unbalanced mix of uses, the benefits of this measure will be low.
  - The Project consists of multiple land uses as noted in the trip generation in Table IV. Included in the land uses are park-n-ride lot, single-family detached housing with multiple densities, apartments, city parks and commercial components.
- # 41 – Locate project near bike path/bike lane
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in urban or suburban contexts.
  - A combination of Class I (Bike Path) and Class II (Bike Lane) Bikeways exist within, adjacent to and in the vicinity of the Project site. It is recommended that the Project implement approximately 6.0 miles of bicycle facilities within and adjacent to the Project site.
  - It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno ATP within and adjacent to the Project site.
  - The effectiveness of this measure will depend largely on its implementation as a stand-alone strategy or in combination with multiple design elements that increase opportunities for multi-modal travel (CAPCOA 2010).
  - Since this measure will be applied in combination with other strategies, the benefits of this measure will be high.

- The Project has several existing bike paths and lanes in the vicinity. For example, Class II Bikeways exist along portions of Friant Road, Millbrook Avenue, Cedar Avenue, Maple Avenue, Chestnut Avenue, Willow Avenue, Olympic Avenue, International Avenue, Behymer Avenue, Sommerville Drive, Audubon Drive, Fresno Street and Nees Avenue. Similarly, Class I Bikeways exist along portions of Friant Road, Copper Avenue, Willow Avenue, Audubon Drive, Fresno Street and Nees Avenue. Connections also exist to the nearby Lewis S. Eaton Trail and the Fresno-Clovis Rail-Trail via a Class I Bike Path on Copper Avenue.
- In addition to this, it was recommended that the Project implement Class I Bikeways along its frontages to Copper Avenue and Willow Avenue. Similarly, it is recommended that the Project implement Class II Bikeways along its frontage to Willow Avenue, Copper Avenue, Alicante Drive and Road "G".
- # 46 – Existing park-and-ride lot
  - This measure is appropriate for residential, office, retail, mixed-use and industrial projects in suburban and rural contexts.
  - The Project includes a 23-lot park-and-ride and is located on the southeast corner of Friant Road and Copper Avenue.
  - The Project proposes to provide street infrastructure along Copper Avenue which will accommodate transit stops in the future.
  - The effectiveness of this measure requires proximity to transit stops and High Occupancy Vehicle (HOV) lanes as they also help facility car- and vanpooling (CAPCOA 2010).
  - Since this measure will exist as a stand-alone strategy until a new transit route is added along Copper Avenue, the benefits of this measure will be low.

## Results of Existing plus Project Level of Service Analysis

The Existing plus Project Traffic Conditions scenario assumes that the intersections of Millbrook Avenue and Copper Avenue, Chestnut Avenue and Copper Avenue, Willow Avenue and Copper Avenue, Auberry Road and Copper Avenue, and Millbrook Avenue and Olympic Avenue are controlled by a traffic signal. Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix I. Table X presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, it is recommended that the following improvements be considered for implementation.

- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.

- The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
- The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
  - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
  - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

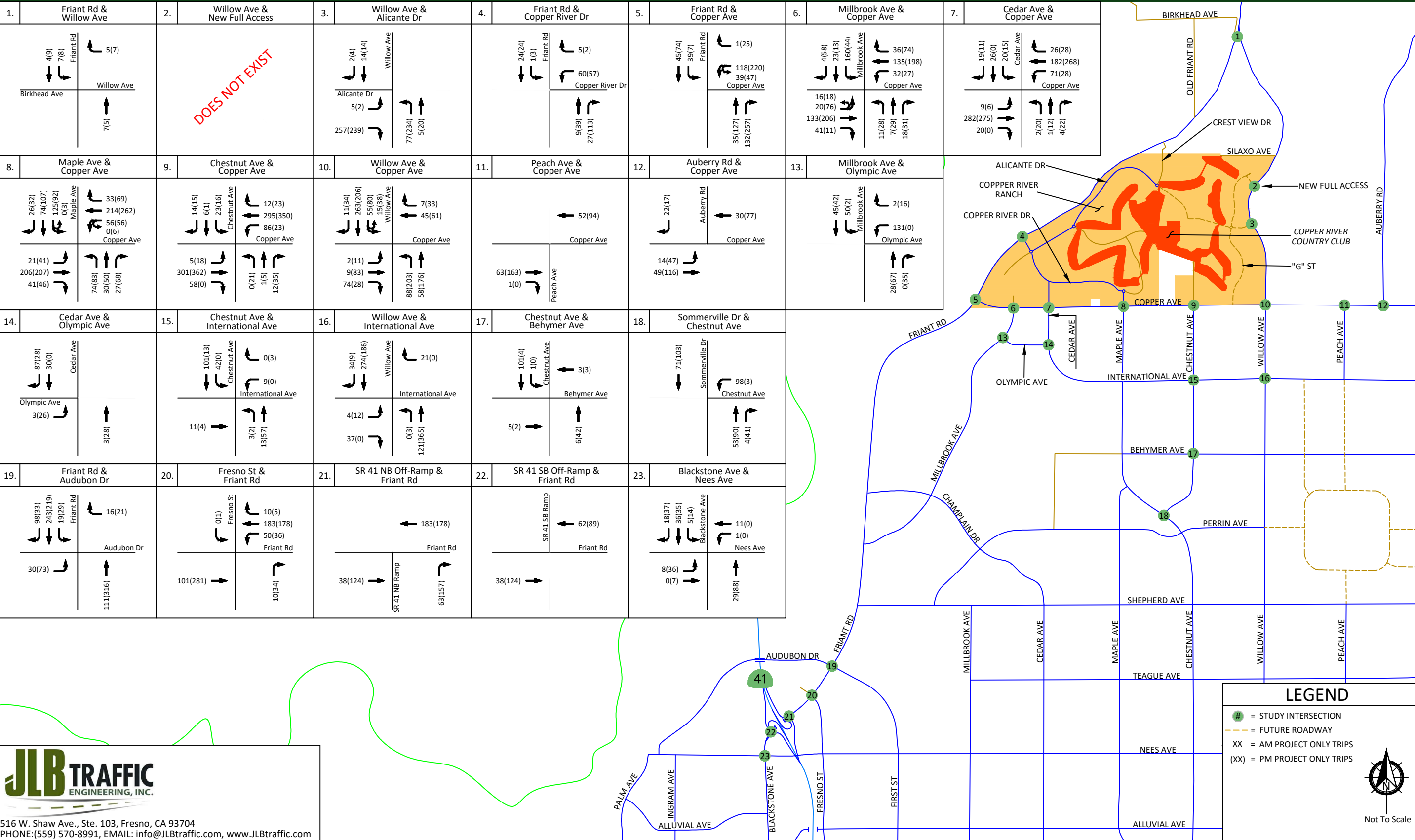
**Table X: Existing plus Project Intersection LOS Results**

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Friant Road / Willow Avenue	Two-Way Stop	25.4	D	21.8	C
2	Willow Avenue / New Full Access	Does Not Exist	-	-	-	-
3	Willow Avenue / Alicante Drive	One-Way Stop	13.2	B	12.0	B
4	Friant Road / Copper River Drive	Traffic Signal	18.4	B	9.4	A
5	Friant Road / Copper Avenue	Traffic Signal	15.5	B	12.4	B
6	Millbrook Avenue / Copper Avenue	Traffic Signal	25.3	C	20.0	B
7	Cedar Avenue / Copper Avenue	Traffic Signal	16.0	B	14.8	B
8	Maple Avenue / Copper Avenue	Traffic Signal	21.1	C	21.7	C
9	Chestnut Avenue / Copper Avenue	Traffic Signal	33.2	C	22.3	C
10	Willow Avenue / Copper Avenue	Traffic Signal	34.2	C	34.8	C
11	Peach Avenue / Copper Avenue	One-Way Stop	14.0	B	0.0	A
12	Auberry Road / Copper Avenue	Traffic Signal	12.8	B	12.9	B
13	Millbrook Avenue / Olympic Avenue	Traffic Signal	19.5	B	8.9	A
14	Cedar Avenue / Olympic Avenue	All-Way Stop	21.0	C	9.7	A
15	Chestnut Avenue / International Avenue	Traffic Signal	50.6	D	28.7	C
16	Willow Avenue / International Avenue	Traffic Signal	21.2	C	19.8	B
17	Chestnut Avenue / Behymer Avenue	All-Way Stop	97.1	F	17.9	C
		Traffic Signal (Improved)	29.5	C	23.5	C
18	Sommerville Drive / Chestnut Avenue	All-Way Stop	13.3	B	13.0	B
19	Friant Road / Audubon Drive	Traffic Signal	51.0	D	70.4	E
20	Fresno Street / Friant Road	Traffic Signal	25.2	C	45.4	D
21	State Route 41 NB Off-Ramp / Friant Road	Traffic Signal	70.6	E	>120.0	F
22	State Route 41 SB Off-Ramp / Friant Road	Traffic Signal	19.2	B	18.5	B
23	Blackstone Avenue / Nees Avenue	Traffic Signal	28.3	C	57.2	E

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls  
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Copper River Ranch SEIR - City of Fresno  
Project Only Trips (2022)

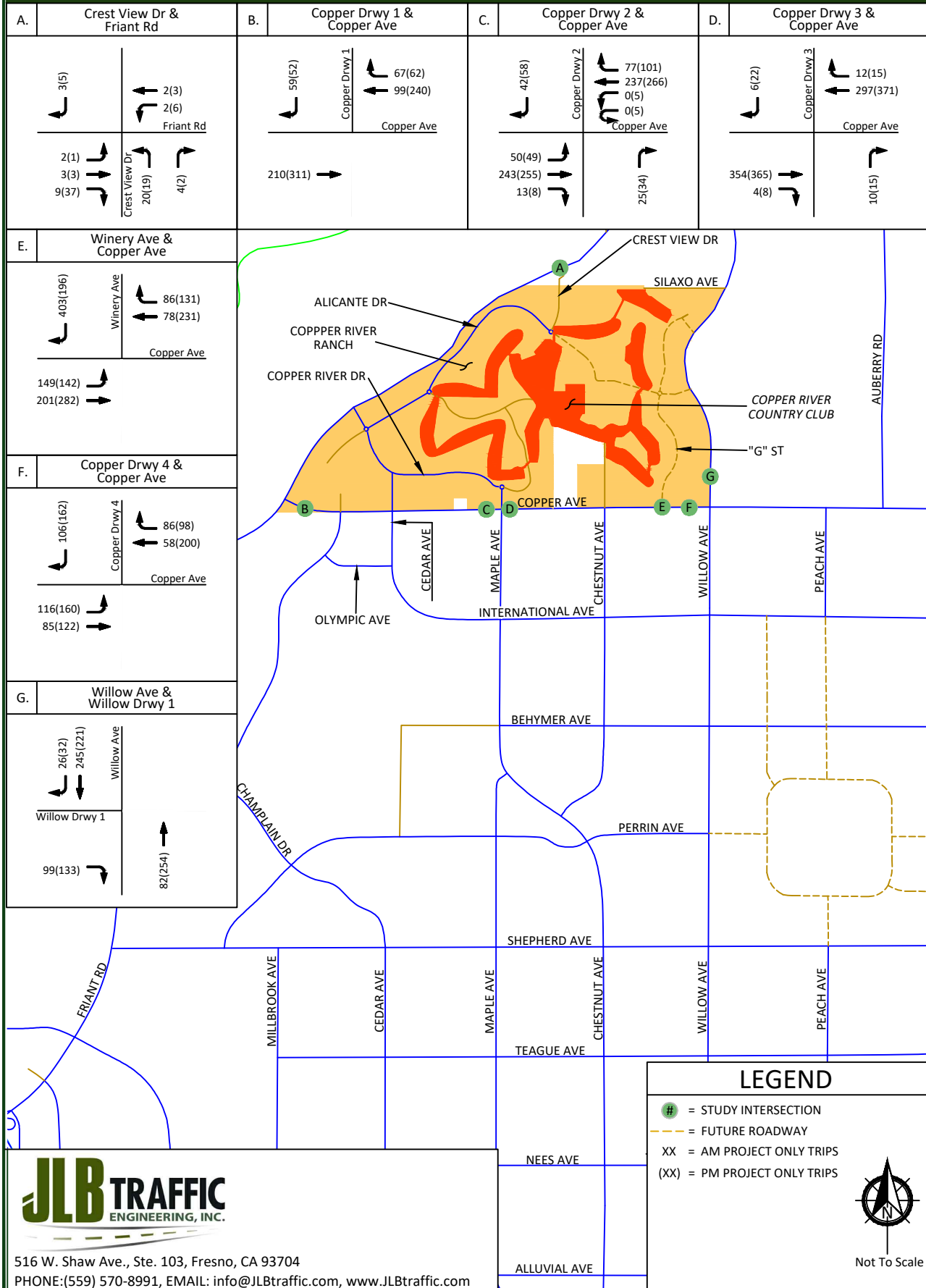
Figure 3





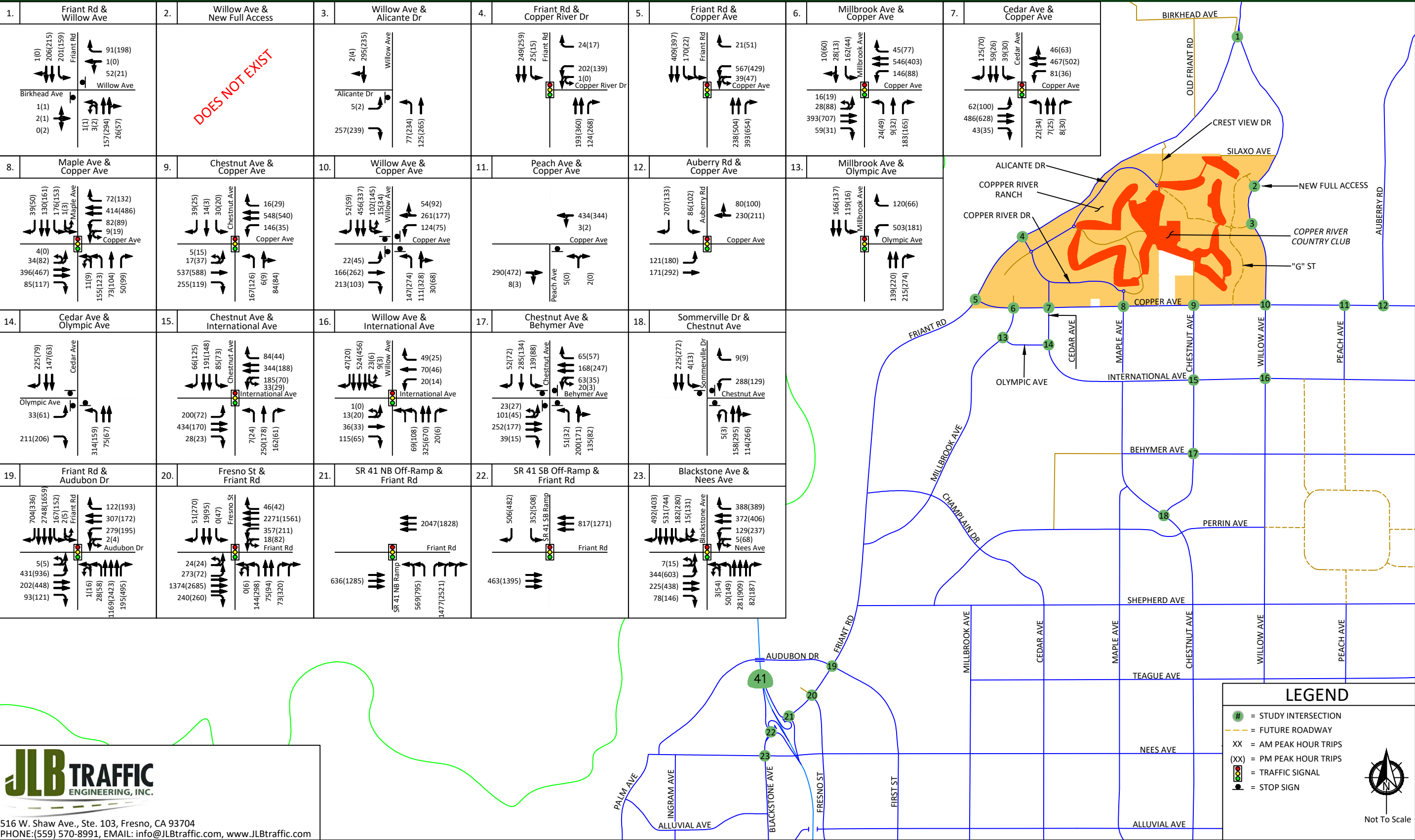
# Copper River Ranch SEIR - City of Fresno Project Only Trips - Driveways

Figure 4



Copper River Ranch SEIR - City of Fresno  
Existing plus Project - Traffic Volumes, Geometrics and Controls

Figure 5



## Near Term plus Project Traffic Conditions

### Description of Near Term Projects

Near Term Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Fresno, City of Clovis, County of Fresno and Caltrans staff were consulted throughout the preparation of this TIA regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table XI were within the proximity of the proposed Project.

**Table XI: Near Term Projects' Trip Generation**

<i>Near Term Project ID</i>	<i>Near Term Project Name</i>	<i>Daily Trips</i>	<i>AM Peak Hour</i>	<i>PM Peak Hour</i>
A	TT 5903 (portion of) <sup>1</sup>	38	3	4
B	TT 6135 <sup>1</sup>	94	7	10
C	18 acres <sup>1</sup>	850	67	89
D	6 acres <sup>1</sup>	1,010	63	77
E	TT 5150 (portion of) <sup>1</sup>	9	1	1
F	TT 5261 (portion of) <sup>1</sup>	28	2	3
G	TT 5029 (portion of) <sup>1</sup>	104	8	11
H	TT 6249 <sup>2</sup>	2,256	177	237
I	Willow-Shepherd Mixed-Use <sup>3</sup>	2,787	124	246
J	Rousseau Apartments <sup>1</sup>	615	39	47
K	CEMEX Rockfield Modification Project <sup>4</sup>	1,076	250	0
L	Alluvial Professional Offices <sup>5</sup>	2,486	296	293
M	Les Schwab Tire Center <sup>1</sup>	339	32	47
N	Palm Professional Offices <sup>1</sup>	413	49	49
O	New Car Dealership <sup>1</sup>	351	56	56
P	Extended Stay Hotel <sup>1</sup>	491	37	40
Q	Fresno-Nees Mixed-Use <sup>1</sup>	2,982	257	274
R	Friant-Audubon Mixed-Use <sup>1</sup>	6,153	409	667
S	Villages at the Ranch <sup>1</sup>	1,446	104	133
T	Heritage Crossing Care Facility <sup>1</sup>	203	15	20
U	Willow-Alluvial Apartments <sup>1</sup>	1,940	122	148
V	Dearing-Fir Medical Offices <sup>5</sup>	1,365	109	136
W	Willow-Herndon Commercial <sup>1</sup>	8,284	206	836
X	Willow-Alluvial Mixed-Use <sup>2</sup>	3,234	254	240
Y	Sam's Club Fuel Station <sup>1</sup>	2,752	164	22
<b>Total Near Term Project Trips</b>		<b>41,306</b>	<b>2,851</b>	<b>3,888</b>

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information  
 2 = Trip Generation based on KD Anderson & Associates, Inc. Traffic Impact Analysis Report  
 3 = Trip Generation based on Yamabe & Horn Engineering, Inc. Traffic Impact Analysis Report  
 4 = Trip Generation based on Peters Engineering Group Traffic Impact Analysis Report  
 5 = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report

The trip generation listed in Table XI is that which is anticipated to be added to the streets and highways by Near Term Projects between the time of the preparation of this Report and five (5) years after buildout of the proposed Project. As shown in Table XI, the total trip generation for the Near Term Projects is 41,306 weekday daily trips, 2,851 weekday AM peak hour trips and 3,888 weekend PM peak hour trips. Figure 6 illustrates the location of the Near Term Projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

## Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project Traffic Conditions scenario. These warrants are contained in Appendix M. Under this scenario, the following intersections satisfy Warrant 3: a) During the AM peak period only: Chestnut Avenue and Behymer Avenue; b) During the PM peak period only: no unsignalized study intersection; and c) During both peak periods: Willow Avenue and Alicante Drive and Sommerville Drive and Chestnut Avenue.

Based on the traffic signal warrants, operational analysis and engineering judgement, it is recommended that the City consider implementing a traffic signal control at the intersection of Chestnut Avenue and Behymer Avenue. However, it is not recommended that the City consider implementing traffic signal controls at the remaining unsignalized study intersections especially since these operate at acceptable LOS during both peak periods.

## Results of Near Term plus Project Level of Service Analysis

The Near Term plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project Traffic Conditions scenario. Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix J. Table XII presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, it is recommended that the following improvements be considered for implementation.

- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.

- The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
  - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
  - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

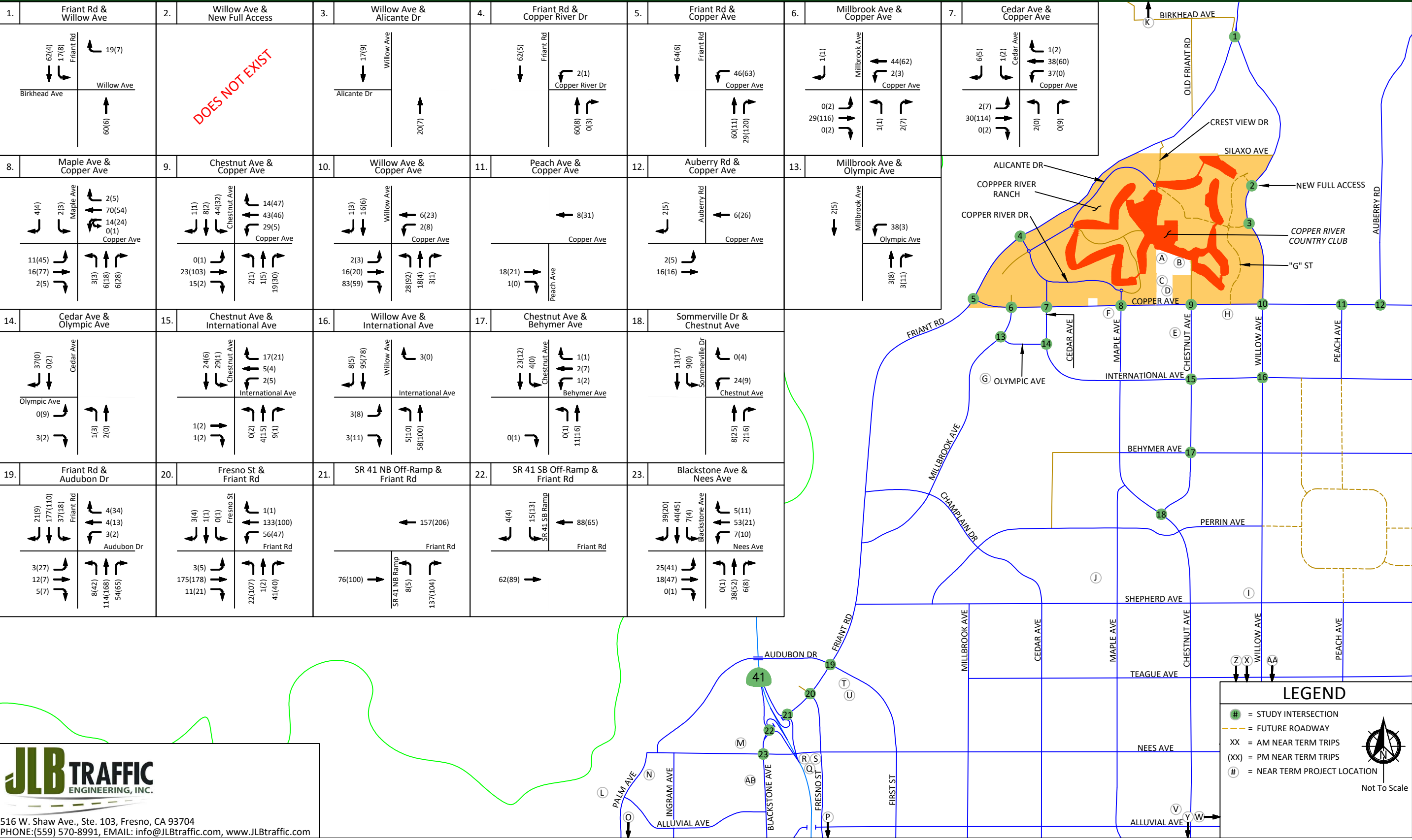
**Table XII: Near Term plus Project Intersection LOS Results**

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Friant Road / Willow Avenue	Two-Way Stop	34.6	D	22.8	C
2	Willow Avenue / New Full Access	Does Not Exist	-	-	-	-
3	Willow Avenue / Alicante Drive	One-Way Stop	13.5	B	12.2	B
4	Friant Road / Copper River Drive	Traffic Signal	17.3	B	9.4	A
5	Friant Road / Copper Avenue	Traffic Signal	16.0	B	13.3	B
6	Millbrook Avenue / Copper Avenue	Traffic Signal	25.9	C	20.6	C
7	Cedar Avenue / Copper Avenue	Traffic Signal	17.4	B	15.3	B
8	Maple Avenue / Copper Avenue	Traffic Signal	21.7	C	22.7	C
9	Chestnut Avenue / Copper Avenue	Traffic Signal	37.0	D	24.3	C
10	Willow Avenue / Copper Avenue	Traffic Signal	33.7	C	37.8	D
11	Peach Avenue / Copper Avenue	One-Way Stop	14.3	B	0.0	A
12	Auberry Road / Copper Avenue	Traffic Signal	12.8	B	13.1	B
13	Millbrook Avenue / Olympic Avenue	Traffic Signal	20.4	C	9.0	A
14	Cedar Avenue / Olympic Avenue	All-Way Stop	22.0	C	9.9	A
15	Chestnut Avenue / International Avenue	Traffic Signal	52.3	D	31.2	C
16	Willow Avenue / International Avenue	Traffic Signal	21.2	C	17.2	B
17	Chestnut Avenue / Behymer Avenue	All-Way Stop	109.6	F	19.5	C
		Traffic Signal (Improved)	30.2	C	25.0	C
18	Sommerville Drive / Chestnut Avenue	All-Way Stop	14.6	B	14.3	B
19	Friant Road / Audubon Drive	Traffic Signal	61.6	E	77.4	E
20	Fresno Street / Friant Road	Traffic Signal	26.8	C	72.1	E
21	State Route 41 NB Off-Ramp / Friant Road	Traffic Signal	103.1	F	>120.0	F
22	State Route 41 SB Off-Ramp / Friant Road	Traffic Signal	19.4	B	19.0	B
23	Blackstone Avenue / Nees Avenue	Traffic Signal	31.5	C	57.5	E

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls  
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Copper River Ranch SEIR - City of Fresno  
Near Term Projects' Trip Assignment

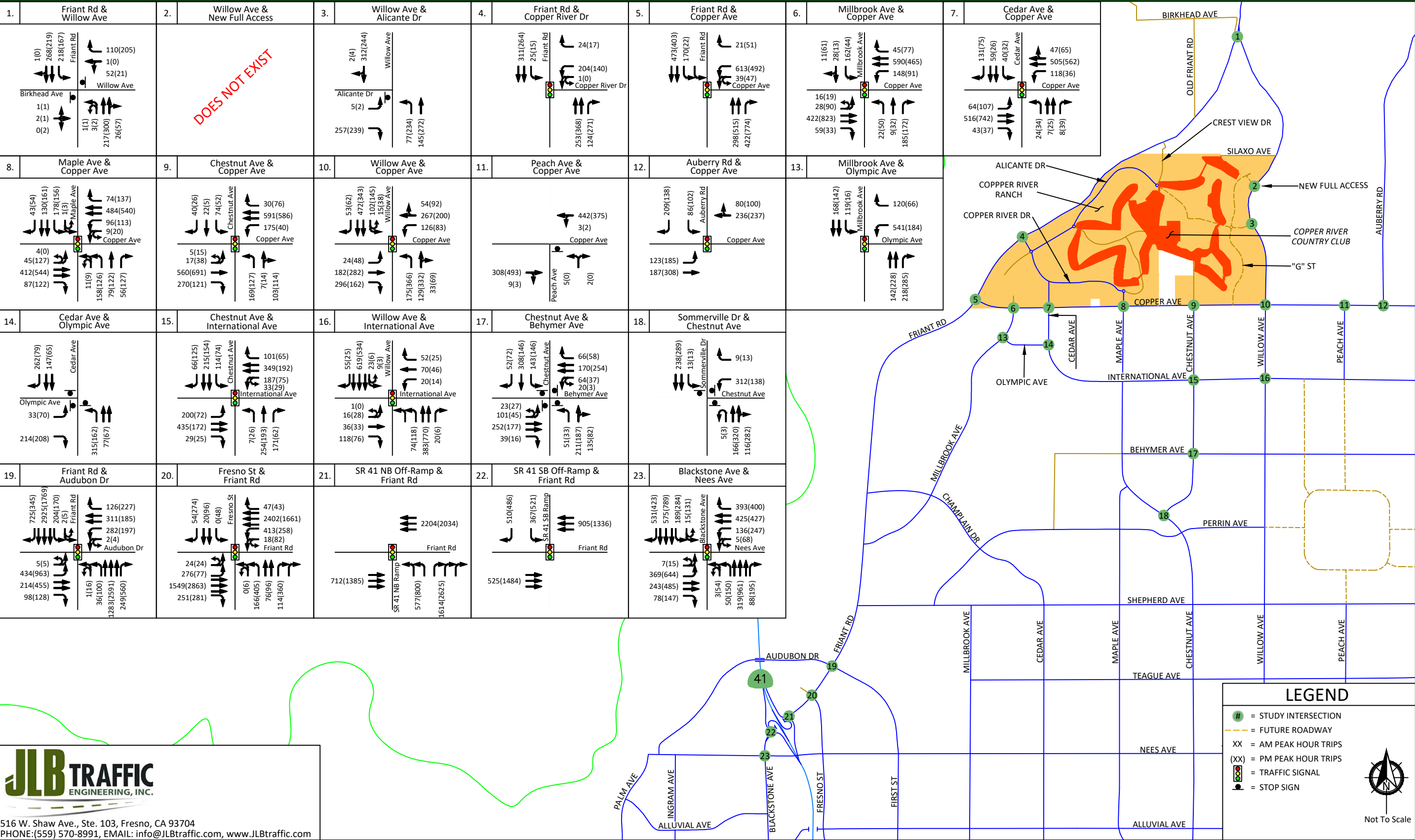
Figure 6





Copper River Ranch SEIR - City of Fresno  
Near Term plus Project - Traffic Volumes, Geometrics and Controls

Figure 7



## Cumulative Year 2035 No Project Traffic Conditions

### Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Cumulative Year 2035 No Project Traffic Conditions scenario. These warrants are contained in Appendix M. Under this scenario, the following intersections satisfy Warrant 3: a) During the AM peak period only: Chestnut Avenue and Behymer Avenue; and b) During the PM peak period only: Sommerville Drive and Chestnut Avenue; and c) During both peak periods: no unsignalized study intersection.

Based on the traffic signal warrants, operational analysis and engineering judgement, it is recommended that the City consider implementing a traffic signal control at the intersection of Chestnut Avenue and Behymer Avenue. However, it is not recommended that the City consider implementing traffic signal controls at the remaining unsignalized study intersections especially since these operate at acceptable LOS during both peak periods.

### Results of Cumulative Year 2035 No Project Level of Service Analysis

The Cumulative Year 2035 No Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario. Figure 8 illustrates the Cumulative Year 2035 No Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 No Project Traffic Conditions scenario are provided in Appendix K. Table XIII presents a summary of the Cumulative Year 2035 No Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue and Friant Road and Audubon Drive are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.

- Friant Road / Willow Avenue
  - Remove the northbound left-turn lane;
  - Modify the inside northbound through lane to a left-through lane;
  - Remove the southbound left-turn lane;
  - Modify the inside southbound through lane to a left-through lane; and
  - Install a two-lane roundabout for Friant Road and a single lane for Willow Avenue and Birkhead Avenue. The Roundabout should retain the existing free flow right-turn lane from Willow Avenue to an acceleration lane on northbound Friant Road.
- Willow Avenue / Copper Avenue
  - Add a second eastbound left-turn lane;
  - Add a second eastbound through lane;
  - Modify the westbound through-right lane to through lane;
  - Add a second westbound through lane;
  - Add a westbound right-turn lane;

- Add a second northbound left-turn lane;
- Modify the northbound through-right lane to a through lane;
- Add a second northbound through lane with a receiving lane north of Copper Avenue;
- Add a northbound right-turn lane;
- Add a second southbound left-turn lane; and
- Modify the traffic signal to accommodate the added lanes.
- Peach Avenue / Copper Avenue
  - Add a westbound left-turn lane;
  - Modify the westbound left-through lane to a through lane; and
  - Add a two-way left-turn lane on the west leg of Peach Avenue.
- Auberry Road / Copper Avenue
  - Add a westbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- Friant Road / Audubon Drive
  - Modify the traffic signal to implement overlap phasing of the westbound right-turn with the southbound left-turn phase;
  - Prohibit southbound to northbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the southbound right-turn with the eastbound left-turn phase;
  - Prohibit eastbound to westbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase; and
  - Prohibit westbound to eastbound U-turn movements.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.

- Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

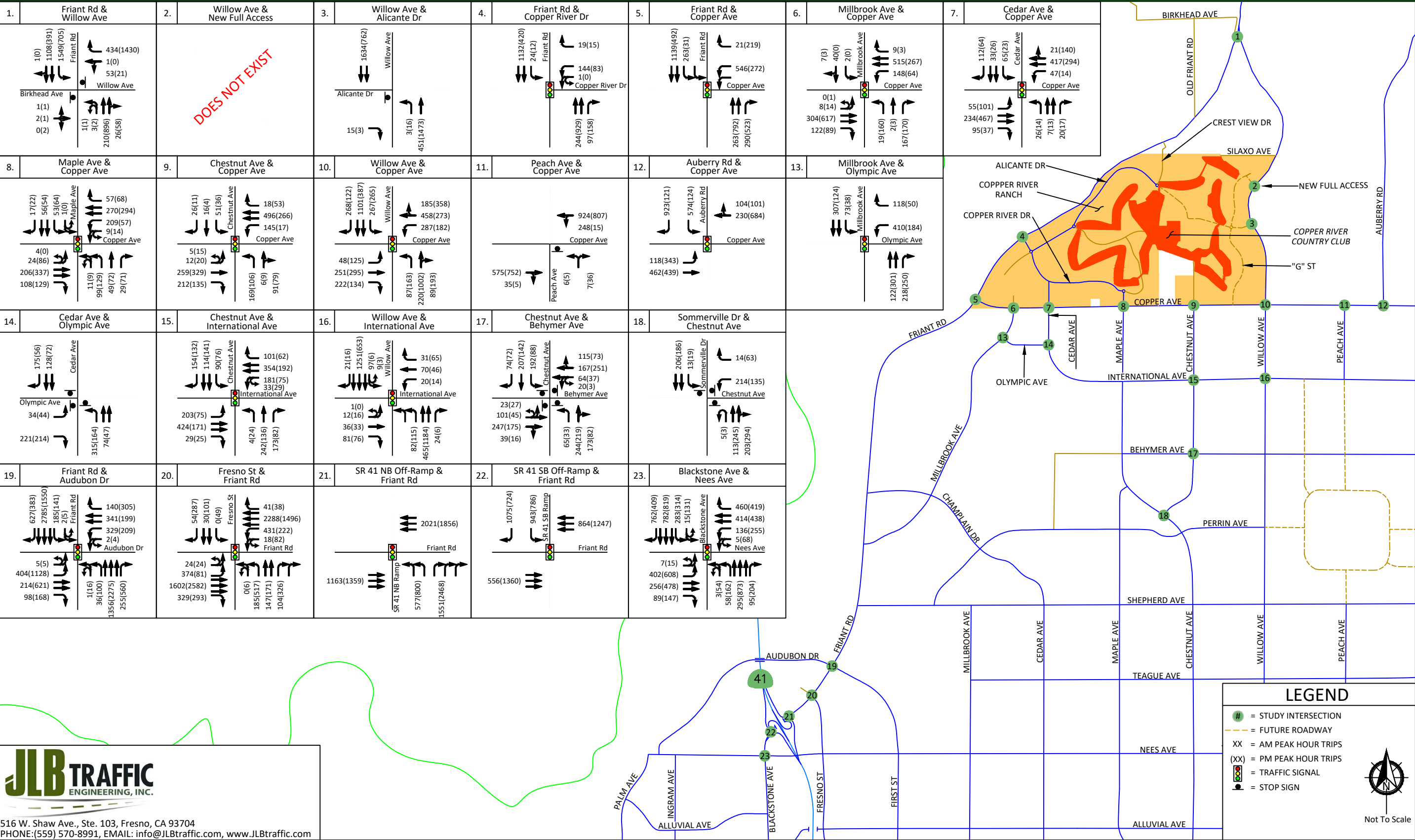
**Table XIII: Cumulative Year 2035 No Project Intersection LOS Results**

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Friant Road / Willow Avenue	Two-Way Stop	>120.0	F	>120.0	F
		Roundabout (Improved)	17.3	C	7.1	A
2	Willow Avenue / New Full Access	Does Not Exist	-	-	-	-
3	Willow Avenue / Alicante Drive	One-Way Stop	18.3	C	11.2	B
4	Friant Road / Copper River Drive	Traffic Signal	10.0	A	7.6	A
5	Friant Road / Copper Avenue	Traffic Signal	16.6	B	11.7	B
6	Millbrook Avenue / Copper Avenue	Traffic Signal	21.1	C	19.3	B
7	Cedar Avenue / Copper Avenue	Traffic Signal	16.0	B	13.6	B
8	Maple Avenue / Copper Avenue	Traffic Signal	25.1	C	18.3	B
9	Chestnut Avenue / Copper Avenue	Traffic Signal	22.2	C	19.4	B
10	Willow Avenue / Copper Avenue	Traffic Signal	64.2	E	>120.0	F
		Traffic Signal (Improved)	38.7	D	37.3	D
11	Peach Avenue / Copper Avenue	One-Way Stop	>120.0	F	20.7	C
		One-Way Stop (Improved)	26.1	D	16.9	C
12	Auberry Road / Copper Avenue	Traffic Signal	59.0	E	38.8	D
		Traffic Signal (Improved)	39.8	D	27.2	C
13	Millbrook Avenue / Olympic Avenue	Traffic Signal	12.9	B	9.7	A
14	Cedar Avenue / Olympic Avenue	All-Way Stop	14.8	B	9.6	A
15	Chestnut Avenue / International Avenue	Traffic Signal	29.4	C	27.6	C
16	Willow Avenue / International Avenue	Traffic Signal	17.5	B	19.1	B
17	Chestnut Avenue / Behymer Avenue	All-Way Stop	89.8	F	21.8	C
		Traffic Signal (Improved)	32.5	C	24.9	C
18	Sommerville Drive / Chestnut Avenue	All-Way Stop	11.3	B	12.6	B
19	Friant Road / Audubon Drive	Traffic Signal	50.4	D	88.0	F
		Traffic Signal (Improved)	48.8	D	79.9	E
20	Fresno Street / Friant Road	Traffic Signal	29.9	C	66.2	E
21	State Route 41 NB Off-Ramp / Friant Road	Traffic Signal	60.7	E	>120.0	F
22	State Route 41 SB Off-Ramp / Friant Road	Traffic Signal	49.8	D	27.3	C
23	Blackstone Avenue / Nees Avenue	Traffic Signal	44.9	D	56.7	E

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.  
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Copper River Ranch SEIR - City of Fresno  
Cumulative Year 2035 No Project - Traffic Volumes, Geometrics and Controls

Figure 8





## Cumulative Year 2035 plus Project Traffic Conditions

### Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project Traffic Conditions scenario. These warrants are contained in Appendix M. Under this scenario, the following intersections satisfy Warrant 3: a) During the AM peak period only: Chestnut Avenue and Behymer Avenue; b) During the PM peak period only: no unsignalized study intersection; and c) During both peak periods: Willow Avenue and Alicante Drive and Sommerville Drive and Chestnut Avenue.

Based on the traffic signal warrants, operational analysis and engineering judgement, it is recommended that the City consider implementing traffic signal controls at the intersections of Willow Avenue and Alicante Drive and Chestnut Avenue and Behymer Avenue. However, it is not recommended that the City consider implementing traffic signal controls at the remaining unsignalized study intersections especially since these operate at acceptable LOS during both peak periods.

### Results of Cumulative Year 2035 plus Project Level of Service Analysis

The Cumulative Year 2035 plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Near Term plus Project Traffic Conditions scenario. Figure 9 illustrates the Project Only Trips (2035), while Figure 10 illustrates the Cumulative Year 2035 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 plus Project Traffic Conditions scenario are provided in Appendix L. Table XIV presents a summary of the Cumulative Year 2035 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Alicante Drive, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue, Friant Road and Audubon Drive and Fresno Street and Friant Road are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.

- Friant Road / Willow Avenue
  - Remove the northbound left-turn lane;
  - Modify the inside northbound through lane to a left-through lane;
  - Remove the southbound left-turn lane;
  - Modify the inside southbound through lane to a left-through lane; and
  - Install a two-lane roundabout for Friant Road and a single lane for Willow Avenue and Birkhead Avenue. The Roundabout should retain the existing free flow right-turn lane from Willow Avenue to an acceleration lane on northbound Friant Road.
- Willow Avenue / Alicante Drive
  - Signalize the intersection with protective left-turn phasing in all directions.



- Willow Avenue / Copper Avenue
  - Add a second eastbound left-turn lane;
  - Add a second eastbound through lane;
  - Add a second westbound left-turn lane;
  - Modify the westbound through-right lane to through lane;
  - Add a second westbound through lane;
  - Add a westbound right-turn lane;
  - Add a second northbound left-turn lane;
  - Modify the northbound through-right lane to a through lane;
  - Add a second northbound through lane with a receiving lane north of Copper Avenue;
  - Add a northbound right-turn lane;
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Peach Avenue / Copper Avenue
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through lane to a through lane; and
  - Add a two-way left-turn lane on the west leg of Peach Avenue.
- Auberry Road / Copper Avenue
  - Add a westbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- Friant Road / Audubon Drive
  - Modify the traffic signal to implement overlap phasing of the westbound right-turn with the southbound left-turn phase;
  - Prohibit southbound to northbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the southbound right-turn with the eastbound left-turn phase;
  - Prohibit eastbound to westbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase; and
  - Prohibit westbound to eastbound U-turn movements.
  - It should be noted that given existing constraints and the ultimate designation for six-lanes on Friant Road, the said improvements are not projected to meet the City's target LOS threshold; however, it is projected they will reduce overall delay by an average of 22 seconds. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable.

- Fresno Street / Friant Road
  - Given existing constraints and the ultimate designation for six-lanes on Friant Road, the number of modifications that can be made at this intersection are limited. JLB analyzed, if implementing an overlap phasing of the northbound right-turn with the westbound left-turn phase; however, it was found that such modifications will result in very low benefit in the reduction of delay while requiring a large number of westbound to eastbound U-turns to be prohibited. As a result, JLB recommends against modifications to this intersection while acknowledging that the City's LOS threshold for this intersection is projected to be exceeded.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
    - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

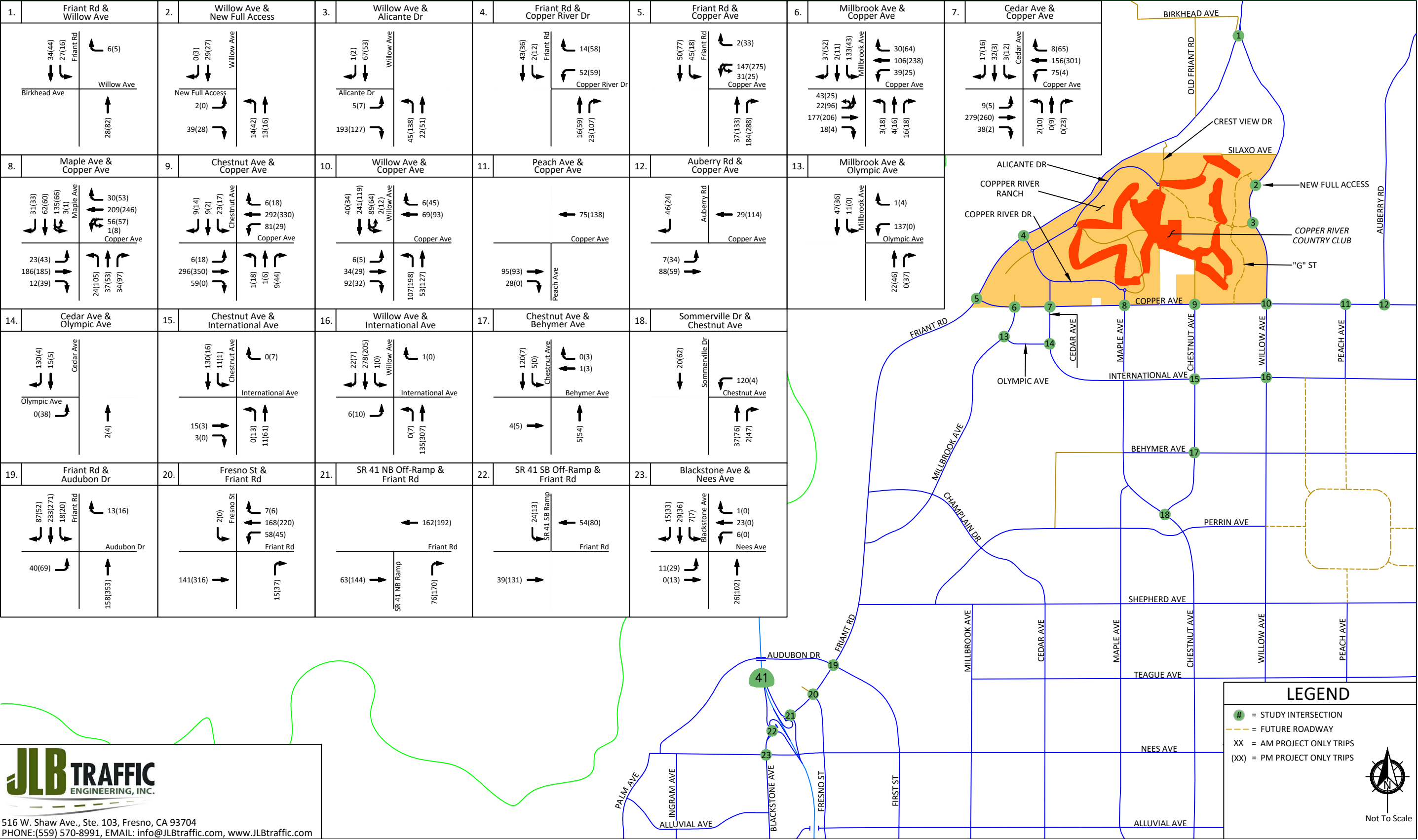
**Table XIV: Cumulative Year 2035 plus Project Intersection LOS Results**

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Friant Road / Willow Avenue	Two-Way Stop	>120	F	>120	F
		Roundabout (Improved)	20.3	C	7.5	A
2	Willow Avenue / New Full Access	One-Way Stop	25.1	D	11.6	B
3	Willow Avenue / Alicante Drive	One-Way Stop	64.6	F	39.8	E
		Traffic Signal (Improved)	17.5	B	52.3	D
4	Friant Road / Copper River Drive	Traffic Signal	11.5	B	12.8	B
5	Friant Road / Copper Avenue	Traffic Signal	22.9	C	16.1	B
6	Millbrook Avenue / Copper Avenue	Traffic Signal	25.7	C	25.6	C
7	Cedar Avenue / Copper Avenue	Traffic Signal	17.7	B	14.8	B
8	Maple Avenue / Copper Avenue	Traffic Signal	21.1	C	23.0	C
9	Chestnut Avenue / Copper Avenue	Traffic Signal	29.8	C	23.0	C
10	Willow Avenue / Copper Avenue	Traffic Signal	115.1	F	>120.0	F
		Traffic Signal (Improved)	46.3	D	39.1	D
11	Peach Avenue / Copper Avenue	One-Way Stop	>120.0	F	25.8	D
		One-Way Stop (Improved)	29.7	D	19.0	C
12	Auberry Road / Copper Avenue	Traffic Signal	65.0	E	51.6	D
		Traffic Signal (Improved)	52.1	D	36.2	D
13	Millbrook Avenue / Olympic Avenue	Traffic Signal	16.1	B	9.2	A
14	Cedar Avenue / Olympic Avenue	All-Way Stop	15.7	C	9.9	A
15	Chestnut Avenue / International Avenue	Traffic Signal	30.1	C	21.7	C
16	Willow Avenue / International Avenue	Traffic Signal	16.6	B	21.3	C
17	Chestnut Avenue / Behymer Avenue	All-Way Stop	112.7	F	31.1	D
		Traffic Signal (Improved)	31.2	C	23.0	C
18	Sommerville Drive / Chestnut Avenue	All-Way Stop	16.3	C	16.2	C
19	Friant Road / Audubon Drive	Traffic Signal	65.4	E	115.2	F
		Traffic Signal (Improved)	63.0	E	92.6	F
20	Fresno Street / Friant Road	Traffic Signal	31.6	C	92.2	F
		Traffic Signal (Improved)	31.2	C	91.9	F
21	State Route 41 NB Off-Ramp / Friant Road	Traffic Signal	83.8	F	>120.0	F
22	State Route 41 SB Off-Ramp / Friant Road	Traffic Signal	52.5	D	28.9	C
23	Blackstone Avenue / Nees Avenue	Traffic Signal	45.6	D	58.4	E

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.  
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

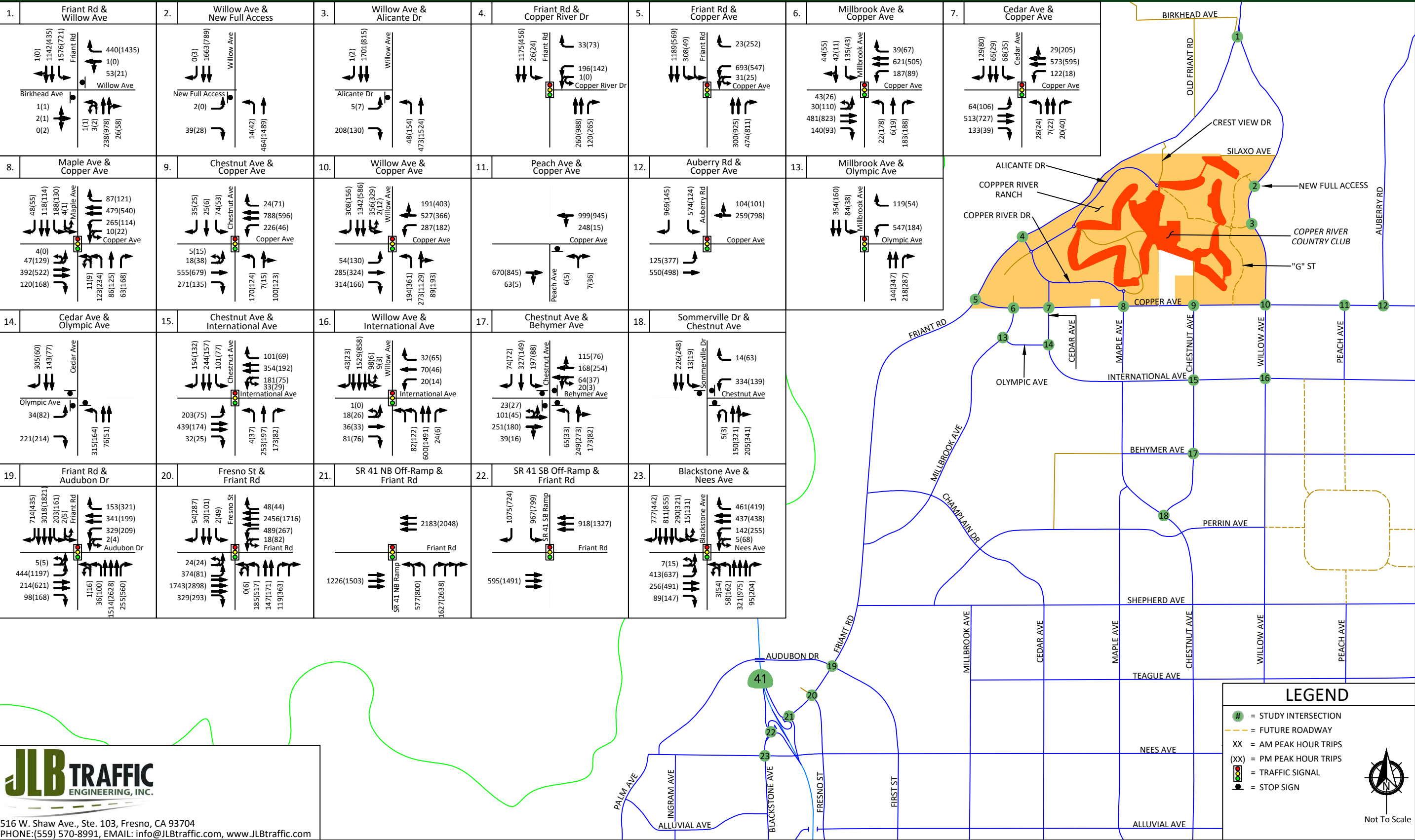
Copper River Ranch SEIR - City of Fresno  
Project Only Trips (2035)

Figure 9



Copper River Ranch SEIR - City of Fresno  
Cumulative Year 2035 plus Project - Traffic Volumes, Geometrics and Controls

Figure 10



## Queuing Analysis

Table XV provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections. Queuing analyses were completed using Sim Traffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the Synchro manual, “the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes.” The queues shown on Table XV are the 95th percentile queue lengths for the respective lane movements.

The *California Highway Design Manual* (CA HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are “usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane” (California Department of Transportation 2020a). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table XV.

The storage capacity for the Cumulative Year 2035 plus Project Traffic Conditions shall be based on the SimTraffic output files and engineering judgement. The values in bold presented in Table XV are the projected queue lengths that will likely need to be accommodated by the Cumulative Year 2035 plus Project Traffic Conditions scenario. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.



**Table XV: Queuing Analysis**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Friant Road / Willow Avenue	EB LTR	>500	13	10	15	7	9	9	16	1	19	1
		WB LT	>500	0	0	0	0	0	0	4	3	5	3
		NB L	200	9	0	0	5	0	0	*	*	*	*
		NB LT	*	*	*	*	*	*	*	134	99	148	121
		NB TR	>500	0	0	0	0	0	7	170	107	176	133
		SB L	300	44	35	42	38	53	44	*	*	*	*
		SB T	>500	0	12	0	0	0	0	*	*	*	*
		SB LT	*	*	*	*	*	*	*	2009	61	<b>2224</b>	65
		SB TR	*	*	*	*	*	*	*	295	34	<b>353</b>	39
2	Willow Avenue / New Access Road	EB L	*	*	*	*	*	*	*	*	*	16	0
		EB R	*	*	*	*	*	*	*	*	*	<b>302</b>	36
		NB L	*	*	*	*	*	*	*	*	*	26	41
		NB T	>500	0	0	0	0	0	0	0	0	0	0
		SB T	>500	0	0	0	0	0	0	535	0	774	0
		SB T	*	*	*	*	*	*	*	549	0	797	0
3	Willow Avenue / Alicante Drive	EB L	*	*	*	16	17	28	15	*	*	7	23
		EB R	*	*	*	95	74	81	67	37	5	<b>153</b>	110
		NB L	*	*	*	*	*	*	*	13	36	78	178
		NB T	>500	0	0	0	0	0	0	0	0	178	279
		SB T	>500	0	0	0	0	0	0	905	0	868	233
		SB T	*	*	*	*	*	*	*	918	0	877	235
		SB R	*	*	*	*	*	*	*	*	*	0	17
4	Friant Road / Copper River Drive	WB LL	200	47	36	73	48	72	45	61	33	58	47
		WB R	200	22	13	24	19	38	15	25	18	24	45
		NB T	>500	63	62	71	87	91	73	67	151	101	170
		NB T	>500	57	55	54	91	80	87	65	160	80	167
		NB R	215	56	69	63	73	66	66	52	58	52	85
		SB L	250	37	34	72	41	42	43	30	25	50	54
		SB T	>500	71	47	64	62	82	71	157	71	172	86
		SB T	>500	64	43	50	66	68	62	131	84	157	74

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	Friant Road / Copper Avenue	WB LL	250	104	53	190	139	251	185	145	88	219	189
		WB R	>300	35	22	19	27	18	28	16	89	19	132
		NB T	>500	56	55	70	99	81	94	70	136	89	206
		NB T	>500	70	61	89	123	90	226	99	133	115	222
		NB R	200	78	73	131	165	129	253	97	138	134	<b>274</b>
		SB LL	200	61	23	79	37	84	33	88	40	106	51
		SB T	>500	63	64	93	86	90	97	142	75	195	109
		SB T	>500	59	66	92	79	91	103	132	75	176	102
6	Millbrook Avenue / Copper Avenue	EB L	250	14	10	63	93	53	113	16	35	79	117
		EB T	>500	0	0	78	140	119	167	71	122	114	181
		EB T	>500	0	0	106	132	124	148	88	109	120	181
		EB R	160	0	0	47	30	40	34	50	51	57	60
		WB L	250	40	29	129	83	123	107	107	55	163	93
		WB T	>500	0	0	203	133	200	183	156	49	204	143
		WB T	>500	0	0	160	79	130	87	80	37	160	108
		WB R	250	0	0	31	27	23	28	8	0	26	31
		NB L	125	23	38	47	55	34	60	33	102	43	<b>156</b>
		NB T	>500	8	16	19	44	19	52	11	28	21	64
		NB R	>300	52	61	70	72	71	84	68	65	59	101
		SB L	170	8	0	129	55	142	66	8	0	124	63
		SB TR	>500	24	7	50	56	30	47	38	18	54	69

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
7	Cedar Avenue / Copper Avenue	EB L	260	44	90	67	115	74	128	70	81	75	104
		EB T	>500	22	30	112	94	142	122	52	73	109	169
		EB T	>500	58	55	139	103	156	145	87	87	123	167
		EB R	250	14	13	27	18	22	20	26	15	40	22
		WB L	250	22	27	96	51	163	46	68	41	117	37
		WB T	>500	72	59	163	145	187	160	127	89	223	195
		WB TR	>500	44	38	132	114	173	133	84	100	151	258
		NB L	200	48	29	38	38	41	53	43	30	65	42
		NB T	>500	0	21	14	32	13	25	14	21	13	25
		NB T	>500	0	10	10	21	0	25	7	7	19	20
		NB R	200	11	12	14	26	13	28	12	21	18	23
		SB L	100	34	39	64	53	54	54	70	42	78	56
		SB T	>500	24	28	34	23	42	25	37	34	37	27
		SB T	>500	34	32	54	28	59	35	40	22	68	33
		SB R	100	60	53	78	55	89	47	51	45	75	51
8	Maple Avenue / Copper Avenue	EB L	175	33	50	53	81	74	132	53	80	91	152
		EB T	>500	59	90	127	172	148	187	50	127	109	169
		EB T	>500	48	87	115	134	118	181	53	84	85	155
		EB R	200	29	37	39	52	40	48	47	42	52	63
		WB LL	250	41	44	70	64	77	73	116	75	154	88
		WB T	>500	54	61	142	149	153	225	81	98	129	162
		WB T	>500	43	55	140	164	146	207	73	86	121	181
		WB R	250	24	34	36	65	36	73	33	39	46	111
		NB LL	225	44	40	84	61	70	76	57	65	62	106
		NB T	>500	51	38	68	95	76	101	42	59	65	100
		NB R	>300	17	19	40	51	28	55	24	41	38	54
		SB LL	175	43	43	77	90	89	81	36	58	98	77
		SB T	>500	52	43	101	120	91	135	52	64	83	91
		SB T	>500	9	0	63	68	33	62	26	9	25	48
		SB R	220	14	12	29	38	41	41	19	18	23	40

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
9	Chestnut Avenue / Copper Avenue	EB L	*	*	*	49	68	54	79	31	49	61	204
		EB LT	>500	70	71	*	*	*	*	*	*	*	*
		EB T	*	*	*	375	320	424	313	129	119	380	388
		EB R	>300	60	52	79	39	108	54	53	41	76	162
		WB L	*	*	*	153	59	181	67	162	39	214	67
		WB LT	>500	74	57	*	*	*	*	*	*	*	*
		WB T	*	*	*	137	140	129	182	126	59	167	168
		WB T	*	*	*	130	174	120	220	126	72	155	180
		WB R	120	19	20	17	69	33	125	28	41	27	54
		NB L	150	56	58	173	113	143	130	124	88	134	120
		NB TR	>500	33	32	115	54	102	93	74	64	104	77
		SB L	120	23	10	68	34	93	82	53	51	76	60
		SB T	>500	18	13	30	10	35	14	29	12	60	17
		SB R	100	46	25	36	26	33	32	25	14	38	25

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
10	Willow Avenue / Copper Avenue	EB L	250	28	40	33	58	51	76	*	*	*	*
		EB LL	*	*	*	*	*	*	*	36	102	52	85
		EB T	>500	74	100	110	203	203	260	161	193	196	155
		EB T	*	*	*	*	*	*	*	127	152	293	118
		EB R	150	32	30	64	102	136	51	179	66	270	94
		WB L	>500	95	90	129	95	130	147	348	248	*	*
		WB LL	*	*	*	*	*	*	*	*	*	194	223
		WB T	*	*	*	*	*	*	*	273	127	253	173
		WB T	*	*	*	*	*	*	*	189	140	218	162
		WB TR	>500	119	116	168	197	170	249	*	*	*	*
		WB R	*	*	*	*	*	*	*	51	208	76	253
		NB L	250	73	80	159	272	152	316	*	*	*	*
		NB LL	*	*	*	*	*	*	*	77	335	261	356
		NB T	*	*	*	*	*	*	*	169	707	292	731
		NB T	*	*	*	*	*	*	*	132	617	168	748
		NB TR	>500	64	115	86	280	109	327	*	*	*	*
		NB R	*	*	*	*	*	*	*	53	360	72	366
		SB L	*	0	0	79	101	74	115	*	*	*	*
		SB LL	*	*	*	*	*	*	*	525	421	549	668
		SB T	*	0	0	62	72	91	71	1809	229	1277	899
		SB T	*	0	0	92	91	97	93	1821	255	1269	709
		SB R	*	0	0	38	42	51	41	355	163	339	324
11	Peach Avenue / Copper Avenue	EB R	*	*	*	*	*	*	*	*	*	7	0
		EB TR	*	*	*	*	*	*	*	7	0	*	*
		WB L	*	*	*	*	*	*	*	80	34	126	36
		WB LT	>500	8	0	17	0	7	8	*	*	*	*
		NB LR	>500	19	0	32	0	14	0	34	45	15	44

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12	Auberry Road / Copper Avenue	EB L	*	*	*	80	98	92	109	133	313	229	<b>391</b>
		EB LT	>500	55	55	*	*	*	*	*	*	*	*
		EB T	*	*	*	31	74	54	82	225	228	316	471
		WB T	*	*	*	*	*	*	*	186	396	276	454
		WB TR	>500	0	0	135	111	111	156	*	*	*	*
		WB R	*	*	*	*	*	*	*	58	<b>200</b>	64	198
		SB L	*	*	*	67	100	72	92	<b>413</b>	117	411	191
		SB LR	>500	106	72	*	*	*	*	*	*	*	*
		SB R	*	*	*	70	61	85	60	707	94	<b>1183</b>	118
13	Millbrook Avenue / Olympic Avenue	WB L	>300	105	56	213	92	295	92	229	100	266	114
		WB R	>300	43	27	44	22	51	31	47	21	39	34
		NB T	>500	41	51	42	57	57	53	48	61	47	89
		NB T	>500	63	47	67	63	74	71	70	65	67	88
		NB R	160	73	64	86	66	87	75	74	72	82	74
		SB L	100	41	35	99	38	102	44	75	47	<b>103</b>	48
		SB T	>500	55	51	76	48	77	68	94	47	120	61
		SB T	>500	47	38	58	31	58	39	56	28	78	45
14	Cedar Avenue / Olympic Avenue	EB L	>300	40	34	35	35	34	38	34	36	40	46
		EB R	>300	50	45	62	57	56	51	59	53	55	49
		NB L	200	96	53	104	54	86	52	111	63	124	58
		NB T	>500	47	43	47	47	47	44	45	44	46	42
		NB T	>500	44	32	44	44	41	43	43	42	44	42
		SB T	>500	41	44	49	45	41	43	42	41	47	43
		SB T	>500	39	38	50	41	54	41	52	42	51	38
		SB R	100	45	38	67	40	88	40	63	47	80	42

Note: \* = Does not exist or is not projected to exist



**Table V: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
15	Chestnut Avenue / International Avenue	EB L	200	222	83	235	93	182	87	243	96	305	98
		EB T	>500	139	69	158	60	185	65	140	72	308	72
		EB T	>500	158	75	158	72	198	71	147	74	187	62
		EB R	200	34	27	29	28	34	30	28	31	35	27
		WB L	250	209	102	208	121	240	198	265	90	232	109
		WB T	>500	154	104	173	121	160	144	232	110	182	103
		WB T	>500	129	56	138	77	144	85	158	66	137	40
		WB R	150	43	40	53	44	54	47	54	47	52	52
		NB L	200	12	42	28	37	26	50	15	39	20	55
		NB T	>500	158	90	225	102	254	157	174	89	212	154
		NB R	100	111	45	171	39	185	33	134	53	172	47
		SB L	200	62	87	119	65	143	75	136	76	165	80
		SB T	>500	65	84	91	87	116	93	89	81	116	76
		SB T	>500	21	42	51	15	70	21	39	38	80	34
		SB R	200	27	29	26	40	23	44	51	37	54	42
16	Willow Avenue / International Avenue	EB L	250	33	22	42	32	25	41	25	37	36	52
		EB T	>500	41	34	35	39	49	37	33	36	64	43
		EB R	>300	41	35	62	45	57	33	64	64	67	60
		WB L	50	41	25	32	25	43	29	50	23	50	18
		WB T	>500	42	47	61	42	62	51	79	53	58	81
		WB R	20	29	29	53	26	40	28	36	37	36	56
		NB LL	250	42	46	39	53	46	69	55	56	58	208
		NB T	>500	82	91	92	194	109	204	118	281	144	1232
		NB T	>500	39	54	26	149	61	171	92	271	150	1221
		NB R	100	12	5	5	3	10	4	7	4	17	0
		SB L	250	36	25	36	20	47	24	124	27	134	34
		SB T	>500	39	47	67	82	79	77	257	196	245	260
		SB T	>500	42	50	71	77	86	89	266	242	291	284
		SB T	>500	38	39	68	78	90	86	265	254	320	314
		SB R	220	8	15	30	29	36	26	39	27	35	35

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
17	Chestnut Avenue / Behymer Avenue	EB L	250	113	72	140	101	133	95	194	78	154	126
		EB T	>500	112	70	105	87	117	83	104	75	104	68
		EB T	>500	113	74	105	89	85	71	111	56	109	69
		EB R	120	34	21	39	18	45	22	43	20	37	21
		WB L	250	96	51	109	76	113	46	90	57	121	52
		WB T	>500	103	107	79	102	106	113	116	127	91	115
		WB T	>500	54	68	56	77	64	72	55	84	66	64
		WB R	100	49	53	53	51	53	54	63	55	62	69
		NB L	100	101	42	108	49	99	91	113	63	116	95
		NB TR	>500	227	111	186	140	288	170	286	156	309	170
		SB L	120	129	68	123	86	162	91	202	87	197	103
		SB T	>500	141	81	165	97	166	115	193	92	222	92
		SB R	120	33	32	29	34	27	33	60	34	115	42
18	Sommerville Drive / Chestnut Avenue	WB L	>300	87	62	96	64	116	85	113	58	148	63
		WB R	>300	34	30	29	34	24	35	39	48	32	53
		SB L	150	26	29	20	26	30	26	32	32	24	29
		SB T	>500	51	32	47	47	48	54	48	38	52	45
		SB T	>500	44	51	43	47	48	42	51	42	38	52
		NB U	150	23	19	20	10	27	16	18	14	21	10
		NB T	>500	32	42	46	49	49	59	38	47	42	58
		NB TR	>500	49	66	59	71	64	73	58	79	71	80

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
19	Friant Road / Audubon Drive	EB LL	250	408	359	386	343	343	346	402	350	390	356
		EB T	>500	1168	1666	1762	1507	1766	1489	1361	1637	1682	1534
		EB T	>500	132	1824	1525	1767	1480	1806	644	1766	1049	1810
		EB R	150	74	82	110	86	137	154	99	164	127	226
		WB LL	250	154	135	209	161	222	116	256	143	276	166
		WB T	>500	173	122	254	157	243	160	203	161	235	146
		WB T	>500	171	113	208	166	222	170	214	210	186	325
		WB R	100	98	119	78	152	100	158	185	177	83	226
		NB LL	450	30	58	38	70	46	79	49	151	48	81
		NB T	>500	316	367	187	550	149	261	144	711	205	262
		NB T	>500	371	397	215	577	181	291	172	611	230	317
		NB T	>500	377	418	238	566	204	309	179	617	257	340
		NB R	>300	126	217	90	168	100	161	75	364	102	181
		SB LL	250	269	94	283	274	316	365	305	320	306	397
		SB T	>500	2011	282	2865	490	2944	477	3149	440	2982	1291
		SB T	>500	2057	332	2902	471	2945	452	3130	456	2989	1209
		SB T	>500	2081	321	2901	477	2946	445	3128	443	2986	1077
		SB R	350	598	101	572	297	553	298	600	193	454	459

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
20	Fresno Street / Friant Road	EB LL	250	210	45	396	137	288	136	<b>386</b>	110	367	187
		EB T	>500	218	352	834	523	349	621	647	659	922	643
		EB T	>500	268	387	638	585	406	712	565	785	874	810
		EB T	>500	305	413	468	615	476	761	595	851	710	787
		EB R	150	178	270	244	234	321	276	318	301	353	<b>359</b>
		WB LL	250	192	322	299	386	267	367	336	361	<b>371</b>	264
		WB T	>500	398	328	722	1162	308	394	1528	518	1438	385
		WB T	>500	492	390	957	986	399	375	1534	325	1487	420
		WB T	>500	502	413	786	700	449	414	1528	347	1463	476
		WB R	150	223	195	210	157	78	177	289	133	<b>296</b>	78
		SB L	220	0	84	0	112	0	124	0	91	0	114
		SB T	>500	57	138	46	134	62	128	88	163	64	122
		SB T	>500	41	70	0	117	0	240	0	80	10	278
		SB R	220	57	218	56	242	100	272	87	229	67	<b>289</b>
		NB LL	250	149	374	137	378	175	368	277	362	<b>398</b>	339
		NB T	>500	83	583	83	669	141	636	210	509	554	529
		NB T	>500	65	330	75	343	70	134	163	251	483	323
		NB RR	150	47	139	49	176	57	198	56	<b>172</b>	53	164
21	SR 41 NB Off-Ramp / Friant Road	NB LL	>500	214	266	292	283	258	234	253	281	265	258
		NB R	>500	0	0	0	75	0	0	0	105	0	81
		EB T	>500	185	448	301	600	374	560	437	673	380	667
		EB T	>500	154	337	210	524	243	489	373	668	251	641
		EB T	>500	130	271	211	374	252	355	324	422	227	417
		WB T	>500	373	337	1157	745	772	1024	1352	436	1386	917
		WB T	>500	854	647	1309	931	1084	1158	1168	751	1370	1208
		WB T	>500	885	726	1252	947	1028	1163	1138	804	1281	1191

Note: \* = Does not exist or is not projected to exist

**Table XV: Queuing Analysis (Continued)**

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2035 No Project		Cumulative Year 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
22	SR 41 SB Off-Ramp / Friant Road	EB T	>500	68	122	82	153	61	137	179	216	214	223
		EB T	>500	72	137	83	197	76	195	198	218	237	247
		EB T	>500	137	204	140	293	161	220	265	271	299	278
		WB T	>500	111	243	112	278	121	225	268	270	308	593
		WB T	>500	102	163	95	212	118	178	196	211	174	297
		WB T	>500	148	132	187	152	174	159	297	171	288	225
		SB L	250	227	254	236	260	226	303	418	379	1010	<b>1171</b>
		SB R	250	153	148	216	169	204	211	409	366	481	<b>494</b>
23	Blackstone Avenue / Nees Avenue	EB LL	250	423	376	410	376	421	371	<b>404</b>	374	379	383
		EB T	>500	1718	3903	2120	3969	3194	3841	2224	3813	3607	3785
		EB T	>500	1749	3989	2051	4019	3173	3900	2210	3922	3608	3823
		EB R	160	61	168	37	98	46	209	65	164	36	<b>199</b>
		WB LL	250	74	231	89	253	93	215	151	254	170	<b>306</b>
		WB T	>500	115	268	129	334	151	277	264	313	311	408
		WB T	>500	113	416	157	434	157	397	307	394	331	511
		WB R	200	144	277	168	290	151	294	285	286	253	<b>304</b>
		NB LL	250	56	196	43	226	54	176	61	199	71	214
		NB T	>500	35	1459	50	1476	62	1179	121	397	66	2079
		NB T	>500	62	1571	128	1516	122	1232	188	468	131	2061
		NB T	>500	128	1673	182	1591	178	1305	261	499	203	2109
		NB R	150	50	627	42	633	46	564	76	342	47	<b>608</b>
		SB LL	250	110	394	106	283	89	354	105	241	162	<b>392</b>
		SB T	>500	105	479	85	176	117	383	85	189	196	517
		SB T	>500	130	290	102	175	133	189	135	218	231	303
		SB T	>500	119	174	111	217	163	194	147	220	408	263
		SB R	150	179	164	184	231	211	214	192	190	<b>319</b>	243

Note: \* = Does not exist or is not projected to exist

## Prior EIR Mitigation Measures

Since the approval of Project EIR (2003), several of the recommended roadway widening mitigation measures have been implemented. Table XVI below identifies the recommended improvements that have been implemented. Additionally, since the adoption of the 2003 Project EIR the City of Fresno updated general plan in 2014. As part of the current *Fresno General Plan*, the Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp. However, City Council made the appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road. As a result of this change in the Fresno General Plan, further changes to the segments of Friant Road between the SR 41 SB Off-Ramp and Audubon Drive would no longer be necessary as three or more lanes in each direction are currently in place. Therefore, these segments of Friant Road should be removed as mitigation measures of the Project, and that the Projects traffic impacts be considered significant and unavoidable.



**Table XVI: Recommended vs. Implemented Improvements - Project EIR (2003)**

ID	Segment of...	Project EIR (2003)	
		Recommended Improvements	Implemented Improvements
Friant Road between...			
A	SR 41 NB Off-Ramp - SR 41 SB Off-Ramp	8 lanes	6 lanes
B	SR 41 NB Off-Ramp - Fresno Street	8 lanes	6 lanes
C	Fresno Street - Audubon Drive	8 lanes	7 lanes
D	Audubon Drive - Shepherd Avenue	6 lanes	6 lanes
E	Shepherd Avenue - Fort Washington Road	6 lanes	6 lanes
Copper Avenue between...			
A	Peach Avenue - Auberry Road	4 lanes	2 lanes
Willow Avenue between...			
A	Herndon Avenue - Alluvial Avenue	4 lanes	5 lanes
B	Alluvial Avenue - Nees Avenue	4 lanes	6 lanes
C	Nees Avenue - Teague Avenue	6 lanes	6 lanes
D	Teague Avenue - Shepherd Avenue	8 lanes	6 lanes
E	Shepherd Avenue - Perrin Avenue	6 lanes	6 lanes
F	Perrin Avenue - Behymer Avenue	4 lanes	6 lanes
G	Behymer Avenue - International Avenue	4 lanes	6 lanes
H	International Avenue - Copper Avenue	4 lanes	5-lanes
I	Copper Avenue - South Project Road	4 lanes	2-lanes
J	South Project Road - North Project Road	4 lanes	2-lanes
Chestnut Avenue between...			
A	Nees Avenue - Shepherd Avenue	4 lanes	4-lanes
Shepherd Avenue between...			
A	Minnewawa Avenue - Fowler Avenue	4 lanes	2-3 lanes
B	Fowler Avenue - Temperance Avenue	4 lanes	3 lanes
Herndon Avenue between...			
A	Willow Avenue - Peach Avenue	6 lanes	6 lanes
B	Peach Avenue - Villa Avenue	6 lanes	6 lanes
C	Villa Avenue - Clovis Avenue	6 lanes	6 lanes
D	Clovis Avenue - Fowler Avenue	6 lanes	6 lanes
E	Tollhouse Road - De Wolf Avenue	4 lanes	2-5 lanes

## Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

### *Existing Traffic Conditions*

- Based on a review of the collision reports during the most recent five-year period, a total of 92 collisions were reported within the influence zone of the study intersections. Considering the inherent factors of these collision reports, no evidence was found to suggest that the modification of lane geometrics or traffic controls are justified, with the exception of Auberry Road and Copper Avenue.
  - The intersection of Auberry Road and Copper Avenue experienced one (1) fatality as a result of a broadside collision caused by a right-of-way violation. After thorough review of the data contained within the collision reports, installation of a traffic signal control would reduce the number of broadside collisions. At the time of the preparation of this Report, Fresno County had prepared construction documents for installation of a traffic signal control that would reduce the number of broadside collisions experienced at the intersection. It is worth noting that while installation of a traffic signal control is expected to reduce broadside collisions, it may increase the number of rear-end collisions.
- At present, the intersections of Willow Avenue and Copper Avenue and Chestnut Avenue and Behymer Avenue exceeds their LOS thresholds during the AM peak period only. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.
  - Willow Avenue / Copper Avenue
    - Add an eastbound left-turn lane;
    - Modify the eastbound left-through-right lane to a through lane;
    - Add an eastbound right-turn lane;
    - Add a westbound left-turn lane;
    - Modify the westbound left-through lane to a through-right lane;
    - Remove the westbound right-turn lane;
    - Add a northbound left-turn lane;
    - Modify the northbound left-through-right lane to a through-right lane; and
    - Signalize the intersection with protective left-turn phasing in all directions.
  - Chestnut Avenue / Behymer Avenue
    - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold this segment of Friant Road.

- The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
  - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
  - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

### *Existing plus Project Traffic Conditions*

- JLB analyzed the location of the existing and proposed roadways and access points relative to the existing and proposed roadways and access points in the vicinity of Project site. A review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway network.
- Per Project EIR (2003), the existing Project development was estimated to generate a maximum of 33,935 daily trips, 2,062 AM peak hour trips and 3,167 PM peak hour trips.
- At buildout, the proposed Project is estimated to generate a maximum of 46,149 daily, 3,162 AM peak hour and 4,280 PM peak hour total driveway trips.
- Overall, the proposed Project is estimated to yield 12,214 more daily, 1,100 more AM peak hour and 1,113 more PM peak hour trips.
- Considering the Project components that remain for construction only, the proposed Project is estimated to generate a maximum of 33,233 daily, 2,235 AM peak hour and 2,940 PM peak hour total driveway trips.
- This TIA does not consider reductions in the Project's anticipated trip generation as a result of internal capture or pass-by trips. Since internal capture and pass-by trips are not deducted from the Project's estimated maximum trip generation, this TIA represents a worst-case-scenario.
- It is recommended that the Project implement bicycle facilities consistent with the Fresno ATP within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement Class II Bikeways along Alicante Drive and Maple Avenue. Moreover, it is recommended that the Project implement Class II Bikeways along Winery Avenue-Road 'G'. Adjacent to the Project site, it is recommended that the Project implement Class I Bikeways along its frontage to Copper Avenue and Willow Avenue. Similarly, it is recommended that the Project implement Class II Bikeways along its frontage to Willow Avenue and Copper Avenue.
- It is recommended that the Project implement pedestrian sidewalks and Class I Bike Paths consistent with the Fresno ATP within and adjacent to the Project site. Within the Project site, it is recommended that the Project implement pedestrian sidewalks along remaining and future portions of Alicante Drive. Moreover, it is recommended that the Project implement pedestrian sidewalks along Winery Avenue-Road 'G'. Adjacent to the Project site, it is recommended that the Project implement pedestrian walkways along its frontage to Friant Road and Copper Avenue. Similarly, it is recommended that the Project implement Class I Bike Paths along its frontage to Willow Avenue and Copper Avenue.

- Based on discussions between the Project proponent and Fresno FAX staff, FAX staff has indicated that there is little to no transit demand for this area of the City and as a result a transit route to serve the project is not feasible in the foreseeable future. While there is little to no transit demand in this part of the City, the Project proposes to provide street infrastructure which could accommodate transit stops in the future.
- Based on the VMT results of the Fresno COG ABM, Project components containing residential land uses (subject to VMT analysis) are projected to exceed the City's VMT threshold. Considering all feasible VMT mitigation measures identified mitigate effects to the maximum extent feasible, the Project's VMT impacts for residential land uses are significant but unavoidable.
- Based on the VMT results of the Fresno COG ABM, Project components containing retail land uses (subject to VMT analysis) are projected to reduce the Regional VMT. Therefore, there are no impacts to VMT associated with retail land uses.
- Most of the areas are well-developed with walkways and intersection controls, but there are a few exceptions. Therefore, it is recommended that the CUSD work with the City of Fresno to implement a Safe Routes to School plan and seek grant funding to help build walkways where they are lacking within a one-mile radius of the existing school sites.
- Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, it is recommended that the following improvements be considered for implementation.
  - Chestnut Avenue / Behymer Avenue
    - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
    - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

### *Near Term plus Project Traffic Conditions*

- The total trip generation for the Near Term Projects is 41,306 weekday daily trips, 2,851 weekday AM peak hour trips and 3,888 weekend PM peak hour trips.
- Under this scenario, the intersection of Chestnut Avenue and Behymer Avenue is projected to exceed the LOS threshold during the AM peak period only. To improve the LOS at this intersection, it is recommended that the following improvements be considered for implementation.
  - Chestnut Avenue / Behymer Avenue
    - Signalize the intersection with protective left-turn phasing in all directions.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
    - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

### *Cumulative Year 2035 No Project Traffic Conditions*

- Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue and Friant Road and Audubon Drive are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.
  - Friant Road / Willow Avenue
    - Remove the northbound left-turn lane;
    - Modify the inside northbound through lane to a left-through lane;
    - Remove the southbound left-turn lane;
    - Modify the inside southbound through lane to a left-through lane; and
    - Install a two-lane roundabout for Friant Road and a single lane for Willow Avenue and Birkhead Avenue. The Roundabout should retain the existing free flow right-turn lane from Willow Avenue to an acceleration lane on northbound Friant Road.

- Willow Avenue / Copper Avenue
  - Add a second eastbound left-turn lane;
  - Add a second eastbound through lane;
  - Modify the westbound through-right lane to through lane;
  - Add a second westbound through lane;
  - Add a westbound right-turn lane;
  - Add a second northbound left-turn lane;
  - Modify the northbound through-right lane to a through lane;
  - Add a second northbound through lane with a receiving lane north of Copper Avenue;
  - Add a northbound right-turn lane;
  - Add a second southbound left-turn lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Peach Avenue / Copper Avenue
  - Add a westbound left-turn lane;
  - Modify the westbound left-through lane to a through lane; and
  - Add a two-way left-turn lane on the west leg of Peach Avenue.
- Auberry Road / Copper Avenue
  - Add a westbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- Friant Road / Audubon Drive
  - Modify the traffic signal to implement overlap phasing of the westbound right-turn with the southbound left-turn phase;
  - Prohibit southbound to northbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the southbound right-turn with the eastbound left-turn phase;
  - Prohibit eastbound to westbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase; and
  - Prohibit westbound to eastbound U-turn movements.
- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.



- The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
  - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
  - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

### *Cumulative Year 2035 plus Project Traffic Conditions*

- Under this scenario, the intersections of Friant Road and Willow Avenue, Willow Avenue and Alicante Drive, Willow Avenue and Copper Avenue, Peach Avenue and Copper Avenue, Auberry Avenue and Copper Avenue, Chestnut Avenue and Behymer Avenue, Friant Road and Audubon Drive and Fresno Street and Friant Road are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be considered for implementation.
  - Friant Road / Willow Avenue
    - Remove the northbound left-turn lane;
    - Modify the inside northbound through lane to a left-through lane;
    - Remove the southbound left-turn lane;
    - Modify the inside southbound through lane to a left-through lane; and
    - Install a two-lane roundabout for Friant Road and a single lane for Willow Avenue and Birkhead Avenue. The Roundabout should retain the existing free flow right-turn lane from Willow Avenue to an acceleration lane on northbound Friant Road.
  - Willow Avenue / Alicante Drive
    - Signalize the intersection with protective left-turn phasing in all directions.
  - Willow Avenue / Copper Avenue
    - Add a second eastbound left-turn lane;
    - Add a second eastbound through lane;
    - Add a second westbound left-turn lane;
    - Modify the westbound through-right lane to through lane;
    - Add a second westbound through lane;
    - Add a westbound right-turn lane;
    - Add a second northbound left-turn lane;
    - Modify the northbound through-right lane to a through lane;
    - Add a second northbound through lane with a receiving lane north of Copper Avenue;
    - Add a northbound right-turn lane;
    - Add a second southbound left-turn lane; and
    - Modify the traffic signal to accommodate the added lanes.

- Peach Avenue / Copper Avenue
  - Add an eastbound right-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add a westbound left-turn lane;
  - Modify the westbound left-through lane to a through lane; and
  - Add a two-way left-turn lane on the west leg of Peach Avenue.
- Auberry Road / Copper Avenue
  - Add a westbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the added lanes.
- Chestnut Avenue / Behymer Avenue
  - Signalize the intersection with protective left-turn phasing in all directions.
- Friant Road / Audubon Drive
  - Modify the traffic signal to implement overlap phasing of the westbound right-turn with the southbound left-turn phase;
  - Prohibit southbound to northbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the southbound right-turn with the eastbound left-turn phase;
  - Prohibit eastbound to westbound U-turn movements;
  - Modify the traffic signal to implement overlap phasing of the northbound right-turn with the westbound left-turn phase; and
  - Prohibit westbound to eastbound U-turn movements.
  - It should be noted that given existing constraints and the designation of an ultimate six-lane facility on Friant Road, the above improvements are not projected to meet the City's target LOS threshold for this intersection; however, it is projected to reduce delay by an average of 22 seconds. Therefore, the traffic impacts at this intersection are considered adverse but unavoidable.
- Fresno Street / Friant Road
  - Given existing constraints and the designation of an ultimate six-lane facility on Friant Road, the number of modifications that could be made at this intersection are limited. JLB analyzed, if implementing an overlap phasing of the northbound right-turn with the westbound left-turn phase; however, it was found that such modifications will result in very low benefit in the reduction of delay while requiring a large number of westbound to eastbound U-turns to be prohibited. As a result, JLB recommends against modifications to this intersection while acknowledging that the City's LOS threshold for this intersection is projected to be exceeded.

- State Route 41 Northbound Off-Ramp / Friant Road
  - Consistent with the *Fresno General Plan* Circulation Element, Friant Road already exists as a six-lane divided arterial between Audubon Drive and Nees Avenue.
  - The *Fresno General Plan* Circulation Element acknowledged that Friant Road would exceed LOS D as a six-lane facility between Shepherd Avenue and State Route 41 Southbound Off-Ramp and made appropriate findings to designate the maximum number of lanes to three (3) in each direction while exceeding the City's standard LOS threshold for this segment of Friant Road.
  - The Caltrans' State Route 41 TCR also acknowledged that State Route 41 would exceed LOS D as an eight-lane freeway between El Paso Avenue and the Fresno/Madera County line and made the appropriate findings to designate LOS F as the LOS threshold for this segment of State Route 41.
    - City of Fresno VMT Guidelines, make clear that any capacity enhancing transportation projects may have a significant VMT impact and be subject to a detailed analysis that would include measuring induced travel likely requiring infeasible VMT mitigation measures.
    - Considering the *Fresno General Plan* Circulation Element, the Caltrans State Route 41 TCR and the City of Fresno VMT Guidelines, the traffic impacts at this intersection are considered adverse but unavoidable.

### *Queuing Analysis*

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

### *Prior EIR Mitigation Measures*

- The current Fresno General Plan included the appropriate findings to designate the maximum number of lanes on Friant Road south of Audubon Drive to three (3) in each direction. As a result, further changes to the segments of Friant Road between the SR 41 SB Off-Ramp and Audubon Drive would no longer be necessary as three or more lanes in each direction are currently in place. Therefore, these segments of Friant Road should be removed as mitigation measures of the Project, and that the Project's traffic impacts be considered significant and unavoidable.

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